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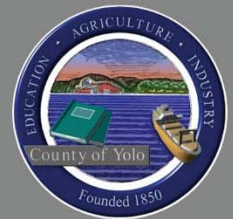


**Yolo Habitat Conservation Plan/
Natural Community Conservation Plan**

Draft

**Environmental Impact Statement/
Environmental Impact Report**

May 2017



PREPARED FOR:
**Yolo Habitat Conservancy
and U.S. Fish and Wildlife Service**

Yolo Habitat Conservation Plan/ Natural Community Conservation Plan

Draft Environmental Impact Statement/ Environmental Impact Report

State Clearinghouse No. 2011102043

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AAR	Association of American Railroads
AB	Assembly Bill
AB 52	Assembly Bill 52
ACHP	Advisory Council on Historic Preservation
af	acre-feet
AIRFA	American Indian Religious Freedom Act of 1978
ALP	Airport Layout Plan
ALUC	Airport Land Use Commission
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
AMM	Avoidance and Minimization Measure
ARB	California Air Resource Board
AVA	American Viticultural Area
Basin Plans	Water Quality Control Plans
BAU	business-as-usual
BDCP	Bay Delta Conservation Plan
BLM	Bureau of Land Management
BLS	U.S. Department of Labor Bureau of Labor Statistics
BMP	best management practice
BPTMP	<i>West Sacramento Bicycle, Pedestrian, and Trails Master Plan</i>
CAA	federal Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalARP	California Accidental Release Prevention
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CBC	California Building Code
CBSC	California Building Standards Code
CCAA	California Clean Air Act
CCAP	Cache Creek Area Plan
CCR	California Code of Regulations
CCR	California Code of Regulations
CCRMP	<i>Cache Creek Resources Management Plan</i>
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission

CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	<i>Methane</i>
CHP	California Highway Patrol
CLUPs	comprehensive land use plans
CMP	Congestion Management Process
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
COG	council of governments
Commission	Delta Protection Commission
Conservancy	Yolo Habitat Conservancy
County	Yolo County
CPUC	California Public Utilities Commission
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
Delta Trail	Great California Delta Trail
DFD	Davis Fire Department
DOC	California Department of Conservation
DOF	California Department of Finance
DPC	Delta Protection Commission
DPR	California Department of Pesticide Regulation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water resources
EIR	environmental impact report

EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EMS	emergency medical services
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning Community Right-to-Know Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMCSA	Federal Motor Carrier Safety Administration
FMMP	Farmland Mapping and Monitoring Program
FP	Forest Practice Act
FPD	fire protection districts
FPPA	Farmland Protection Policy Act
FPR	California Forest Practice Rules
FR	Federal Register
FRA	Federal Railroad Administration
FTA	Federal Transit Authority
GHG	greenhouse gas
GIS	geographic information system
GWP	global warming potential
HAP	hazardous air pollutant
HCD	California Department of Housing and Community Development
HCP/NCCP or Plan	Yolo Habitat Conservation Plan/Natural Community Conservation Plan
HFC	hydrofluorocarbon
HUD	Housing and Urban Development
I-5	Interstate 5
I-505	Interstate 505
I-80	Interstate 80
IA	Implementing Agreement
IPCC	Intergovernmental Panel on Climate Change
IRWMP	Yolo County Integrated Regional Water Management Program
ISO	overall fire insurance
ITP	incidental take permit
LAFCO	Local Agency Formation Commission
lb/day	pounds per day

LCC	Land Capability Classification System
L _{dn}	day-night level
L _{eq}	Equivalent sound level
LFPZ	Levee Flood Protection Zones
L _{max}	Maximum sound level
L _{min}	Minimum sound level
LMP	Land Management Plan
LNWI	Lower Northwest Interceptor
LOS	level of service
LPCCC	Lower Putah Creek Coordinating Committee
LRA	Local Responsibility Area
LSAA	Lake and Streambed Alteration Agreement
LURMP	Land Use & Resource Management Plan
LUST	leaking underground storage tank
L _x	Percentile-exceeded sound level
Master Plan	Parks and Open Space Master Plan
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
mg/L	milligrams per liter
MMT	million metric tons
MOU	memorandum of understanding
MPO	metropolitan planning organization
MRZ	<i>Mineral resource zone</i>
MSL	mean sea level
MTIP	Metropolitan Transportation Improvement Program
MTP	Metropolitan Transportation Plan
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
N ₂ O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NBHCP	Natomas Basin Habitat Conservation Plan
NCCPA	California Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for hazardous air pollutants
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NOA	naturally-occurring asbestos
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
OCMP	Off-Channel Mining Plan for Lower Cache Creek
OSHA	federal Occupational Safety and Health Administration
OWT	on-site wastewater treatment system
Permit Applicants	Yolo Habitat Conservancy, Yolo County, City of Davis, City of West Sacramento, City of Winters, and City of Woodland
Permittees	Yolo Habitat Conservancy, Yolo County, City of Davis, City of West Sacramento, City of Winters, and City of Woodland
PG&E	Pacific Gas and Electric
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM	particulate matter
PPC	public protection classification
PRC	Public Resources Code
proposed action or “Plan”	Yolo HCP/NCCP
RHNA	Regional Housing Needs Allocation
RHNP	Regional Housing Needs Plans
ROG	reactive organic gases
RTP	regional transportation plan
RUCS	Rural-Urban Connections Strategy
RWQCB	regional water quality control board
SACOG	Sacramento Area Council of Governments
SB5-2007	California Senate Bill 5
SCS	sustainable communities strategy
SCWA	Solano County Water Agency
SHPO	State Historic Preservation Officer
SIP	state implementation plans
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO ₂	sulfur dioxide
Solano HCP	Solano Multi-Species HCP
SR	State Route
SRA	State Responsibility Area
SRCSD	Sacramento Regional County Sanitation District
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSHCP	South Sacramento Habitat Conservation Plan
SVAB	Sacramento Valley Air Basin
SWAP 2015	California State Wildlife Action Plan 2015 Update

SWMP	Storm Water Management Program
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TIP	Transportation Improvement Program
TMA	Transportation Management Areas
TMDL	total maximum daily load
TPY	tons per year
UCDPD	University of California Davis Police Department
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	US Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VMT	vehicle miles traveled
WDR	waste discharge requirement
WFD	Woodland Fire Department
Wildlife Agencies	USFWS and CDFW
Wildlife Area	Yolo Bypass Wildlife Area
WPD	Winters Police Department
WRCC	Western Regional Climate Center
WSAFCA	West Sacramento Flood Control Agency
WSFD	West Sacramento Fire Department
WWTP	wastewater treatment plants
YCAC	Yolo County Agricultural Commissioner
YCEHS	Yolo County Environmental Health Services
YCTD	Yolo County Transportation District
YDFD	Yocha Dehe Fire Department
Yolo County General Plan	<i>Yolo County 2030 Countywide General Plan</i>
Yolo HCP/NCCP	<i>Yolo Habitat Conservation Plan/Natural Communities Conservation Plan</i>
YSAQMD	Yolo Solano Air Quality Management District

EXECUTIVE SUMMARY

INTRODUCTION

The Yolo Habitat Conservancy (Conservancy), which is a joint powers agency organized under California law and consists of Yolo County and the incorporated cities of Davis, West Sacramento, Winters, and Woodland, has developed the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan). This HCP/NCCP provides the basis for issuance of long-term species “take” permits under the federal Endangered Species Act (FESA) and California Natural Community Conservation Planning Act (NCCPA) that cover an array of public and private activities, including activities that are essential to the ongoing viability of Yolo County’s agricultural and urban economies. Specifically, the Permittees (i.e., Yolo County, the four incorporated cities, and the Conservancy) are applying for permits from both the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) for take of 12 covered species resulting from five categories of covered activities. This action is pursuant to Section 10(a)(1)(B) of the FESA and Section 2835 of the NCCPA chapter of the California Fish and Game Code (Fish & Game Code). The purpose of developing the Yolo HCP/NCCP is to facilitate obtaining an incidental take permit (ITP) from the USFWS and a NCCPA permit from CDFW and to develop a long-term conservation strategy to protect and contribute to the conservation and management of covered species and natural communities in Yolo County while allowing for development and maintenance activities that are compatible with other local policies and regulations. The area covered by the proposed HCP/NCCP encompasses all of Yolo County, California (Exhibit ES-1. *Location of the Plan Area*).

This Environmental Impact Statement/Environmental Impact Report (EIS/EIR) evaluates the potential impacts of the Proposed Action and alternatives to approving the Proposed Action (including a No Action Alternative). The Plan (or Proposed Action Alternative) would include issuance of permits by USFWS and CDFW (collectively referred to as the Wildlife Agencies) for take of 12 covered species resulting from five categories of covered activities, and approval of an implementing agreement (IA) for the proposed Plan. The EIS/EIR 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); the President’s Council on Environmental Quality (CEQ) guidelines on implementing NEPA; CESA (Fish and Game Code, Sections 86 and 2050-2085); the California Environmental Quality Act (CEQA (Pub. Res. Code Secs. 21000-21178.1); and the State CEQA Guidelines.

As explained in more detail in the following section, the purpose of this EIS/EIR is to inform agency decision makers and the public regarding the potential environmental effects of the Proposed Action and alternatives, whether such effects are significant, potential measures to mitigate significant effects, and potential alternatives that could reduce significant adverse environmental impacts.

OVERVIEW OF NEPA AND CEQA COMPLIANCE

National Environmental Policy Act

NEPA provides an interdisciplinary framework for federal agencies to inform themselves, other federal, state, tribal, and local governmental entities, and the public of the possible effects upon the environment that may result from implementing proposed federal actions. NEPA also contains action-forcing procedures to ensure that federal agency decision makers consider environmental values alongside technical and economic considerations that are inherent factors in federal decision making when making a decision on whether and to what extent a proposed action, or an alternative, should be implemented. NEPA applies to all federal agencies in the executive branch and to most of the activities they manage, regulate, or fund that affect the

human environment. It requires all agencies to consider the potential environmental consequences of their proposed actions, to disclose those potential effects to the public and, when required by law or regulation, seek public comment and input on those effects. It is also intended to foster intergovernmental coordination and cooperation and to enhance public participation in government planning and decision making. CEQ has adopted regulations and other guidance that provides detailed procedures that federal agencies must follow to implement NEPA. In addition to the CEQ's NEPA regulations, each agency has implemented their own NEPA implementing procedures, frequently through the issuance of regulations, that recognize each agency's unique mandate and mission.

A primary intent of this joint EIS/EIR is to support Lead Agency compliance with NEPA. The USFWS, as the Lead Agency under NEPA, has determined that the decision to permit a regional HCP/NCCP in Yolo County may result in a significant effect upon the environment, and that an EIS must be prepared in order to fully comply with their NEPA obligations. NEPA requires federal agencies to consider and disclose the environmental effects of their proposed actions (in this instance, USFWS issuance of an ITP), and include public participation in the planning and implementation of their actions.

California Environmental Quality Act

CEQA requires state and local agencies to estimate and evaluate the environmental implications of their actions and seeks to prevent adverse environmental impacts of those actions by requiring those agencies, when feasible, to avoid or reduce significant environmental impacts. The State CEQA Guidelines are the primary source of rules and, together with published court decisions, interpretation of CEQA.

A primary intent of this joint EIS/EIR is to support Lead Agency compliance with CEQA. According to CEQA, if a lead agency determines that a project may have a significant effect on the environment, the lead agency shall prepare an EIR (CCR Section 15064(f)(1)). The Conservancy, as the Lead Agency under CEQA, has determined that the proposed HCP/NCCP may result in a significant impact on the environment, and an EIR must be prepared. A primary intent of this EIS/EIR is to support Conservancy and Responsible/Trustee Agency compliance with CEQA (Responsible and Trustee Agencies are listed below in the section titled *Joint NEPA/CEQA Document*).

An EIR is an informational document used to inform public agency decision-makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. State and local government agencies are required to consider the information presented in the EIR when determining whether to approve a project.

CEQA requires that state and local government agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects. CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency must prepare and issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that make those significant effects acceptable (PRC Section 21000 et seq.; CCR Section 15093).

Joint NEPA/CEQA Document

When a project is subject to review under both NEPA and CEQA, state and local agencies are encouraged to cooperate with federal agencies in the environmental review process and to prepare a joint environmental

document. NEPA refers to the activity evaluated in an EIS as a proposal for *action* by a federal entity, whereas CEQA refers to the activity as a proposed *project* undertaken, supported, or permitted by a public agency. This document uses the term Proposed Action Alternative to refer to the HCP/NCCP and all federal, state, and local agency actions or approvals that would be issued or undertaken based on it.

As stated previously, USFWS is the Lead Agency responsible for compliance under NEPA, and the Conservancy is the Lead Agency with responsibility for compliance under CEQA. Several other agencies have responsibility for implementing or approving the proposed Plan and are considered Responsible Agencies under CEQA. CDFW is the Responsible Agency with responsibility for approving the NCCP portion of the Plan and issuing take permits for state-listed species. The member agencies of the Conservancy, Yolo County, and the Cities of Davis, West Sacramento, Winters, and Woodland, are also Responsible Agencies with responsibility for approving and implementing the proposed Plan. Although representatives of the member agencies are on the Conservancy Board of Directors, and will make decisions related to the HCP/NCCP and EIS/EIR as the CEQA lead agency, the member agencies themselves must make decisions and findings after the Conservancy, as CEQA responsible agencies. All lead and responsible agencies must make findings that they have independently reviewed this document and that it is adequate for decision making.

CEQA also identifies Trustee Agencies, which are state agencies “having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California.” (CEQA Guidelines Section 15386). CDFW is a Trustee Agency as well as a Responsible Agency relative to the Plan and this EIS/EIR. If any Plan activities would occur on State owned “sovereign” lands such as the beds of navigable waters and state school lands, the California State Lands Commission could act as a Trustee Agency. The State Department of Parks and Recreation and the University of California (U.C.) are also considered Trustee Agencies, but there are no State Parks potentially affected by the Plan, U.C. Davis is not a participant in the Plan and no U.C. lands would be affected by the Plan.

PLAN AREA AND PROJECT ALTERNATIVES

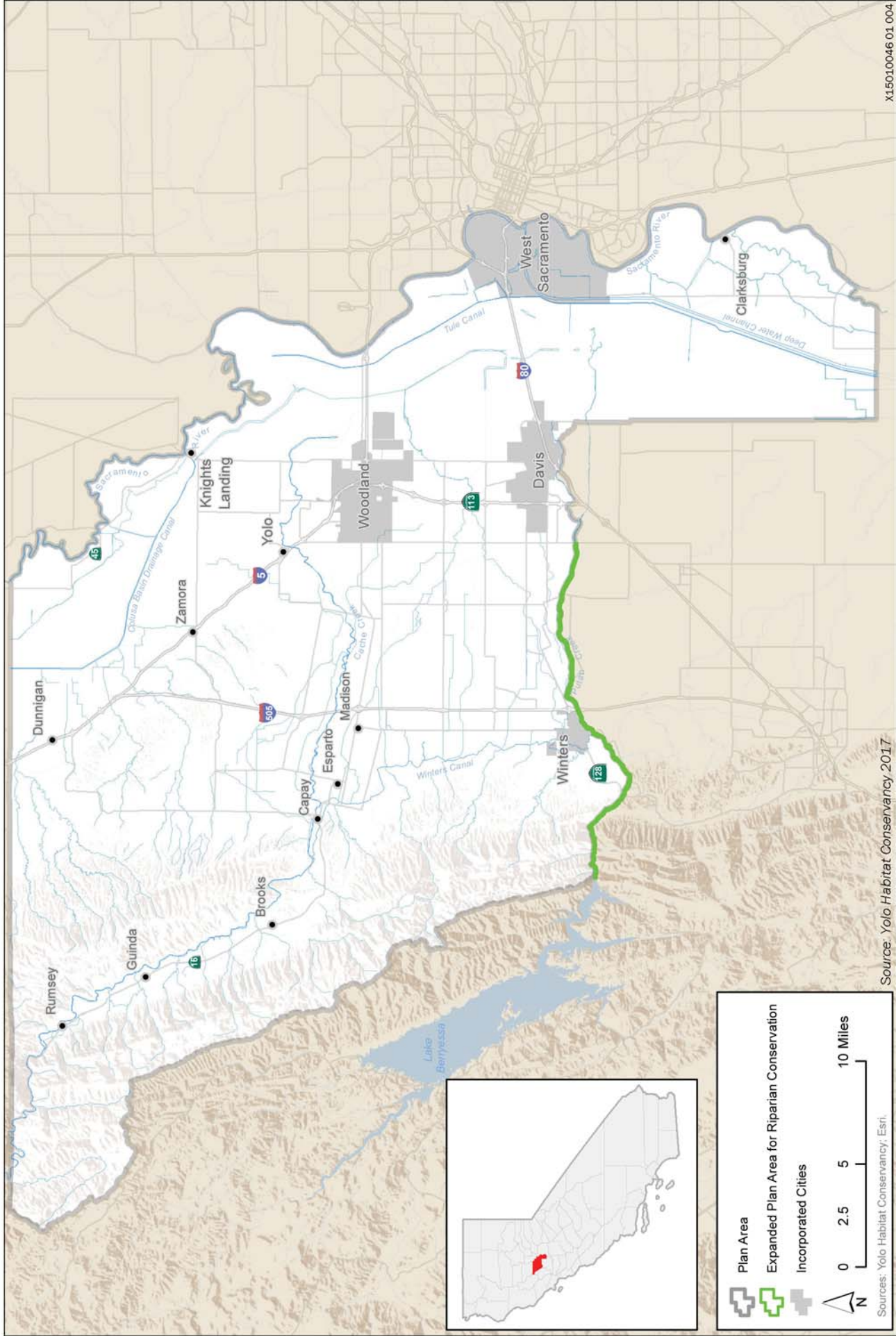
The alternatives evaluated in this EIS/EIR are summarized below. For a detailed discussion of the proposed action, and alternatives, see Chapter 2, *Proposed Action and Alternatives*. As the lead agencies, the Conservancy and USFWS, in conjunction with the other federal and state agencies, have developed the following alternatives for consideration.

- ▲ Alternative A—No Action Alternative (No Permit/No Plan Implementation)
- ▲ Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)
- ▲ Alternative C—Reduced Take Alternative
- ▲ Alternative D—Reduced Development Alternative

Plan Area

For purposes of this EIS/EIR, the Plan Area boundary includes all of Yolo County (Exhibit ES-1), located in the northern reach of California’s Central Valley mid-way between San Francisco Bay and the Lake Tahoe basin. This also constitutes the area for which the Conservancy is requesting authorization from USFWS and CDFW for take of covered species.

As described in Chapter 2, the Plan also includes the potential for purchase of conservation easements and establishment of preserves along a portion of the south side of Putah Creek in Solano County, as illustrated in Exhibit ES-1. No other private or public projects within Solano County will be eligible for take coverage under the Wildlife Agency permits for the Plan. This location is referred to as the expanded Plan Area. In most cases, the Plan Area is the key term used in this document and the expanded Plan Area is only mentioned when it plays a role in the effects analysis.



Source: Yolo Habitat Conservancy 2017

X15010046 01 004



Location of the Plan Area

Exhibit ES-1

Alternative A—No Action Alternative (No Permit/No Plan Implementation)

Under the No Action Alternative, permits would not be issued by USFWS or CDFW for incidental take of the proposed covered species through a regional HCP or NCCP. As a result, the Permit Applicants, private developers within their jurisdictions, and other public agencies in the Plan Area would remain subject to the take prohibition for federally listed species under FESA and for state-listed species under CESA. The Permit Applicants and others that have ongoing activities or future actions in the Plan Area that may result in the incidental take of federally listed species would apply, on a project-by-project basis, for incidental take authorization from USFWS through FESA Section 7 (when a federal agency is involved) or Section 10 (for nonfederal actions). Similarly, Permit Applicants and others whose ongoing activities or future actions have the potential for incidental take of state-listed species in the Plan Area would apply for incidental take authorization under CESA through a Section 2081(b) permit.

Under the No Action Alternative, development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., general plans, specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with the applicable general plans). The 50-year study period extends beyond the horizon year for the available plans and it is assumed that growth and development would continue beyond each plan's horizon consistent with past growth rates assumed in each applicable planning document.

Under the No Action Alternative, because the Permit Applicants, other local agencies, and private developers would generate environmental documentation and apply for permits on a project-by-project basis, there would be no established comprehensive means to coordinate and standardize mitigation and compensation requirements of FESA, NCCPA, CEQA, and NEPA within the Plan Area. This is anticipated to result in a more costly, and less efficient project review process that would be unlikely to maximize conservation benefits. Coordinated conservation planning and implementation would not happen on a Plan Area-wide basis as proposed in the Yolo HCP/NCCP. Consequently, the establishment of a system of conservation lands to meet the needs of the species covered by the Yolo HCP/NCCP would not occur. In addition, in the absence of regulatory incentives provided by the Plan, the integration of species conservation into the existing agricultural working landscape contemplated in the Plan may not occur.

Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)

This alternative consists of issuance of ITPs by USFWS and CDFW; approval and execution of the IA for the Yolo HCP/NCCP; and approval and implementation of the HCP/NCCP by the Permittees. The Yolo HCP/NCCP is a regional, comprehensive plan that establishes a framework for complying with state and federal endangered species requirements for the Permittees while accommodating compatible future land use and development under the general plans and other applicable planning documents of the local agencies. The Yolo HCP/NCCP is intended to establish and implement a program to conserve ecologically important resources in the Plan Area. The Permit Applicants preparing the Plan are listed below.

- ▲ Yolo County
- ▲ City of Davis
- ▲ City of West Sacramento
- ▲ City of Winters
- ▲ City of Woodland
- ▲ Yolo Habitat Conservancy

The Yolo HCP/NCCP identifies a range of covered activities which are specific projects and activities within the jurisdictions listed above in the Plan Area that may result in the take of listed species or species that

may become listed during the 50-year permit term (covered species). For the purpose of the HCP/NCCP, covered activities are organized into the following categories and subcategories.

- ▲ Urban projects and activities.
 - General urban development
 - Urban public services, infrastructure, and utilities
 - Urban projects in rural areas
- ▲ Rural projects and activities.
 - General rural development
 - Rural public services, infrastructure, and utilities
 - Agricultural economic development
 - Open space
 - Aggregate mining
- ▲ Public and private operations and maintenance
- ▲ Conservation strategy implementation and covered activities on reserve lands
- ▲ Neighboring landowner protection program

These activities are considered when assessing the total amount of take of covered species that would be expected in the Plan Area and in developing the overall Yolo HCP/NCCP conservation strategy. A summary of the proposed action is presented in Chapter 2, describing the Plan Area, the covered activities, the covered species, and the proposed conservation strategy.

Alternative C-Reduced Take Alternative

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under Alternative C, there are eight geographic areas (shown in six insets in Exhibit 2-6) designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. These locations are in the vicinity of Clarksburg, Davis, the Dunnigan Specific Plan, West Sacramento, and Woodland and are shown in Exhibit 2-6. Table 2-10 identifies the size of each of the eight areas. The total area in which take would not be permitted under the Reduced Take Alternative is 1,335 acres.

It is assumed for the purposes of this alternative that any currently planned development that does not occur in the eight locations due to the take restriction could be displaced to another location within the Plan Area. However, any displaced development would also be subject to the take restriction and no take of covered species would be permitted at any new locations.

Other than assuming that no take of covered species would occur in the identified 1,335 acres, and that development could be displaced to another location under the same take restriction, all other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, Avoidance and Minimization Measures (AMMs), monitoring, funding) remain the same under this alternative.

Alternative D-Reduced Development Alternative

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under Alternative D, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, are assumed to not be included in the covered activities (insets A and B respectively in Exhibit 2-7). The portion of the Dunnigan Specific Plan selected for exclusion from covered activities under this Alternative covers approximately 1,012 acres and the Elkhorn Specific Plan Area covers approximately 383 acres. In each of

these two areas it is assumed that some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the Yolo HCP/NCCP; therefore, the HCP/NCCP would not be available as a mechanism to address losses of covered species. Any permitting required for compliance with FESA or CESA for future development would be undertaken for each of these two areas individually on a project by project basis. Permitting and mitigation would be implemented in a manner similar to the No Action Alternative.

Other than characteristics described above, all other elements of the Plan (e.g., covered species, remaining covered activities, Plan Area, conservation strategy, AMMs, monitoring, funding) remain the same under this alternative.

ENVIRONMENTAL CONSEQUENCES

A key issues analysis was completed early in the EIS/EIR planning process to identify environmental resource topics warranting analysis in the EIS/EIR. The list of potential resources considered was derived from the CEQ regulations for implementing NEPA, Appendix G of the CEQA Guidelines, and input received from the public during the project scoping period. The key issues analysis identified the following resources that could be affected by the proposed action or alternatives or were identified during scoping as resources of concern and are addressed in the following EIS/EIR chapters:

- ▲ Chapter 4 – Biological Resources
- ▲ Chapter 5 – Land Use
- ▲ Chapter 6 – Agricultural Resources
- ▲ Chapter 7 – Public Services and Utilities
- ▲ Chapter 8 – Recreation and Open Space
- ▲ Chapter 9 – Hydrology and Water Quality
- ▲ Chapter 10 – Population and Housing
- ▲ Chapter 11 – Socioeconomics and Environmental Justice
- ▲ Chapter 12 – Cultural Resources
- ▲ Chapter 13 – Transportation
- ▲ Chapter 14 – Noise
- ▲ Chapter 15 – Air Quality
- ▲ Chapter 16 – Climate Change
- ▲ Chapter 17 – Geology, Soils, and Mineral Resources
- ▲ Chapter 18 – Visual Resources
- ▲ Chapter 19 – Hazardous Materials

Each chapter describes the existing environment that could be affected by the Proposed Action and alternatives, regulatory conditions that could affect the impact analysis, impact analysis methods and assumptions, criteria used to assess the significance of environmental effects, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

All covered activities are subject to the approval authority of one or more of the Permittees with jurisdiction over such projects. Issuance of permits by the Wildlife Agencies provides compliance only with FESA and the NCCPA. Approval of the proposed HCP/NCCP does not confer or imply approval to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis under CEQA and, in some cases, NEPA for those projects involving federal agencies. This EIS/EIR is intended to provide compliance with CEQA and NEPA for all covered activities regarding impacts to covered species and other biological resources that would be authorized by a Section 10(a)(1)(B) permit pursuant to the FESA and Section 2835 of the NCCPA chapter of the Fish & game Code. As the Proposed Action facilitates the covered activities by addressing certain of the various statutory and regulatory requirements tied to project

authorization, reasonably foreseeable environmental effects of the covered activities are discussed herein to provide context for the analysis of the Proposed Action and various alternatives.

Table ES-1 summarizes impacts on species discussed in Chapter 4, *Biological Resources*. In general, biological resources conservation under the Proposed Action, Reduced Take, and Reduced Development Alternatives would be better than if no HCP/NCCP were in place (i.e., the No Action Alternative). Therefore, the impacts associated with these alternatives is frequently considered beneficial.

Table ES-2 summarizes the environmental impacts of the alternatives for each environmental resource topic evaluated in this EIS/EIR and identifies any mitigation measures applied to reduce significant adverse impacts. Impacts are summarized for the Proposed Action, Reduced Take, and Reduced Development Alternatives.

Table ES-1 Impacts on Species Considered

Species Common Name	Covered Species?	Proposed Action Alternative Impacts	Reduced Take Alternative Impacts	Reduced Development Alternative Impacts
Palmate-bracted bird's-beak	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Valley elderberry longhorn beetle	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
California tiger salamander	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Western pond turtle	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Giant garter snake	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Swainson's hawk	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
White-tailed kite	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Western burrowing owl	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Least Bell's vireo	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Bank swallow	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Tricolored blackbird	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Western yellow-billed cuckoo	Yes	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Special-status plants	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Special-status vernal pool invertebrates	No	NEPA = LTS CEQA = LTS	NEPA = LTS CEQA = LTS	NEPA = LTS CEQA = LTS
Special-status amphibians	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Special-status birds	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Special-status bats	No	NEPA = B CEQA = LTS with mitigation	NEPA = B CEQA = LTS with mitigation	NEPA = B CEQA = LTS with mitigation
American badger	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Special-status fish species	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Sensitive habitat types including wetlands and other waters of the United States	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS
Wildlife movement corridors	No	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS	NEPA = B CEQA = LTS

Notes: B = Beneficial, LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

	Impact	Significance before Mitigation		Mitigation Measure
		NEPA	CEQA	
4 Biological Resources				
Effect Bio-1: Palmate-bracted bird's-beak.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-2: Valley elderberry longhorn beetle.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-3: California tiger salamander.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-4: Western pond turtle.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-5: Giant garter snake.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-6: Swainson's hawk.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-7: White-tailed kite.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-8: Western burrowing owl.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-9: Least bell's vireo.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-10: Bank swallow.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-11: Tricolored blackbird.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-12: Western yellow-billed cuckoo.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-13: Special-status plants not covered by Yolo HCP/NCOP.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-14: Special-status vernal pool invertebrates.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-15: Special-status amphibians not covered by Yolo HCP/NCOP.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-16: Special-status birds not covered by Yolo HCP/NCOP.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-17: Special-status bats.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-18: American badger.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-19: Special-status fish species.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect Bio-21: Wildlife movement corridors.		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = B	PAA, RTA, RDA = LTS	
Proposed Action Alternative = PAA		Reduced Take Alternative = RTA		Reduced Development Alternative = RDA
B = Beneficial		LTS = Less than significant	PS = Potentially significant	S = Significant
				SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

	Impact	Significance before Mitigation		Mitigation Measure
		NEPA	CEQA	
5 Land Use				
Effect LAND-1: Physically divide an established community.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect LAND-2: Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect LAND-3: Conflict with any applicable habitat conservation plan or natural community conservation plan.		PAA = PS RTA = LTS RDA = LTS	PAA = PS RTA = LTS RDA = LTS	Mitigation Measure LAND-1: Agreement with SCWA Before adopting the HCP/NCCP, the Conservancy must enter into an agreement with SCWA recognizing that the Conservancy's acquisition areas must not conflict with the covered activities of the Solano Multi-Species HCP. The agreement should ensure that implementing the Yolo HCP/NCCP would not preclude the implementation of the Solano Multi-Species HCP. <i>Impact reduced to less than significant with mitigation.</i>
Cumulative Effects		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
6 Agricultural Resources				
Effect AG-1: Potential to convert farmland to non-agricultural use.		PAA = LTS RTA = LTS RDA = LTS	PAA = SU RTA = SU RDA = SU	No further mitigation is feasible.
Effect AG-2: Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract.		PAA, RTA, RDA = LTS	PAA = LTS RTA = SU RDA = SU	No mitigation is required.
Effect AG-3: Conflict with existing zoning/loss of forest land.		PAA = B RTA = LTS RDA = LTS	PAA = B RTA = SU RDA = SU	No mitigation is required.
Cumulative Effects		PAA = B RTA = LTS RDA = LTS	PAA = SU RTA = SU RDA = SU	

Proposed Action Alternative = PAA	Reduced Take Alternative = RTA	Reduced Development Alternative = RDA	
		S = Significant	SU = Significant and unavoidable
B = Beneficial	LTS = Less than significant		

Table ES-2 Summary of Impacts and Mitigation Measures

Impact	Significance before Mitigation		Mitigation Measure
	NEPA	CEQA	
7 Public Services and Utilities			
Effect PSU-1: Changes in the Demand for, or Provision of, Public Services and Utilities.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
8 Recreation and Open Space			
Effect REC-1: Potential increase in use of recreation facilities or demand for recreation opportunities such that substantial deterioration would occur.	PAA, RTA, RDA = B	PAA, RTA, RDA = B	No mitigation is required.
Effect REC-2: Potential construction or expansion of recreational facilities.	PAA, RTA, RDA = B	PAA, RTA, RDA = B	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = B	PAA, RTA, RDA = B	
9 Hydrology and Water Quality			
Effect HYDRO-1: Result in a violation of any water quality standard or waste discharge requirement.	PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Effect HYDRO-2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HYDRO-3: Substantially alter the existing drainage pattern in a manner that would result in substantial erosion, siltation, and/or environmental harm, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding.	PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Effect HYDRO-4: Create or contribute runoff water that would provide substantial additional sources of polluted runoff, exceed the capacity of existing or planned stormwater drainage systems or otherwise substantially degrade water quality.	PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Effect HYDRO-5: Place housing, or place structures that would impede or redirect flood flows within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map, or within the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas; within a 100-year flood hazard area.	PAA = LTS RTA = B RDA = B	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HYDRO-6: Expose people or structures to a substantial risk of loss, injury or death involving flooding from the failure of a levee or dam.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Proposed Action Alternative = PAA		Reduced Take Alternative = RTA	Reduced Development Alternative = RDA
B = Beneficial	LTS = Less than significant	PS = Potentially significant	S = Significant SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

Impact		Significance before Mitigation		Mitigation Measure
		NEPA	CEQA	
Cumulative Effects		PAA = LTS RTA = B RDA = B	PAA, RTA, RDA = LTS	
10 Population and Housing				
	Effect HP-1: Potential to induce substantial population growth in the Plan Area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
	Effect HP-2: Potential to displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
11 Socioeconomics and Environmental Justice				
	Effect SOC-1: Substantially change economic activity within the Plan Area	PAA = B RTA = LTS RDA = LTS	–	No mitigation is required.
	Effect EJ-1: Substantially affect property tax revenue.	PAA, RTA, RDA = LTS	–	No mitigation is required.
	Effect EJ-2: Substantially disproportionately affect minority or low-income populations.	PAA, RTA, RDA = LTS	–	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = LTS	–	
12 Cultural and Paleontological Resources				
	Effect CUL-1: Change in the significance of historical resources	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
	Effect CUL-2: Disturb archaeological resources and human remains.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
	Effect CUL-3: Disturb a paleontological resource.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
13 Transportation				
	Effect TRAN-1: Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
	Effect TRAN-2: Conflict with an applicable congestion management program.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Proposed Action Alternative = PAA				
B = Beneficial		LTS = Less than significant		Reduced Development Alternative = RDA
		PS = Potentially significant		S = Significant
				SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

Impact	Significance before Mitigation		Mitigation Measure
	NEPA	CEQA	
Effect TRAN-3: Result in a substantial increase in hazards because of incompatible uses.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect TRAN-4: Result in inadequate emergency access.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect TRAN-5: Conflict with adopted policies, plans, or programs supporting public transit, bicycle or pedestrian facilities.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
14 Noise			
Effect NOISE-1: Expose people to excessive groundborne vibration or noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect NOISE-2: Create a substantial permanent increase in ambient noise levels in the project vicinity as compared to without the project.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect NOISE-3: Create a substantial temporary increase in ambient noise levels in the project vicinity as compared to without the project.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect NOISE-4: Expose people to excessive noise associated with air travel.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
15 Air Quality			
Effect AQ-1: Conflict with or obstruct implementation of an applicable air quality plan.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect AQ-4: Expose sensitive receptors to substantial pollutant concentrations.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect AQ-5: Create objectionable odors affecting a substantial number of people.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
Proposed Action Alternative = PAA		Reduced Take Alternative = RTA	Reduced Development Alternative = RDA
B = Beneficial	LTS = Less than significant	PS = Potentially significant	S = Significant SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

Impact		Significance before Mitigation		Mitigation Measure
		NEPA	CEQA	
16	Climate Change			
Effect CC-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect CC-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect CC-3: Result in inefficient and wasteful consumption of energy, or require new or expanded energy facilities.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect CC-4: Effects of climate change to the action.		PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
17	Geology, Soils, and Mineral Resources			
Effect GEO-1: Expose people or structures to substantial adverse effects due to rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect GEO-2: Result in substantial soil erosion or the loss of topsoil.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect GEO-3: Create a substantial risk to life or property by locating structures on expansive soil.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect GEO-4: Result in the loss of availability of a known mineral resource.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
18	Visual Resources			
Effect VIS-1: Potential for substantial adverse effects on scenic vistas.		PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Effect VIS-2: Potential damage to scenic resources.		PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect VIS-3: Potential degradation of visual character and quality.		PAA = B RTA = LTS RDA = LTS	PAA = B RTA = LTS RDA = LTS	No mitigation is required.
Proposed Action Alternative = PAA		Reduced Take Alternative = RTA		Reduced Development Alternative = RDA
B = Beneficial		LTS = Less than significant		S = Significant
				SU = Significant and unavoidable

Table ES-2 Summary of Impacts and Mitigation Measures

Impact	Significance before Mitigation		Mitigation Measure
	NEPA	CEQA	
Effect VIS-4: Potential for substantial light or glare.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	
19 Hazardous Materials			
Effect HAZ-1: Create a significant hazard through the routine transport, use, or disposal of hazardous materials, including along existing transportation corridors and in proximity to school sites.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HAZ-2: Result in the release of hazardous materials from a site of known or potential contamination.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HAZ-3: Result in a safety hazard for people residing or working in the project area because of proximity to public airports or private airstrips.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HAZ-4: Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Effect HAZ-5: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	No mitigation is required.
Cumulative Effects	PAA, RTA, RDA = LTS	PAA, RTA, RDA = LTS	

Proposed Action Alternative = PAA		Reduced Take Alternative = RTA		Reduced Development Alternative = RDA	
B = Beneficial	LTS = Less than significant	PS = Potentially significant		S = Significant	SU = Significant and unavoidable

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

The Yolo Habitat Conservancy (Conservancy), which is a joint powers agency organized under California law and consists of Yolo County and the incorporated cities of Davis, West Sacramento, Winters, and Woodland, has developed the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan). This HCP/NCCP provides the basis for issuance of long-term species “take” permits under the federal Endangered Species Act (FESA) and California Natural Community Conservation Planning Act (NCCPA) that cover an array of public and private activities, including activities that are essential to the ongoing viability of Yolo County’s agricultural and urban economies. Specifically, the Permittees (i.e., Yolo County, the four incorporated cities, and the Conservancy) are applying for permits from both the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) for take of 12 covered species resulting from five categories of covered activities. This action is pursuant to Section 10(a)(1)(B) of the FESA and Section 2835 of the NCCPA chapter of the California Fish and Game Code (Fish & Game Code). The purpose of developing the Yolo HCP/NCCP is to facilitate obtaining an incidental take permit (ITP) from the USFWS and a NCCPA permit from CDFW and to develop a long-term conservation plan to protect and contribute to the conservation and management of covered species and natural communities in Yolo County while allowing for development and maintenance activities that are compatible with other local policies and regulations. The area covered by the proposed HCP/NCCP encompasses all of Yolo County, California (Exhibit 1-1. *Location of the Plan Area*).

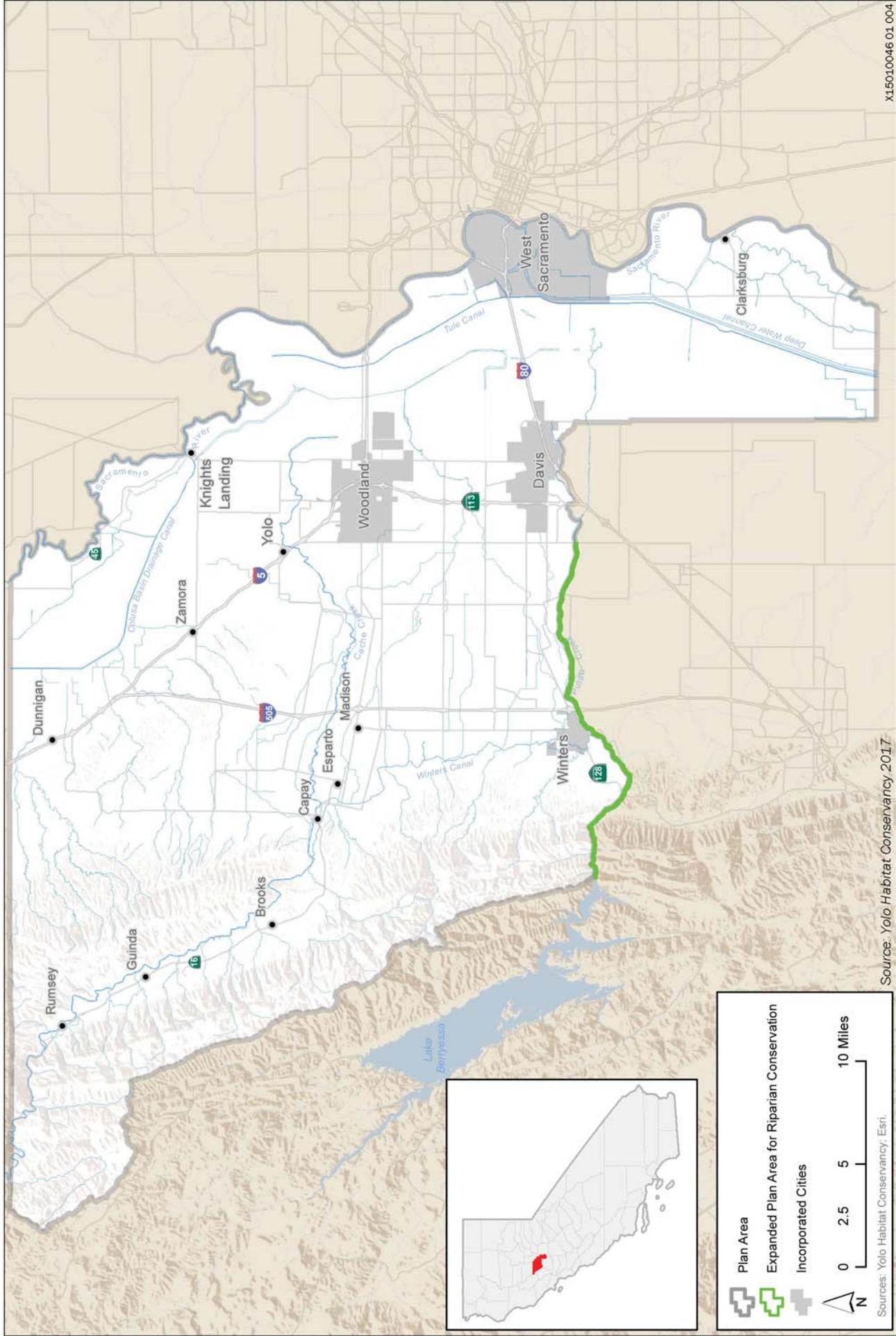
This Environmental Impact Statement/Environmental Impact Report (EIS/EIR) evaluates the potential impacts of the Proposed Action and alternatives to approving the Proposed Action (including a No Action Alternative). The Plan (or Proposed Action Alternative) would include issuance of permits by USFWS and CDFW for take of 12 covered species resulting from five categories of covered activities, and approval of an implementing agreement (IA) for the proposed Plan. The EIS/EIR 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); the President’s Council on Environmental Quality (CEQ) guidelines on implementing NEPA; CESA (Fish and Game Code, Sections 86 and 2050-2085); the California Environmental Quality Act (CEQA (Pub. Res. Code Secs. 21000-21178.1); and the State CEQA Guidelines.

The purpose of this EIS/EIR is to inform agency decision makers and the public regarding the potential environmental effects of the Proposed Action and alternatives, whether such effects are significant, potential measures to mitigate significant effects, and potential alternatives that could reduce significant adverse environmental impacts.

1.2 BACKGROUND

The County of Yolo and the incorporated cities of Davis, West Sacramento, Winters, and Woodland (with the University of California as an *ex officio* member) formed a joint powers agency (now the Yolo Habitat Conservancy or Conservancy) in 2002 to oversee the development of a regional conservation plan for Yolo County. The Conservancy Board of Directors consists of elected representatives appointed by the member jurisdictions. It has two primary functions:

- (1) to assist in the planning, preparation, and subsequent administration of the Yolo HCP/NCCP; and (2)
- to facilitate acquisition of conservation easements to mitigate adverse effects on Swainson’s hawk’s habitat during the planning process.



Source: Yolo Habitat Conservancy 2017

X15010046 01 004



Location of the Plan Area

Exhibit 1-1

The Conservancy's role in overseeing the Swainson's hawk mitigation program arose out of a 2002 Memorandum of Understanding between the Conservancy and CDFW that established a process to allow for land development activities to proceed during the development of the HCP/NCCP.

In 2004, the Conservancy entered into a Planning Agreement with CDFW and the USFWS (collectively referred to as the Wildlife Agencies), pursuant to the NCCPA, that set out the initial scope of the program and defined the roles and responsibilities of the parties in the development of the Plan. In 2009, the Conservancy and the Wildlife Agencies extended the Planning Agreement. The Planning Agreement has helped guide the planning process and to define the initial scope of the effort. Among other things, the Planning Agreement identified potential species to be considered for coverage under the Plan.

The list of covered species has evolved since the Planning Agreement, based on further evaluation and discussions with the Wildlife Agencies. The Conservancy will apply to the USFWS and CDFW for permits that authorize the incidental take of the species covered by the Plan, which includes 12 federal and State listed species and non-listed species that may become listed during the term of the Plan. Detailed information regarding the permit term of the Plan, the covered activities, covered species, and the conservation strategy are described in Chapter 2, *Proposed Action and Alternatives* of this document.

1.3 PLAN AREA BOUNDARY

For purposes of this EIS/EIR, the Plan Area boundary includes all of Yolo County (also defined as the "planning area" in the Planning Agreement between the Conservancy, USFWS, and CDFW [November 9, 2004]) (Exhibit 1-1), located in the northern reach of California's Central Valley mid-way between San Francisco Bay and the Lake Tahoe basin. This also constitutes the area for which the Conservancy is requesting authorization from USFWS and CDFW for take of covered species.

As described in Chapter 2, the Plan also includes the potential for purchase of conservation easements and establishment of a reserve lands along a portion of the south side of Putah Creek in Solano County, as illustrated in Exhibit 1-1. No other private or public projects within Solano County will be eligible for take coverage under the Wildlife Agency permits for the Plan. This location is referred to as the expanded Plan Area. In most cases, the Plan Area is the key term used in this document and the expanded Plan Area is only mentioned when it plays a role in the effects analysis.

In order to adequately analyze the effects on certain resources, study areas may differ from the Plan Area described above (e.g., the biological resources analysis considering species occurrences outside the Plan Area). In these cases, the study area will be defined at the outset of the resource chapter.

1.4 LEAD AGENCIES

1.4.1 U.S. Fish and Wildlife Service

NEPA requires that every federal agency prepare an EIS for proposed legislation or other major federal actions "significantly affecting the quality of the human environment" (42 U.S.C. 4332; 40 C.F.R. 1501). Because USFWS, as the Lead Agency under NEPA, has determined that the issuance of ITPs to the Permit Applicants (i.e., Yolo County, the four incorporated cities, and the Conservancy) under Section 10 of the FESA may result in significant effects to the environment, an EIS must be prepared.

1.4.2 Yolo Habitat Conservancy

CEQA requires that the Lead Agency prepare an EIR when the Lead Agency determines that a project may have a significant effect on the environment. CEQA applies to all California projects, and NCCPs are required to comply with CEQA. The Conservancy, as the Lead Agency under CEQA, has determined that the proposed Plan may result in a significant impact on the environment, and an EIR must be prepared.

1.5 RELATIONSHIP BETWEEN YOLO HCP/NCCP AND THE EIS/EIR

This EIS/EIR evaluates the potential environmental effects that may result from the approval and implementation of the Yolo HCP/NCCP, pursuant to the issuance of ITPs by USFWS and CDFW. Collectively, these actions are known as the Proposed Action or Proposed Action Alternative. In addition to evaluating the Proposed Action Alternative, this EIS/EIR also evaluates the potential environmental effects of three alternatives, the No Action Alternative, the Reduced Take Alternative, and the Reduced Development Alternative. These are each described in Chapter 2.

1.6 OVERVIEW OF NEPA AND CEQA

1.6.1 National Environmental Policy Act

NEPA provides an interdisciplinary framework for federal agencies to inform themselves, other federal, state, tribal, and local governmental entities, and the public of the possible effects upon the environment that may result from implementing proposed federal actions. NEPA also contains action-forcing procedures to ensure that federal agency decision makers consider environmental values alongside technical and economic considerations that are inherent factors in federal decision making when making a decision on whether and to what extent a proposed action, or an alternative, should be implemented. NEPA applies to all federal agencies in the executive branch and to most of the activities they manage, regulate, or fund that affect the human environment. It requires all agencies to consider the potential environmental consequences of their proposed actions, to disclose those potential effects to the public and, when required by law or regulation, seek public comment and input on those effects. It is also intended to foster intergovernmental coordination and cooperation and to enhance public participation in government planning and decision making. CEQ has adopted regulations and other guidance that provides detailed procedures that federal agencies must follow to implement NEPA. In addition to the CEQ's NEPA regulations, each agency has implemented their own NEPA implementing procedures, frequently through the issuance of regulations, that recognize each agency's unique mandate and mission.

A primary intent of this joint EIS/EIR is to support Lead Agency compliance with NEPA. The USFWS, as the Lead Agency under NEPA, has determined that the decision to permit a regional HCP/NCCP in Yolo County may result in a significant effect upon the environment, and that an EIS must be prepared in order to fully comply with their NEPA obligations. NEPA requires federal agencies to consider and disclose the environmental effects of their proposed actions (in this instance, USFWS issuance of an ITP), and include public participation in the planning and implementation of their actions.

The CEQ has promulgated regulations and prepared guidance that provide general content for federal agencies to follow when preparing NEPA documents. The Department of the Interior (DOI) prepared additional regulations in 2008 for the implementation of NEPA by DOI bureaus and agencies (43 CFR Part 46).

1.6.2 California Environmental Quality Act

CEQA requires state and local agencies to estimate and evaluate the environmental implications of their actions and seeks to prevent adverse environmental impacts of those actions by requiring those agencies, when feasible, to avoid or reduce significant environmental impacts. The State CEQA Guidelines are the primary source of rules and, together with published court decisions, interpretation of CEQA.

A primary intent of this joint EIS/EIR is to support Lead Agency compliance with CEQA. According to CEQA, if a lead agency determines that a project may have a significant effect on the environment, the lead agency shall prepare an EIR (CCR Section 15064(f)(1)). The Conservancy, as the Lead Agency under CEQA, has determined that the proposed HCP/NCCP may result in a significant impact on the environment, and an EIR must be prepared. A primary intent of this EIS/EIR is to support Conservancy and Responsible/Trustee Agency compliance with CEQA (Responsible and Trustee Agencies are listed below in Section 1.6.3, *Joint NEPA/CEQA Document*).

An EIR is an informational document used to inform public agency decision-makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. State and local government agencies are required to consider the information presented in the EIR when determining whether to approve a project.

CEQA requires that state and local government agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects. CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency must prepare and issue a “statement of overriding considerations” explaining in writing the specific economic, social, or other considerations that make those significant effects acceptable (PRC Section 21000 et seq.; CCR Section 15093).

1.6.3 Joint NEPA/CEQA Document

When a project is subject to review under both NEPA and CEQA, state and local agencies are encouraged to cooperate with federal agencies in the environmental review process and to prepare a joint environmental document. NEPA refers to the activity evaluated in an EIS as a proposal for *action* by a federal entity, whereas CEQA refers to the activity as a proposed *project* undertaken, supported, or permitted by a public agency. This document uses the term Proposed Action Alternative to refer to the HCP/NCCP and all federal, state, and local agency actions or approvals that would be issued or undertaken based on it.

As stated previously, USFWS is the Lead Agency responsible for compliance under NEPA, and the Conservancy is the Lead Agency with responsibility for compliance under CEQA. Several other agencies have responsibility for implementing or approving the proposed Plan and are considered Responsible Agencies under CEQA. CDFW is the Responsible Agency with responsibility for approving the NCCP portion of the Plan and issuing take permits for state-listed species. The member agencies of the Conservancy, Yolo County, and the Cities of Davis, West Sacramento, Winters, and Woodland, are also Responsible Agencies with responsibility for approving and implementing the proposed Plan. Although representatives of the member agencies are on the Conservancy Board of Directors, and will make decisions related to the HCP/NCCP and EIS/EIR as the CEQA lead agency, the member agencies themselves must make decisions and findings after the Conservancy, as CEQA Responsible Agencies (see Section 1.11, *Uses of this EIS/EIR*). All lead and Responsible Agencies must make findings that they have independently reviewed this document and that it is adequate for decision making.

CEQA also identifies Trustee Agencies, which are state agencies “having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California.” (CEQA Guidelines Section 15386). CDFW is a Trustee Agency as well as a Responsible Agency relative to the Plan and this EIS/EIR. If any Plan activities would occur on State owned “sovereign” lands such as the beds of navigable waters and state school lands, then the California State Lands Commission could act as a Trustee Agency. The State Department of Parks and Recreation and the University of California (U.C.) are also considered Trustee Agencies, but there are no State Parks potentially affected by the Plan and U.C. Davis is not a participant in the Plan and no U.C. lands would be affected by the Plan.

1.7 RELATIONSHIP OF THIS EIS/EIR TO OTHER ENVIRONMENTAL DOCUMENTS

The following documents were reviewed for information pertaining to planned uses and activities within the Plan Area. This is not a comprehensive list of all applicable documents; however, these are the core environmental review documents which address planned activities within the Plan Area. Specific information, existing analysis, or underlying data and assumptions from these and other applicable documents is used, referenced, or incorporated into this EIS/EIR, as identified in the applicable resource chapters (chapters 4 through 19).

1.7.1 Yolo County 2030 Countywide General Plan and EIR

The *Yolo County 2030 Countywide General Plan* (2030 County GP) was adopted in 2009 by the Yolo County Board of Supervisors. Policies in the 2030 County GP anticipate the approval and implementation of the HCP/NCCP, and its incorporation into the conservation and open space element of the general plan. There have been minor amendments since the general plan was adopted; the housing element was revised in 2013. The horizon year for the general plan is 2021 for the housing element and 2030 for the other elements. The County certified the 2030 County GP EIR in 2009 State Clearinghouse #2008102034).

Yolo County is recognized statewide for its agriculture preservation practices and commitment to sustainability, community identity, and rural service standards. The general plan seeks to continue to preserve agriculture by focusing development on existing communities. It seeks to discourage sprawl and encourage density, infill, and compact community design.

1.7.2 City of Davis General Plan and EIR

The Davis City Council certified the *Program EIR for City of Davis General Plan Update and Project EIR for Establishment of a new Junior High School* (City of Davis General Plan EIR) in May 2000 and adopted its general plan in May 2001. Since then, the general plan was amended in January 2007 and the transportation element was updated and amended in December 2013 and the housing element was updated and amended in February 2014. The horizon year for the City of Davis general plan is 2021 for the housing element and 2015 for the other elements of the general plan. The general plan emphasizes development that maintains Davis’s small-town character and a healthy community, surrounded by farmland, a greenbelt, and natural habitat areas, and preserves.

1.7.3 City of West Sacramento General Plan and EIR

The *City of West Sacramento General Plan* (West Sacramento General Plan) was approved in 2016, while the housing element was last updated in 2013. An EIR was certified in November 2016 with the approval of the General Plan (State Clearinghouse # 2014042087).

The horizon year for the West Sacramento General Plan is 2021 for the housing element and 2035 for the rest of the elements. The plan envisions that West Sacramento will be “a safe, healthy, socially and economically viable and sustainable community” (City of West Sacramento 2016a). West Sacramento is expected to become a city of more than 87,000 people by 2035, serving as a vital urban core along the Sacramento River. The general plan placed a “new emphasis on sustainability and the efficient use of land” (City of West Sacramento 2016b).

1.7.4 City of Winters General Plan and EIR

The City of Winters adopted its most recent general plan and certified the accompanying EIR in May 1992. There have been minor amendments since that time and the housing element was revised in October 2013. The horizon year for the *City of Winters General Plan Policy Document* is 2021 for the housing element and 2018 for the other elements of the general plan. The policy document includes a land use diagram that outlines the standards of population density and building density for land designations within the urban limit line. The plan seeks to maintain the traditional small-town qualities and agricultural heritage of Winters while focusing growth within the urban limit line (City of Winters 1992).

1.7.5 City of Woodland General Plan and EIR

The City of Woodland undertook a minor update of its general plan in 2002, and prepared a mitigated negative declaration for CEQA compliance. The City had certified a Final EIR in February 1996 for the underlying 1996 General Plan. There have been other minor amendments since 2002 and the housing element was revised in August 2013. A comprehensive update of the general plan is currently under way. The general plan envisions Woodland maintaining its small-town atmosphere, historical buildings, and commitment to the protection of agricultural soils. The current plan has a horizon year of 2021 for the housing element and 2020 for the other elements (City of Woodland 2002).

1.8 PURPOSES, NEED, AND OBJECTIVES

NEPA requires an EIS to briefly describe the underlying purpose and need for the Federal Lead Agency’s proposed and alternative actions (40 CFR 1502.13). Similarly, CEQA requires an EIR to contain a statement of the goals and objectives of the project proponents in proposing the project and alternatives. This section presents a purpose and need statement and list of objectives meeting the requirements of both NEPA and CEQA.

1.8.1 Purpose and Need Statement

In response to receiving a request for authorization for incidental take expected from various activities within Yolo County, the USFWS and CDFW are evaluating issuance of incidental take permits to the Permit Applicants for species currently listed under the FESA and CESA, as well as species that are not currently listed but may become listed during the term of the proposed permit. The HCP/NCCP will comprehensively protect and conserve multiple native species and will conserve, enhance, and restore the habitats and ecosystems upon which these native species depend to ensure the long-term survival of these species within the Plan Area.

1.8.2 Statement of Objectives

Objectives of the Proposed Action and alternatives are listed below.

- ▲ Respond to the Yolo Conservancy application for an incidental take permit for the proposed Covered Species related to activities that have the potential to result in take, pursuant to the FESA section 10(a)(1)(B) and its implementing regulations and policies
- ▲ Receive take authorization from USFWS for federally listed species covered by the proposed HCP/NCCP, pursuant to Section 10(a)(1)(B) of the FESA, to accommodate covered activities that are part of necessary growth in Yolo County.
- ▲ Receive take authorization from CDFW for state-listed species covered by the proposed HCP/NCCP, pursuant to Section 2835 of the NCCPA, to accommodate covered activities that are part of necessary growth in Yolo County.
- ▲ Provide for issuance of take permits for other species that are not currently listed, but that may become listed in the future.
- ▲ Assemble and maintain, through long-term monitoring and management, a reserve system within the Plan Area that focuses on preservation and enhancement actions that provide for the protection of species, natural communities, and ecosystems on a landscape level.
- ▲ Include an interconnected reserve system throughout the Plan Area that is large enough to maintain in perpetuity each type of natural community that is native to the Plan Area, and maintain in perpetuity or expand the existing distribution of native animal and plant species within the Plan Area.
- ▲ Provide a comprehensive means to coordinate and standardize mitigation and compensation requirements of FESA, CEQA, NEPA, NCCPA, and other applicable laws and regulations relating to biological and natural resources within the planning area so that public and private actions will be governed equally and consistently, thus reducing delays, expenses, and regulatory duplication.
- ▲ Provide a less costly, more efficient project review process that results in greater conservation values than the current project-by-project, species-by-species review and regulatory regime.
- ▲ Rely solely on willing sellers for the purchase of land or easements when establishing habitat reserves.
- ▲ Protect the long-term viability of agricultural operations in the Plan Area (consistent with other objectives).

1.9 YOLO HCP/NCCP PUBLIC AND AGENCY INVOLVEMENT

Section 1.3, *Overview of the Planning Process*, of the Yolo HCP/NCCP (Yolo Habitat Conservancy 2017), describes how the preparers of the Plan involved both agencies and the public into development of the Plan. Elements of this involvement included an advisory committee, public website, and meetings with federal and State agencies. The advisory committee was comprised of almost 20 agencies and organizations which provided expertise, represented a variety of interest groups, and provided recommendations to the Conservancy Board of Directors. The advisory committee held monthly meetings as well as working group meetings which were open to the public. The Conservancy kept an electronic mailing list of interested members of the public and notified members of upcoming meetings and of draft documents as they became available. All documents reviewed or prepared by the advisory committee, including its working groups, were made available to the public. Members of the public were able to comment through the website and submit

oral and written comments at advisory committee meetings. For more information on public and agency involvement with the Plan, please review Chapter 1 of the Yolo HCP/NCCP.

1.10 EIS/EIR PUBLIC AND AGENCY INVOLVEMENT

1.10.1 EIS/EIR Scoping Process

Scoping is the process used to determine the focus and content of an EIS/EIR. The scoping process is used to help lead agencies identify the range of actions, alternative actions, potential impacts, mitigation measures, the significant issues deserving of study in an EIS or EIR. Scoping also helps lead agencies identify and eliminate from detailed study the issues which are not relevant or which have been covered by prior environmental reviews studies, narrowing the discussion of these issues. The public outreach and public scoping process solicits input on the range of actions, alternative actions, potential impacts, and possible mitigation measures considered in an EIS/EIR. Scoping is also helpful in establishing methods of impact assessment and in selecting the environmental resources to be considered in detail. Lead Agencies also use scoping to engage state, local, and tribal governments and the public in the early identification of concerns, potential impacts, relevant effects of past actions and possible alternatives. Scoping is an opportunity to introduce and explain the interdisciplinary approach used to prepare the EIS/EIR and to solicit information as to additional disciplines that should be included in the EIS/EIR. The scoping process may also narrow the scope of the EIS/EIR.

The public, local agencies, and regulatory agencies were invited to participate in the EIS/EIR scoping process through a variety of media. USFWS published a Notice of Intent (NOI) to prepare an EIS in the *Federal Register* on October 21, 2011. The Conservancy published a Notice of Preparation (NOP) which contained a brief description of the proposed project; probable environmental effects; the date, time and place of the public scoping meetings; and contact information. The NOI and NOP solicited participation in determining the scope of the EIS/EIR. The scoping period outlined in both the NOI and the NOP was October 21 to December 5, 2011 during which the Lead Agencies solicited comment. The NOP was sent to 141 addresses of Responsible and Trustee Agencies, the State Clearinghouse, parties previously requesting notice in writing, and other interested parties.

In addition, notices with information relevant to the scoping period and associated meetings were sent to various media outlets, to the email distribution list, and posted to the Conservancy and USFWS websites.

The Conservancy and USFWS held two scoping meetings for the public and interested parties on Monday, November 7, 2011.

The Scoping Report is included as Appendix A, *Scoping Report*, of this EIS/EIR and provides additional detail on the scoping process and comments that were received during this time.

1.10.2 Draft EIS/EIR Public Review

The comments received during the scoping period assisted in determining the alternatives and the scope of the issues to be evaluated in detail in the draft EIS/EIR for the Plan. This draft EIS/EIR will be made available for public review with the release of a Notice of Availability in the *Federal Register*. The public will have 90 days to comment on the document. The draft HCP/NCCP will also be released for public comment during the same timeframe as the EIS/EIR comment period. Public meetings will also be held during the 90-day comment period so the public and agencies can learn more about the draft EIS/EIR and provide comments on the document.

Once the public comment period on the draft EIS/EIR has concluded, the USFWS and Conservancy will consider and respond to all comments in preparation of the final EIS/EIR. The two agencies will consider all comments providing during the comment period in deciding which alternative to select and implement. The Service will document that selection in a Record of Decision (ROD) pursuant to NEPA, no sooner than 30 days following publication of the final EIS/EIR, and the Conservancy will file a Notice of Determination with the Yolo County Clerk-Recorder within five days of project approval (if the project is approved) pursuant to CEQA.

1.11 USES OF THIS EIS/EIR

Implementation of the Yolo HCP/NCCP or other action alternatives would require permits and approvals from the Lead Agencies as well as public agencies other than the Lead Agencies. This section describes the uses of this EIS/EIR by the Lead Agencies as well as the Responsible Agencies.

1.11.1 Yolo Habitat Conservancy

The Conservancy would be responsible for adopting the proposed HCP/NCCP, certifying the EIS/EIR, making findings pursuant to the EIS/EIR, and executing the IA.

1.11.2 Member Agencies

The Conservancy's member agencies will participate in the proposed Plan: Yolo County and the Cities of Woodland, Winters, Davis, West Sacramento. Each of these member agencies would be responsible for adopting the proposed HCP/NCCP and executing the IA. Each of these jurisdictions is a Responsible Agency under CEQA and would be required to adopt the EIS/EIR and to make findings pursuant to the EIS/EIR.

Each of the member agencies would hold a FESA Section 10(a)(1)(B) ITP and an NCCPA Section 2835 permit providing authorization for take that occurs from covered activities within their respective jurisdictions. To implement the proposed Plan, the local jurisdictions would rely on the land use authority provided through their general plans and zoning ordinances. Local jurisdictions must adopt a local ordinance to implement the proposed Plan.

1.11.3 U.S. Fish and Wildlife Service

The decision to be made by USFWS is whether to issue FESA Section 10 ITPs for the federally listed species that are covered in the proposed Plan. Section 10(a)(2)(B) of the FESA requires that specific criteria be met before USFWS may issue ITPs. The determination as to whether the criteria have been met is described in the USFWS's decision documents: an FESA Section 10 findings document, an FESA Section 7 Biological Opinion (BO) and a NEPA decision document. These decision documents are produced at the end of the process. Should the USFWS make a decision to issue the ITPs, it would also be responsible for executing the IA.

PERMIT ISSUANCE CRITERIA

The issuance criteria for an ITP are contained in Section 10(a)(2)(B) of the FESA and the implementing regulations for the FESA (50 CFR 17.22[b][2][i]). These issuance criteria are listed below.

1. All taking of federally listed fish and wildlife species must be incidental to otherwise lawful activities.
2. The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.

3. The applicant will ensure that adequate funding for the HCP and procedures to deal with changed circumstances, including adequate funding to address such changes will be provided.
4. The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild.
5. The applicant will ensure that other measures that USFWS may require will be provided.

An applicant must prepare and submit to USFWS an HCP containing the mandatory elements of Section 10(a)(2)(A) before an ITP can be issued. As such, the HCP must specify the following.

1. The impact that will likely result from the taking.
2. What steps the applicant will take to minimize, and mitigate such impacts; the funding available to implement such steps; and the procedures to be used to deal with unforeseen circumstances.
3. What alternative actions to such taking the applicant considered, and the reasons why such alternatives are not proposed to be used.
4. Such other measures that USFWS may require as being necessary or appropriate for the purposes of the plan.

The determination as to whether the criteria have been met would be described in USFWS's decision package: a BO pursuant to Section 7 of the FESA; a Findings and Recommendations for the issuance of a Section 10(a)(1)(B) permit; and a NEPA decision document (in this case, a ROD). These decision documents would be produced at the end of the process and would contain the rationale behind USFWS's decision to either approve or deny a Section 10(a)(1)(B) permit application. USFWS may decide to issue the ITPs, which would contain standard terms and conditions and may also contain additional terms and conditions as deemed appropriate by USFWS. Alternatively, USFWS may deny the ITPs.

ENDANGERED SPECIES ACT SECTION 7

Issuance of an ITP is also a federal action subject to Section 7 of the FESA. Section 7(a)(2) requires all federal agencies, in consultation with USFWS, to ensure that any action "authorized, funded, or carried out" by any such agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of critical habitat. Because issuance of a Section 10 permit involves a federal authorization, it is subject to this provision. In this case, because it is issuing the authorization, USFWS will conduct an internal consultation. Although the provisions of Section 7 and Section 10 are similar, Section 7 and its regulations require an analysis of the following in the HCP process: indirect effects, effects on federally listed plants, and effects on designated critical habitat. The results of this internal consultation would be documented in a BO, which would be produced at the end of the internal Section 7 consultation process.

NEPA

As described above in Section 1.6.1, this EIS/EIR is being prepared in order for USFWS to fully comply with their NEPA obligations. As the Lead Agency under NEPA, USFWS has determined that the Plan is a major federal action likely to result in a significant impact on the environment, and preparation of an EIS is warranted.

1.11.4 California Department of Fish and Wildlife

The decision to be made by CDFW is whether to approve the NCCP and issue ITPs for the state-listed species that are covered in the proposed Plan, pursuant to Section 2835 of the Fish and Game Code. The

determination as to whether the criteria for approval of the NCCP and issuance of ITPs have been met would be described in CDFW's ITP decision and CEQA findings. CDFW would also execute the IA.

NATURAL COMMUNITY CONSERVATION PLANNING ACT

In accordance with the NCCPA (California Fish and Game Code, Section 2800 *et seq.*), CDFW would decide whether to approve the NCCP for implementation after making the following findings, based upon substantial evidence in the record.

- ▲ The plan must be consistent with the Planning Agreement.
- ▲ The plan must provide for the conservation and management of the covered species in the Plan Area.
- ▲ The plan must protect habitat, natural communities, and species diversity on the landscape level.
- ▲ The plan must conserve the ecological integrity of large habitat blocks, ecosystem function, and biodiversity.
- ▲ The plan must support sustainable populations of covered species.
- ▲ The plan must provide a range of environmental gradients and habitat diversity to support shifting species distributions.
- ▲ The plan must sustain movement of species among reserves.
- ▲ Mitigation and conservation must be roughly proportional to impacts in timing and extent.
- ▲ Funding for conservation, monitoring, and adaptive management must be adequately assured.

Section 2835 of the NCCPA allows CDFW to authorize take in an NCCP for any identified species whose conservation and management is provided for in the plan, whether or not the species is listed as threatened or endangered under CESA or FESA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

NCCPs require appropriate compliance with CEQA. The CEQA document for the NCCP must include a mitigation, monitoring, and reporting program consistent with the requirements of Division 13 (commencing with Section 21000) of the Public Resources Code. CDFW, as a Responsible Agency under CEQA, would be required to adopt the EIS/EIR and make findings pursuant to the EIS/EIR.

1.12 DOCUMENT ORGANIZATION

This document is organized into the following sections:

- ▲ Executive Summary, provides a short summary of the Proposed Action and alternatives and the accompanying analysis. Included in this chapter is a table showing the potential impacts associated with the Proposed Action and alternatives.
- ▲ Chapter 1, "Introduction," provides a brief overview of the proposed Plan and the EIS/EIR; provides background for the proposed Plan; presents the underlying needs, purposes, and objectives of the proposed Plan; describes the decisions to be made by certain agencies (i.e., uses of this EIS/EIR), and summarizes the organization of this document.

- ▲ Chapter 2, “Proposed Action and Alternatives,” summarizes the proposed action and alternatives considered, as well as the alternatives screening approach and alternatives considered but eliminated from further consideration.
- ▲ Chapter 3, “Approach to the Analysis,” provides guidance on NEPA and CEQA requirements, the use of NEPA and CEQA terminology in this EIS/EIR; describes the basic structure of each resource chapter; and provides the basis for carrying forward certain resource topics in the EIS/EIR for detailed analysis, including the following:
 - ▲ Chapter 4, “Biological Resources”
 - ▲ Chapter 5, “Land Use”
 - ▲ Chapter 6, “Agricultural Resources”
 - ▲ Chapter 7, “Public Services and Utilities”
 - ▲ Chapter 8, “Recreation and Open Space”
 - ▲ Chapter 9, “Hydrology and Water Quality”
 - ▲ Chapter 10, “Population and Housing”
 - ▲ Chapter 11, “Socioeconomics and Environmental Justice”
 - ▲ Chapter 12, “Cultural Resources”
 - ▲ Chapter 13, “Transportation”
 - ▲ Chapter 14, “Noise”
 - ▲ Chapter 15, “Air Quality”
 - ▲ Chapter 16, “Climate Change”
 - ▲ Chapter 17, “Geology, Soils, and Mineral Resources”
 - ▲ Chapter 18, “Visual Resources”
 - ▲ Chapter 19, “Hazardous Materials”
- ▲ Chapter 20, “Other Required NEPA and CEQA Analyses,” addresses potential growth inducing aspects of the Plan, and any significant irreversible environmental changes that could result from the Proposed Action and its alternatives.
- ▲ Chapter 21, “Consultation and Coordination,” summarizes public agencies, federally recognized tribes, and non-governmental organizations and private individuals contacted during the development of the EIS/EIR, and provides the list of the persons and groups who have received notification or copies of the Draft EIS/EIR.
- ▲ Chapter 22, “List of Preparers,” identifies the individuals involved in the preparation of this document.
- ▲ Chapter 23, “References,” includes a comprehensive bibliography of references cited in this document.

- ▲ Appendices: The following appendices are provided with this EIS/EIR;
 - Appendix A – Scoping Report and Comments
 - Appendix B – Alternatives Evaluation Process
 - Appendix C – Avoidance and Minimization Measures
 - Appendix D – Biological Resource Supporting Information
 - Appendix E – Air Quality and Greenhouse Gas Supporting Information
 - Appendix F – Active Hazardous Materials Cleanup Sites in Yolo County

2 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action Alternative – issuance of incidental take permits (ITPs) by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW), approval and implementation of the Yolo HCP/NCCP (or *Plan*) by the permit applicants (Yolo County; Cities of Davis, West Sacramento, Winters, and Woodland; and the Conservancy), and approval and execution of an Implementing Agreement (IA) for the HCP/NCCP. This chapter also describes the requirements of NEPA and CEQA and other regulatory considerations for the development of alternatives to the proposed Plan, the alternatives selection process, alternatives carried forward for detailed analysis in this EIS/EIR, and alternatives eliminated from further consideration.

2.1 APPROACH TO DEVELOPING ALTERNATIVES

2.1.1 Regulatory Framework

NEPA AND CEQA

Range of Alternatives

NEPA and CEQA require that an EIS/EIR evaluate a reasonable range of alternatives to a proposed action, including a no action alternative. NEPA and CEQA provide guidance that can be used to define a range of alternatives for consideration in an EIS/EIR.

According to NEPA, the range of alternatives required in an EIS is governed by the rule of reason, which requires an EIS to set forth only a reasonable range of alternatives that may be feasibly carried out based on economic, environmental, technical and other factors, that will substantially address the purpose and need for the proposed action. The reasonable range of options is to be defined by the specific facts and circumstances of the proposed action. To be considered reasonable, it is generally understood that first, alternatives must fulfill the basic requirements of the statement of purpose and need (described for the Yolo HCP/NCCP in Chapter 1, *Introduction*). Finally, alternatives must be able to be feasibly carried out in the context of technical, economic, environmental, and other factors. If alternatives have been eliminated from detailed study, the EIS must briefly discuss the reason for their elimination (40 CFR 1502.14[a]; Forty Questions No. 1[a]).

The range of alternatives under CEQA is governed by the rule of reason. Alternatives under CEQA must meet the basic project objectives, should not result in greater impacts on the environment than those of the proposed project, and must be potentially feasible. In determining whether alternatives are feasible, lead agencies are guided by the general definition of feasibility found in State CEQA Guidelines Section 15364: “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” In accordance with State CEQA Guidelines Section 15126.6[f], the lead agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and the project proponent’s control over alternative sites in determining the range of alternatives to be evaluated in an EIR. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the lead agency relied upon in making the selection. It should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126[d][2]).

No Action/No Project Alternative

A no action alternative is required to be considered in an EIS and a no project alternative is required to be considered in an EIR. A no action/no project alternative allows decision makers to compare the impacts of approving the project to the impacts of not approving the project. Council on Environmental Quality (CEQ) regulations for implementing NEPA require an EIS to include evaluation of a no action alternative (40 CFR 1502.14). At the lead agencies' discretion under NEPA, the no action alternative may be described as the future circumstances without the proposed action and can also include predictable actions by persons or entities, other than the federal agencies involved in a project action, acting in accordance with current management direction or level of management intensity. When the proposed action involves updating an adopted management plan or program, the no action alternative includes the continuation of the existing management plan or program.

Under CEQA, an EIR is required to analyze the no project alternative. State CEQA Guidelines Section 15126.6, Subdivision (e)(2) indicates that the no project analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced. The no project conditions may also include some reasonably foreseeable changes in existing conditions and changes that would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

For the purposes of this EIS/EIR, the term *No Action Alternative* is used as the title for an alternative that fulfills both the no action alternative requirement of NEPA and the no project alternative requirement of CEQA.

Endangered Species Act

Section 10(a)(1)(B) of the federal Endangered Species Act (FESA) requires applicants for ITPs to specify in an HCP what alternative actions to the incidental take of federally listed threatened and endangered species were considered and the reasons that those alternatives were rejected. There is no similar requirement under the California Natural Community Conservation Planning Act (NCCPA). The FESA requirement is addressed in Chapter 9 of the Yolo HCP/NCCP, which considers alternatives to take. Alternatives to take typically include avoiding all activities that result in take, or limiting the implementation of some covered activities to reduce the level of take.

2.1.2 Alternatives Considered

Options considered for potential alternatives came from a variety of sources, including the Yolo HCP/NCCP development process, the public scoping process under NEPA and CEQA, and the lead and responsible agencies. Department of Interior (DOI) implementing regulations (43 CFR 46.110) require lead federal agencies to consider the inclusion of a consensus based alternative. The FESA (section 10(a)(2)(B) and its implementing regulations (50 CFR 13 and 50 CFR 17) require public participation and the Service's 5-Point Policy (65 FR 35242) also require public participation, which satisfy the DOI regulations at 43 CFR 46.110. The public involvement processes implemented during preparation of this EIS/EIR and the HCP/NCCP fulfill these requirements.

The following categories of potential alternatives to the Yolo HCP/NCCP were considered by the lead agencies. All alternatives considered were different types of conservation plans that varied in the ways described below:

- ▲ variation in permit term. Permit term of 30 or 40 years (instead of 50 years);
- ▲ variation in covered species. More or different covered species;
- ▲ variation in Plan Area. All or a portion of Yolo County. Lands outside of Yolo County;

- ▲ variation in covered activities. More or less development. More or fewer categories of covered activities; and
- ▲ variation in the conservation strategy. Changes in the type, location, magnitude, or frequency of implementing certain conservation measures.

2.1.3 Alternatives Screening

Once alternatives were selected, they were screened against a set of criteria. The criteria addressed two primary topics, the ability of the alternative to meet the project objectives and purpose (Chapter 1, Section 1.8, *Purpose, Need, and Objectives*) and the feasibility of the alternative. Alternatives that met the screening criteria in both topic areas were carried forward in this EIS/EIR for detailed analysis.

The screening criteria for the EIS/EIR are based on a number of considerations, including legal requirements for adequate discussions of alternatives in the EIS/EIR, as set forth in NEPA and CEQA and the regulations and case law interpreting those statutes; and concepts of “potential feasibility” under CEQA and “reasonableness” under NEPA.

Under CEQA, a reasonable range of alternatives to be included in an EIR, in addition to a no project alternative, must satisfy the following requirements.

- ▲ are potentially feasible,
- ▲ attain most of the basic objectives of the project, and
- ▲ avoid or substantially lessen any of the significant effects of the project.

The Conservancy, as the CEQA lead agency, may structure its alternatives around a reasonable definition of a fundamental underlying purpose, and need not study alternatives that cannot achieve the basic project objectives.

CEQ’s *Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations* is used as NEPA guidance by the DOI (which includes the USFWS, the NEPA lead agency). The CEQ guidance indicates that the “range of alternatives” should include all reasonable alternatives that must be rigorously explored and objectively evaluated, as well as those other alternatives that are eliminated from detailed study with a brief discussion of the reasons for eliminating them. The reasonable range of alternatives also includes those that are not within the jurisdiction of the lead agencies. The CEQ guidance also states that what constitutes a reasonable range depends on the nature of the action. When there is potentially a very large number of alternatives, a reasonable range of alternatives covering the full spectrum of reasonable alternatives can be identified for detailed analysis in the NEPA document.

DOI has adopted additional regulations (43 CFR Section 46.415[b]) that require, in addition to a no action alternative, an EIS to include alternatives that meet the following requirements.

- ▲ are reasonable,
- ▲ meet the purpose and need of the proposed action, and
- ▲ address one or more significant issues related to the proposed action.

OBJECTIVES AND PURPOSE SCREENING CRITERIA

The legal requirements of CEQA and NEPA were considered in the context of statements of project objectives and purpose (Chapter 1, Section 1.8, *Purpose, Need, and Objectives*) to develop the following screening criteria, which reflect a combination of environmental, legal, economic, and policy factors.

1. Could the potential alternative provide for long-term conservation of covered species and the conservation and enhancement of natural and seminatural communities within the Plan Area while allowing for an array of public and private activities, including activities essential to the ongoing viability of Yolo County's agricultural and urban economies?
2. Could the potential alternative assemble and maintain a reserve system within the Plan Area that includes preservation, enhancement, monitoring, and management actions that provide for the protection and enhancement of species, natural communities, and ecosystems on a landscape level?
3. Could the potential alternative provide an interconnected reserve system in the Plan Area that is large enough to maintain in perpetuity each type of natural community included in the reserve system, and maintain in perpetuity or expand the existing distribution of covered species within the Plan Area?
4. Could the potential alternative rely solely on willing sellers for the purchase of land or easements when establishing habitat reserves and protect the long-term viability of agricultural operations in the Planning Area?
5. Could the potential alternative provide a less costly, more efficient project review process that results in greater conservation values than the current project-by-project, species-by-species review and regulatory regime?
6. Could the potential alternative coordinate and standardize mitigation and compensation requirements of FESA, CESA (through the NCCPA), NEPA, and CEQA and other applicable laws and regulations related to biological and natural resources within the Plan Area so that public and private actions will be governed equally and consistently, thus reducing delays, expenses, and regulatory duplication?

Under the principles of both NEPA and CEQA, for an alternative to advance through the screening process, the answer to most or all of these environmental, legal, economic, and policy questions must be yes, *possibly*, or *unknown*. If the answers to most of the questions were *not likely*, the potential alternative was rejected.

FEASIBILITY AND REASONABLNESS SCREENING CRITERIA

Under NEPA, an EIS must rigorously explore and objectively evaluate a reasonable range of alternatives that achieve the proposed action's objectives as provide by the purpose and need statement. The range of alternatives should foster a range of options available to decision makers so as to provide for informed decision making. Reasonable alternatives include those that are practical or feasible from a technical or economic standpoint. Under CEQA, alternatives evaluated in an EIR should be feasible. CEQA defines feasible as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Under both NEPA and CEQA, potential alternatives can be developed using economic considerations, social factors, legal feasibility under species protection laws, and technical factors to inform the general concepts of reasonableness under NEPA and feasibility under CEQA. Criteria related to reasonableness and feasibility consist of the following issues.

1. Would the costs of the potential alternative, as compared to the cost of implementing the Proposed Action, be so substantial that a reasonably prudent public agency would not proceed with the alternative?
2. Would the costs of the potential alternative, as compared to the cost of implementing the Proposed Action, be so substantial that it would be impractical to proceed with the alternative?

3. Would the potential alternative take so long to implement, as compared to the Proposed Action, that it would not meet the project purpose or objectives within an acceptable time frame?
4. Would the potential alternative require technology or physical components that are technically infeasible based on currently available science and engineering for the scope of the potential alternative?
5. Would construction, operation, and/or maintenance of the potential alternative violate any federal or state statutes or regulations?
6. Would the potential alternative involve an outcome that is clearly undesirable from a policy standpoint in that the outcome could not reflect a reasonable balancing of relevant economic, environmental, social, and technological factors?

Under the principles of both NEPA and CEQA, for an alternative to advance through the screening process, the answer to most or all of these questions must be *not likely* or *unknown*. If the answers to most of the questions were *likely* or *yes*, the potential alternative was rejected.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER ANALYSIS

This section describes the alternatives eliminated from further analysis in this EIS/EIR as they did not satisfy the screening process described above. Brief descriptions of the alternatives screened and the primary reason for eliminating the alternatives from consideration are provided below. Appendix B includes additional information regarding the alternative elimination process.

2.2.1 Reduced Permit Term

Under this alternative, the permit term for the Yolo HCP/NCCP would be less than the currently proposed 50-year term. Permit terms of both 40 years and 30 years were considered. The result of a reduced permit term would be that less future covered activities would receive incidental take authorization through the HCP/NCCP, and consequently, the amount of fees collected and conservation lands established would also be reduced.

This alternative was rejected during the screening process primarily because a shorter permit term would not provide sufficient time to accomplish the following:

- ▲ fully implement the general plans and other long-range plans of the cities and Yolo County;
- ▲ assemble the reserve system from willing sellers and partnerships with local agencies and private landowners.
- ▲ develop an effective adaptive management program that will be implemented in perpetuity, given the current uncertainties regarding the ecology of covered species and responses to resource management.
- ▲ secure all necessary funding for implementation during the permit term from local, state, and federal sources, and generate funding for the Yolo HCP/NCCP in perpetuity;
- ▲ charge an acceptable fee on development that will facilitate local approvals and continued support of the Yolo HCP/NCCP by the development community during implementation; and
- ▲ provide sufficient incentive for the Conservancy to commit the substantial resources necessary to complete the Yolo HCP/NCCP.

Under this alternative, the first four objectives and purpose screening criteria could not be met and the first two and the last feasibility and reasonableness criteria could not be met.

2.2.2 Additional Covered Species

Various lists of covered species have been considered as the Yolo HCP/NCCP has been prepared. For this alternative, the covered species list included in the June 2013 First Administrative Draft of the Plan, titled the *Yolo County Natural Heritage Program Plan* is used (this first administrative draft plan is available on the Conservancy website at <http://www.yolohabitatconservancy.org/#!/documents/csyl>). Under this alternative, 32 covered species would be included in the Plan, including eight plants, five vernal pool crustacean species, three amphibians, two reptiles, 12 birds, and one mammal (the Townsend's big-eared bat).

This alternative was rejected during the screening process primarily due to cost and the inability to provide a sufficient reserve system for all species. To address all 32 species in the Yolo HCP/NCCP would result in significant additional costs related to collection of data for each species in the Plan Area, preparation of the HCP/NCCP, analysis of each species in the EIS/EIR, and monitoring and management for each species once reserve lands were established. The costs for pre-plan implementation activities exceed the Permit Applicant's available funding and would not meet the first two feasibility and reasonableness screening criteria. To manage and monitor a reserve system that met the first three objectives and purpose screening criteria would require local funding above and beyond funding collected through the Yolo HCP/NCCP, which would place a financial burden on the Permit Applicants that would also not meet the first two feasibility and reasonableness screening criteria. Several of the covered species under this alternative have very limited ranges in the Plan Area and/or require specialized habitat conditions that are uncommon in the Plan Area. There is little confidence that a reserve system that incorporated these species could be developed that met the first four objective and purpose screening criteria.

2.2.3 Reduced Plan Area

Under this alternative, only lands with natural communities associated with the Central Valley floor would be included in the Yolo HCP/NCCP. Lands and associated natural communities, as well as covered activities in the eastern part of the County associated with the coast range would not be included. Some natural communities occurring only in this area, such as closed-cone pine-cypress and montane hardwood, would not be included in the Plan under this alternative.

This alternative was rejected during the screening process primarily because of the inability to provide a sufficient reserve system for all covered species. Several covered species and the natural communities they use occur in both the valley floor and coast range portions of the County. Excluding the coast range portion of the County would limit the amount of covered take under the Plan, but would also limit opportunities for establishment or reserve system lands. Without the ability to incorporate coast range lands into the reserve system, the first four objectives and purpose screening criteria could not be met for all covered species. Because of the limitations on available reserve system lands and the resulting limitation on covered take, the third and sixth feasibility and reasonableness criteria could not be met.

2.2.4 Exclusion of Expanded Plan Area

As mentioned previously in Chapter 1, and discussed in more detail below in Section 2.3.2, Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation), the Yolo HCP/NCCP includes a corridor along the south bank of Putah Creek, in Solano County, where lands can be added into the reserve system. No other activities related to the HCP/NCCP would occur in this corridor, which is referred to as the expanded Plan Area. Under this alternative, the expanded Plan Area would not be included in the Yolo HCP/NCCP.

This alternative was rejected during the screening process primarily because of the hindrances to providing a sufficient reserve system for all covered species and natural communities if natural resource protection and enhanced activities on the south side of Putah Creek could not be incorporated into the Plan. In addition, providing an expanded habitat corridor on both sides of Putah Creek would better support wildlife movement across the Plan Area. Without the inclusion of the expanded Plan Area, the first four objective and purpose screening criteria could not be met, and the third feasibility and reasonableness criteria could not be met.

2.2.5 Reduced Agricultural Impacts

Under this alternative, the placement of agricultural lands into the reserve system would be minimized. This would reduce the acreage of agricultural lands placed under conservation easements and conversion of agricultural land to natural communities as part of the operations and management of some reserve system lands; thereby minimizing changes to type and extent of agricultural lands in the Plan Area relative to existing conditions. To meet conservation objectives, purchases of conservation easements and habitat enhancement and establishment/re-establishment would be shifted to other land cover types.

This alternative was rejected during the screening process primarily because of the inability to provide a sufficient reserve system for all covered species and natural communities. Several covered species use agricultural lands for foraging or other ecological functions (e.g., giant garter snake, Swainson's hawk, white-tailed kite, tricolored blackbird). Placing conservation easements on agricultural lands provides a cost-effective means to preserve agricultural lands in a condition that continues to provide benefits to these species. Minimizing the placement of agricultural lands in the reserve system reduces the overall pool of lands available in the Plan Area for reserves and could shift reserve system acquisitions to land cover types that are costlier to acquire and enhance or modify to provide necessary ecological functions. Under this alternative, the first four objectives and purpose screening criteria could not be met and the first two feasibility and reasonableness criteria could not be met.

2.2.6 Increase Extent of Covered Activities

As the Plan was being prepared, various iterations of the type and extent of covered activities were considered. Alternatives were considered that incorporated covered activities extending over approximately 20,000 acres, approximately 2,000 acres greater than the Proposed Action. Alternatives were also considered that affected up to approximately 19,000 acres of species habitat, approximately 6,000 acres more than the Proposed Action. Based on the increased effects on natural resources and the associated need for increased acreage for the reserve system, the first four objectives and purpose screening criteria could not be met and the last feasibility and reasonableness criteria could not be met.

2.3 ALTERNATIVES CARRIED FORWARD FOR DETAILED ANALYSIS

The alternatives screening process described above resulted in four alternatives to be further analyzed in this EIS/EIR. These alternatives are:

- ▲ Alternative A—No Action Alternative (No Permit/No Plan Implementation),
- ▲ Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation),
- ▲ Alternative C—Reduced Take Alternative, and
- ▲ Alternative D—Reduced Development Alternative.

Each of these are described below.

2.3.1 Alternative A—No Action Alternative (No Permit/No Plan Implementation)

This EIS/EIR includes an analysis of the no action/no project alternative in accordance with the requirements of NEPA and CEQA, respectively. In this document, the no action/no project alternative is referred to as the No Action Alternative. The No Action Alternative is presented in terms of what would happen in the Plan Area in the absence of the proposed incidental take permits from the Wildlife Agencies and implementation of the Yolo HCP/NCCP. The analysis of this alternative allows decision makers and the public to compare the impacts of approving or not approving the proposed action.

GEOGRAPHIC AREA

The geographic area for the No Action Alternative is the same as the Plan Area, as described in Chapter 1, Section 1.3, *Plan Area Boundary* and shown in Exhibit 1-1. Because the purchase of conservation easements in the extended Plan Area in Solano County would not occur under the No Action Alternative, the extended plan area is not part of the geographic boundary of the No Action Alternative. However, because the absence of the extended plan area provides a difference between the action alternatives (i.e., Alternatives B, C, and D) and the No Action Alternative, this area is still considered in the description of the No Action Alternative below.

GENERAL DESCRIPTION

Under the No Action Alternative, permits would not be issued by USFWS or CDFW for incidental take of the proposed covered species through a regional HCP or NCCP. As a result, the Permit Applicants, private developers within their jurisdictions, and other public agencies in the Plan Area would remain subject to the take prohibition for federally listed species under FESA and for state-listed species under CESA. The Permit Applicants and others that have ongoing activities or future actions in the Plan Area that may result in the incidental take of federally listed species would apply, on a project-by-project basis, for incidental take authorization from USFWS through FESA Section 7 (when a federal agency is involved) or Section 10 (for nonfederal actions). Similarly, Permit Applicants and others whose ongoing activities or future actions have the potential for incidental take of state-listed species in the Plan Area would apply for incidental take authorization under CESA through a Section 2081(b) permit.

Under the No Action Alternative, development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., general plans, specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with the applicable general plans). The 50-year study period extends beyond the horizon year for the available plans and it is assumed that growth and development would continue beyond each plan's horizon consistent with past growth rates assumed in each applicable planning document.

Under the No Action Alternative, because the Permit Applicants, other local agencies, and private developers would generate environmental documentation and apply for permits on a project-by-project basis, there would be no established comprehensive means to coordinate and standardize mitigation and compensation requirements of FESA, NCCPA, CEQA, and NEPA within the Plan Area. This is anticipated to result in a more costly and less efficient project review process that would be unlikely to maximize conservation benefits. Coordinated, conservation planning and implementation would not happen on a Plan Area-wide basis as proposed in the Yolo HCP/NCCP. Consequently, the establishment of a system of conservation lands to meet the needs of the species covered by the Yolo HCP/NCCP would not occur. In addition, in the absence of regulatory incentives provided by the Plan, the integration of species conservation into the existing agricultural working landscape, contemplated in the Plan, is unlikely to occur.

It is assumed that all applicable regulatory requirements would be complied with during implementation of projects and activities implemented as part of the No Action Alternative. For example, for any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated

riparian resources) of a river or stream, or use material from a streambed, CDFW may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document prepared for the individual activity or project.

TYPICAL ACTIVITIES

Under the No Action Alternative, various types of projects and activities would continue in the Plan Area consistent with current regulatory practices. While regulatory practices are likely to change over the next 50 years, assumptions about future changes to existing regulations (or new regulations) are speculative. Therefore, it is assumed future regulations would be consistent with existing regulations. The various types of projects and activities assumed to occur under the No Action Alternative are described below. These projects and activities are described using the same organizational categories identified in the Yolo HCP/NCCP (i.e., the Proposed Action) to facilitate comparison between the various EIS/EIR alternatives. The extended Plan Area along Putah Creek in Solano County (Exhibit 1-1) is also addressed.

- ▲ **Urban Projects and Activities:** Urban development would be concentrated in the four Plan Area incorporated cities of Davis, West Sacramento, Winters, and Woodland. Residential, industrial, commercial, mixed-use, recreational and open space, and public/quasi-public land uses, and associated infrastructure and utilities would be developed consistent with local general plans and other planning documents. Construction and operation of flood control facilities in both urban and rural areas are included in this category.
- ▲ **Rural Projects and Activities:** Development in and around rural communities in Yolo County would be implemented consistent with applicable specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with and implement the Yolo County General Plan, and other local general plans if applicable. This would be consistent with the description of “general rural development” in the Yolo HCP/NCCP. The overall *Rural Projects and Activities* category includes planned residential, industrial, commercial, mixed-use, recreational and open space, public/quasi-public land uses, and associated infrastructure and utilities. This category also includes roads and bridges, bike lanes and multi-use trails, airport activities, agricultural economic development and open space, vegetation management, pest management, parks and recreation, and aggregate mining.
 - **Rural Public Services, Infrastructure, and Utilities:** This is a subcategory of projects and activities within the *Rural Projects and Activities* category. Various improvements, replacements, and construction of new public services, infrastructure, and utilities would be undertaken in rural areas. Some of these projects and activities would overlap with those described above for other development categories. This category includes both public and private roadways and bridges; bikeways, bike lanes, and multi-use trails; water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation and distribution facilities; municipal services and facilities; landfills, collection facilities, and transfer stations; stormwater and drainage collection, treatment, and retention/detention facilities; flood control facilities; levees; airport and port projects; and other services, infrastructure, and utilities that serve planned land uses that are consistent with local general plans.
 - **Agricultural Economic Development:** This is a subcategory of projects and activities within the *Rural Projects and Activities* category. Future project and activities in Yolo County would include agricultural industrial, and agricultural commercial land uses that are consistent with the Yolo County General Plan and other applicable planning documents. Agricultural industrial and commercial projects would range from relatively large scale crop storage and processing operations (such as the Clarksburg agricultural industrial/commercial project) to modest farmstands and other commercial ventures with an agricultural focus. This category also includes aggregate mining within the Cache Creek Area Plan (CCAP) boundary (Yolo County 1996).

- **Open Space:** This is a subcategory of projects and activities within the *Rural Projects and Activities* category. Future parks and open space projects would include the expansion of existing, and development of new planned park and open space uses and activities that are consistent with the Yolo County General Plan and the Yolo County Parks and Open Space Master Plan, as well as recreational activities within the Cache Creek Resource Management Plan (CCRMP) boundaries. Examples of individual projects/facilities to be developed within new and existing park sites include campsites, camp host facilities, picnic areas, swimming facilities, beach access, archery, model airplane use, dog park, multi-use trails (horse, bicycle, pedestrian), barbeque areas, mooring docks, fishing piers, off-highway vehicle park, nature centers, overlooks/view platforms, restrooms, and shade structures. Infrastructure supporting these facilities would also be developed as needed, such as access roads, utilities, signage, landscaping, parking lots, launch ramps, trash receptacles, lighting, and drinking fountains.
- **Aggregate Mining:** This is a subcategory of projects and activities within the *Rural Projects and Activities* category. This subcategory includes aggregate mining within the CCAP boundary consistent with the *Off-Channel Mining Plan* (OCMP) (Yolo County 1996).
- ▲ **Public and Private Operations and Maintenance:** Various operations and maintenance activities would be implemented as part of existing and planned land uses, facilities, and services in both urban and rural areas. Activities would include management, operations, rehabilitation, replacement, repair, and maintenance of facilities ranging from utilities, roadways, bridges, and industrial land uses to parks and open space.
- ▲ **Extended Plan Area:** Under the No Action Alternative it is assumed that there would be a continuation of existing conditions in the extended Plan Area along the south side of Putah Creek in Solano County (Exhibit 1-1). The land is primarily used for agriculture and this land use would continue. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Measure O process, and it is anticipated that some additional landowners would also place their land under easement in the future. Various habitat enhancement projects along Putah Creek is assumed to occur, such as those currently implemented by the Lower Putah Creek Coordination Committee (LPCCC).

These typical projects and activities would require consideration of environmental effects on a project-by-project basis. However, these projects would lack an established comprehensive and streamlined mechanism for FESA and CESA compliance through a regional conservation plan. Therefore, in many cases, these activities would be subject to individual project review under FESA and CESA, which would restrict the activities based on the needs of federally and state-listed species. These individual regulatory reviews and permit application processes would take considerably longer and would likely be costlier than the comprehensive and streamlined endangered species compliance process provided by a regional HCP or NCCP.

TYPICAL SPECIES CONSIDERED

Under the No Action Alternative, compliance with FESA and CESA would continue to be addressed on a case-by-case basis. Projects and activities that could result in take of federally listed species would be required to individually comply with FESA through either the Section 10 process when there is no federal nexus (e.g., development of an HCP) or through the Section 7 consultation process in cases in which federal authorization (e.g., Clean Water Act Section 404 permitting by the USACE) or funding (e.g., Federal Highway Administration funding for transportation projects) is required. Section 7 compliance would focus on federally listed species and would not address state-listed or non-listed species. Projects and activities with potential to take state-listed species would be required to comply with CESA by applying to CDFW for a 2081(b) ITP.

The need for FESA and/or CESA compliance would often be identified through the CEQA process. Project proponents would be required to prepare the appropriate CEQA environmental review documents and to

comply with any mitigation requirements identified as part of project-specific environmental review, as well as comply with any applicable policies contained in the general plans for each of the participating jurisdictions. CDFW could also require mitigation for state or federally listed species as conditions of Streambed Alteration Agreements, if required for a specific project.

Consideration of biological resources impacts under CEQA encompasses more species than the listed species considered under FESA and CESA consultation requirements discussed above. Typical CEQA review includes wildlife species designated as *special concern* or *fully protected* by CDFW and plants designated as rare by CDFW, as well as wildlife and plants considered special-status or sensitive in local or regional plans, policies, or regulations. Determinations of impact significance and adequate mitigation would be made by the individual local agency identified as the CEQA lead agency.

Conservation of species and habitats provided through mitigation and compensation under the existing regulatory framework would likely result in a pattern of conservation that is fragmented and managed in a piecemeal fashion. It would not be viable to conserve certain essential ecological processes over a landscape level (e.g., mobility of terrestrial species between multiple habitat areas) under the No Action Alternative because there would not be a coordinated system of conservation areas and linkages between conservation areas. Also, under the No Action Alternative, there would be no mechanism to comprehensively provide for species recovery and no comprehensive performance based management of mitigation/compensation lands or an adaptive management and monitoring program to ensure successful conservation at a landscape scale. Furthermore, project-by-project FESA and CESA permit applications would likely be limited to federally and state-listed species, reducing the number of species that would benefit from conservation actions resulting from compliance with these laws. However, many non-listed species would receive some level of mitigation through implementation of the CEQA process, for actions that trigger CEQA review.

TYPICAL SPECIES MITIGATION

As a result of federal and state consultation for impacts on listed species and project-by-project CEQA and NEPA review for impacts on biological resources, various types of mitigation measures are expected to be required under the No Action Alternative. These types of mitigation measures are listed below.

- ▲ Measures to avoid and minimize effects on the project site and vicinity incorporating generally accepted species specific protocols and/or project-specific measures as required by the CEQA and/or NEPA lead agencies or negotiated with the Wildlife Agencies. This could include preservation and management of habitat on the project site, as well as preconstruction surveys, construction timing restrictions, setback requirements, use restrictions, or other similar measures.
- ▲ Restoration and/or enhancement of habitat on the project site.
- ▲ Compensatory mitigation in offsite areas. Such mitigation could include purchasing credits at a private conservation bank; purchasing and restoring large areas of habitat and using those areas to mitigate impacts from various projects in much the same way that a mitigation bank functions; and purchasing and restoring habitat to mitigate individual project impacts.

Mitigation associated with individual project compliance under the No Project Alternative is expected to result in less conservation and to benefit fewer species than would a regional conservation planning approach.

2.3.2 Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)

This alternative consists of issuance of ITPs by USFWS and CDFW; approval and execution of the IA for the Yolo HCP/NCCP; and approval and implementation of the HCP/NCCP by the Permit Applicants. The Yolo HCP/NCCP is a regional, comprehensive plan that establishes a framework for complying with state and federal endangered species requirements for the Permit Applicants while accommodating compatible future land use and development under the general plans and other applicable planning documents of the local agencies. The Yolo HCP/NCCP is intended to establish and implement a program to conserve ecologically important resources in the Plan Area. The Permit Applicants preparing the Plan are as listed:

- ▲ Yolo County,
- ▲ City of Davis,
- ▲ City of West Sacramento,
- ▲ City of Winters,
- ▲ City of Woodland, and
- ▲ Yolo Habitat Conservancy.

The Yolo HCP/NCCP identifies a range of covered activities (discussed below), which are specific projects and activities within the jurisdictions listed above in the Plan Area that may result in the take of listed species or species that may become listed during the 50-year permit term (covered species). These activities and projects are considered when assessing the total amount of take of covered species that is assumed in the Plan Area and in developing the overall Yolo HCP/NCCP conservation strategy. A summary of the proposed action is presented below, describing the Plan Area, the covered activities, the covered species, and the proposed conservation strategy. For more details on all of these topics, see the Yolo HCP/NCCP (Yolo Habitat Conservancy 2017).

Like for the No Action Alternative, it is assumed that all applicable regulatory requirements would be complied with during implementation of covered activities included as part of the Proposed Action Alternative. For example, for any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, CDFW may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document prepared for the individual activity or project.

PLAN AREA

The Plan Area encompasses all of Yolo County (Exhibit 1-1), covering approximately 653,549 acres (1,021 square miles) and includes the unincorporated areas of Yolo County and the incorporated areas of Davis, West Sacramento, Winters, and Woodland. The Plan Area was subdivided into 22 geographically based planning units in the Yolo HCP/NCCP to facilitate development and implementation of the Plan (Exhibit 2-1, *Planning Units*). These planning units are also used in this EIS/EIR as a mechanism to describe geographic areas and to assist, where relevant, the impact analysis.

The Plan Area also includes an approximately 1,174-acre expanded Plan Area for riparian conservation in Solano County, on the south side of Putah Creek (Exhibit 1-1). The expanded Plan Area would potentially be used to purchase conservation easements and establish reserves and is described further below.

COVERED ACTIVITIES

Covered activities are those existing, planned, and proposed projects and activities for which the Permit Applicants are requesting incidental take authorization from the USFWS and CDFW and for which the Yolo HCP/NCCP will provide avoidance, minimization, and compensation for adverse effects on covered species and natural communities. Projects are considered well-defined actions that typically occur once in a discrete location, unless otherwise noted. Activities are defined as actions that occur repeatedly in one location or throughout the Plan Area.

For the purposes of this EIS/EIR (and consistent with the organization in the HCP/NCCP), covered activities are organized into the following categories and subcategories.

- ▲ Urban projects and activities
 - General urban development
 - Urban public services, infrastructure, and utilities
 - Urban projects in rural areas
- ▲ Rural projects and activities
 - General rural development
 - Rural public services, infrastructure, and utilities
 - Agricultural economic development
 - Open space
 - Aggregate mining
- ▲ Public and private operations and maintenance
- ▲ Conservation strategy implementation and covered activities on reserve lands
- ▲ Neighboring landowner protection program

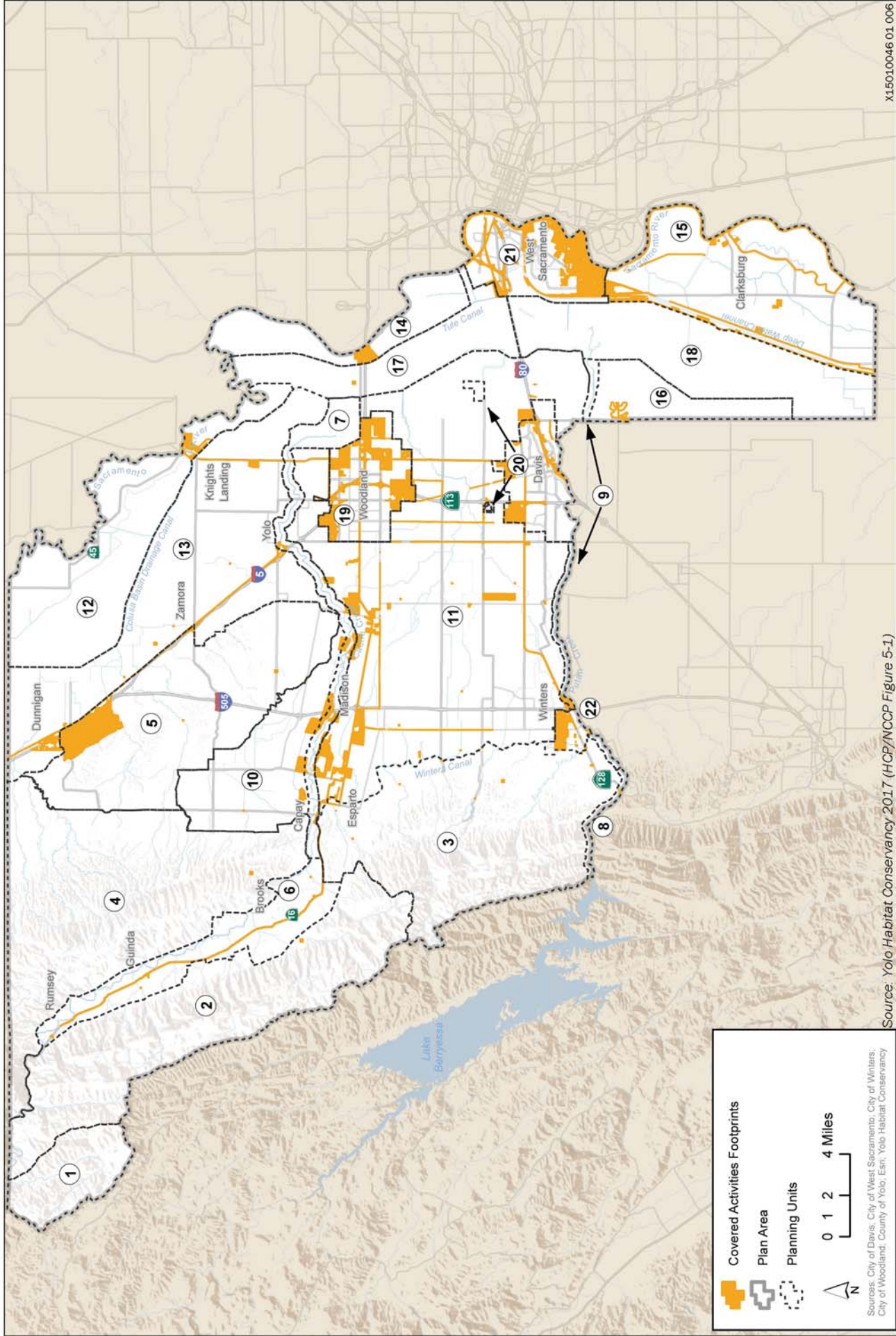
Implementation of the Yolo HCP/NCCP conservation strategy and covered activities on reserve lands, and the neighboring landowner protection program, although not *development* activities, are HCP/NCCP covered activities and receive incidental take authorization as necessary as part of the ITPs. The remaining covered activity categories listed above were selected to be consistent with local planning processes and to group similar types of activities together, which facilitates description and minimizes redundancy. The footprint for the total of the covered activities is shown in Exhibit 2-2, *Covered Activities Footprint*.

Urban Projects and Activities

Urban development would be implemented within the city planning units listed below and shown in Exhibit 2-2.

- ▲ Planning Unit 19 (which includes the City of Woodland), including approximately 3,397 acres of urban projects and activities.
- ▲ Planning Unit 20 (which includes the City of Davis), including approximately 1,251 acres of urban projects and activities.
- ▲ Planning Unit 21 (which includes the City of West Sacramento), including approximately 3,559 acres of urban projects and activities.
- ▲ Planning Unit 22 (which includes the City of Winters), including approximately 713 acres of urban projects and activities.

Urban projects and activities include planned land uses that are consistent with applicable general plans, and other relevant planning documents, including specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans. With the exception of some avoidance of riparian and wetland areas, covered activities in the urban planning units are assumed to result in the removal of all remaining natural and agricultural land cover types.



Source: Yolo Habitat Conservancy 2017 (HCP/NCCP Figure 5-1)

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The urban projects and activities category is divided into three subcategories: general urban development; urban public services, infrastructure, and utilities; and urban projects in rural areas. The covered activities included under each of these subcategories are described below.

General Urban Development

Covered activities in this subcategory include planned residential, industrial, commercial, mixed-use, recreational and open space, and public/quasi-public land uses, including associated infrastructure, consistent with local general plans, including the following:

- ▲ residential uses (single-family homes, multi-family homes [e.g., duplexes, apartment buildings]);
- ▲ commercial uses (retail centers, grocery stores, restaurants, stores and shops, offices);
- ▲ industrial uses (warehouse and distribution centers);
- ▲ public and quasi-public buildings and facilities, including governmental offices, schools, and places of worship; and
- ▲ recreational and open space facilities such as neighborhood parks, dog parks, soccer fields, golf courses, indoor and outdoor sports centers, and trails.

Urban Public Services, Infrastructure, and Utilities

Covered activities in this subcategory include various public service, infrastructure, and utility elements typical of urban settings, including the following:

- ▲ development and operation of new stormwater and drainage collection, treatment, and retention/detention facilities (this includes, but is not limited to, the Woodland drainage channel south of CR25);
- ▲ expansion and improvements to, and maintenance of, existing stormwater and drainage collection, treatment, and retention/detention facilities;
- ▲ development and operation of new flood control facilities, including levees. This includes the West Sacramento Levee Improvement Program;
- ▲ expansion and improvements to existing flood control facilities, including levees. This includes the West Sacramento Levee Improvement Program;
- ▲ development and operation of new wastewater, water collection, storage treatment, and conveyance structures and facilities. This includes the Woodland Water Pollution Control Facility expansion;
- ▲ development and operation of new water supply treatment, storage, and distribution facilities (e.g., pipelines and pump stations);
- ▲ expansion and improvements to existing water supply treatment, storage, and distribution facilities.
- ▲ development and operation of solid waste management facilities, including landfills, collection facilities, recycling plants, and composting facilities;
- ▲ expansion and improvements to existing solid waste management facilities, including landfills, collection facilities, recycling plants, and composting facilities;
- ▲ development, expansion, and improvements to transportation facilities, including sidewalks, bike paths, paved and unpaved roads, public bridges, culverts, and transit facilities;

- ▲ development, expansion, and improvements to public service facilities, including new fire stations, police stations, communications facilities, public administration centers, theatres, museums, community centers, community gardens, and concession buildings;
- ▲ development, expansion, improvements, and operation of public and private utilities such as energy generation and distribution facilities (excluding wind farms and solar), including underground and aerial electric transmission and distribution lines, telecommunications lines, and gas pipelines. The HCP/NCCP does not cover wind farms;
- ▲ development, expansion, and operation of parks, open space, and trails; and
- ▲ construction and replacement of underground and aerial utility infrastructure, including telecommunications lines, cell phone and wireless communication facilities, lighting, cable television lines, electric power transmission lines (bulk transfer of electrical energy, from generating power plants to electrical substations), electric power distribution lines (local electric power distribution lines), natural gas pipelines, aviation and other fuel lines, water supply pipelines, and wastewater pipelines.

Woodland Water Pollution Control Facility Expansion

This HCP/NCCP would provide coverage to the Woodland Water Pollution Control Facility Expansion project. The Water Pollution Control Facility (WPCF) is a 10.4-million-gallon-per-day wastewater treatment plant that serves the city of Woodland. The City of Woodland owns and operates the WPCF. The facility uses a tertiary (advanced) treatment system, with the treated effluent discharged into the Tule Canal within the Yolo Bypass. Approximately 315 acres of ponds are used for the treatment of sludge and storage of excess wastewater during periods of peak flow.

Physical improvements to be constructed at the WPCF, which would be covered activities, include:

- ▲ Modification of the four existing oxidation ditches into anoxic and aerated zones.
- ▲ Installation of submersible mixers and fine bubble diffusers to replace the older and less-efficient surface brush aerators.
- ▲ Construction of a blower building on a 0.26-acre pad south of the oxidation ditches, outside of the existing fence line.
- ▲ Additional improvements at two of the 12 existing approximate 4,800-square-foot settling ponds (the two central ponds on the east side) to improve sludge removal. These improvements would entail adding lime and Portland cement to the existing soil.
- ▲ Construction of approximately 2,700 linear feet of new pipe between the existing ponds.
- ▲ Installation of eight new manholes.

These improvements are expected to reduce secondary power usage by 30 percent and reduce indirect air emissions, including greenhouse gases related to energy usage. Additional benefits include improved sludge settleability and process stability. The process would also remove additional nitrogen from the water, which would improve the quality of the effluent.

Urban Projects in Rural Areas

Covered activities in this subcategory consist of portions of the West Sacramento Levee Improvement Program in locations that would currently be viewed as rural areas, development of the Davis Mace Ranch Innovation Center (a business park covering 223 acres, near the City of Davis in Planning Unit 11), a drainage project in the City of Woodland, and operations and maintenance activities in the City of Davis El Macero Channel.

The West Sacramento Levee Improvement Program seeks to improve the levees in Yolo County that protect the city of West Sacramento. This project covers 496 acres and would improve approximately 50 miles of levees. The West Sacramento Area Flood Control Agency is teaming with the U.S. Army Corps of Engineers and the California Department of Water Resources to implement the project. Levee improvement and stabilization activities may include repair or rehabilitation of levees as well as full reconstruction of levees.

Flood control design components that may be utilized include those listed below.

- ▲ regrading of bank slopes;
- ▲ installation of hardscape;
- ▲ temporary stream diversion during construction;
- ▲ planting: this includes vegetative slope and soil stabilization. All planting will be implemented to allow proper flood conveyance and may include hydroseeding on all earthen surfaces above the channel bed;
- ▲ reconstruction or improvement of floodwalls and/or levees. Work may result in a raised or expanded levee;
- ▲ maintenance road construction; and
- ▲ installation or repair of culverts or outfall structures
- ▲ structural improvements, including expanding the levee footprint, increasing the height of the levee, or adding new material to support the levee.

The anticipated footprint for the levee work, including borrow areas developed to provide fill for levee construction, are reflected in Exhibit 2-2.

Rural Projects and Activities

This category of covered activities includes planned land uses within the 18 rural planning units (1 through 18), including specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with and implement the Yolo County General Plan and other local general plans if applicable. These planning units encompass 17 unincorporated (rural) towns and places, listed below. This category also includes roads and bridges, bike lanes and multi-use trails, airport projects, agricultural economic development and open space, parks and recreation, and aggregate mining.

The rural projects and activities category is divided into four secondary categories: general rural development; rural public services, infrastructure, and utilities; agricultural economic development and open space, and implementation of the Cache Creek Resources Management Plan (CCRMP). The covered activities included under each of these subcategories are described below.

General Rural Development

Covered activities in this subcategory include planned residential, industrial, commercial, mixed-use, park and open space, and public/quasi-public land uses that are consistent with the Yolo County General Plan and other local applicable planning documents. It includes planned growth within the adopted growth boundaries for unincorporated communities/places identified in the Yolo County General Plan. It also includes the Dunnigan Specific Plan.

The Yolo County General Plan identifies unincorporated (rural) towns and places with land uses other than agriculture. These towns/places are geographically discrete and individually and collectively small in scale. For the purposes of discussing these towns/places, these areas are called unincorporated communities/places. General rural development covered activities could occur within the boundaries of the following unincorporated communities/places (Exhibit 2-3, *City and Rural Community General Plan Buildout*):

Capay
 Clarksburg
 Dunnigan
 Elkhorn
 El Rio Villa
 Esparto
 Guinda
 Interstate 505/County Road 14
 Knights Landing

Madison
 Monument Hills
 North Davis Meadows
 Rumsey
 Willow Oak
 Yolo
 Yolo Fruit Stand/Interstate 80
 Zamora

The types of future development that could occur in these areas are the same as those described for Urban Projects and Activities, because the land uses in these areas are non-agricultural. In general, the unincorporated communities are not expected to experience significant growth beyond existing conditions. Most of the unincorporated community development that is planned to occur will be focused in the following six unincorporated communities: Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing.

With the exception of some riparian and wetland avoidance, covered activities in the unincorporated communities are assumed to result in the removal of all remaining natural and agricultural land cover types. As such, operation and maintenance of covered activities in the unincorporated communities is included in this subcategory and is not included in the description of Public and Private Operations and Maintenance below.

This category also includes the following, to the extent that each activity is under the discretionary authority of a Permit Applicant:

- ▲ Vegetation management, including fuel reduction (e.g., hand and mechanized removal and controlled burns), tree removal and pruning, grazing activities, invasive vegetation control/removal, hazardous tree removal, weed abatement, algae control in ponds, and revegetation to prevent re-invasion of invasive plants.
- ▲ Implementation of integrated pest management programs. (with some limitations, such as the use of pesticides and herbicides is not a covered activity)

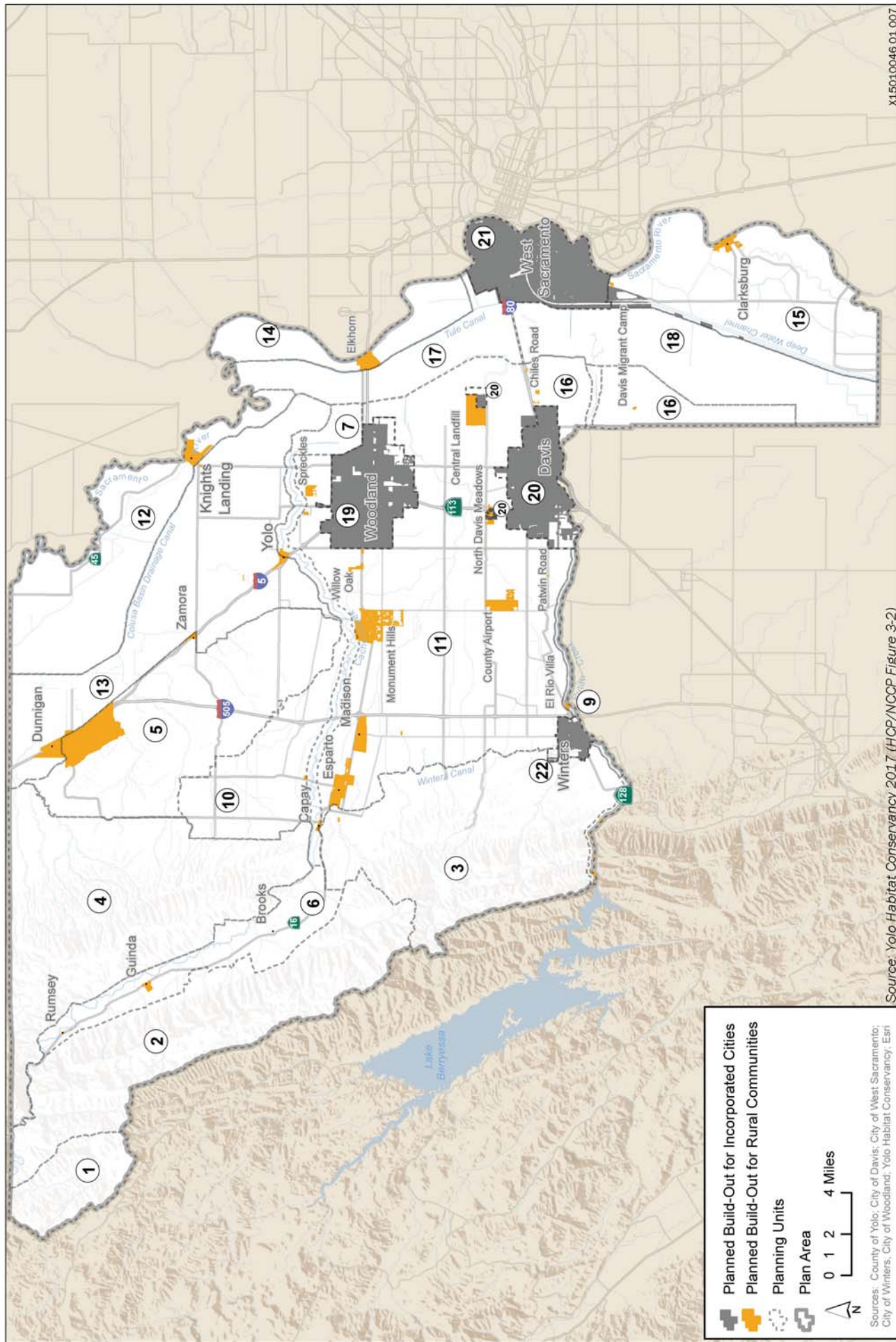
Rural Public Services, Infrastructure, and Utilities

Covered activities in this subcategory include various public service, infrastructure, and utility elements that may occur in rural settings including the following: public and private roadways and bridges; bikeways and pathways; water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation and distribution facilities; municipal services and facilities; landfills, collection facilities, and transfer stations; stormwater and drainage collection, treatment, and retention/detention facilities; flood control facilities; levees; and airport activities. Further details on several of these elements are provided below.

Roads and Bridges

The Yolo County General Plan identifies several road and bridge projects. The Yolo HCP/NCCP would provide coverage for the following future roadway network improvements (Exhibit 3-3):

- ▲ County Road (CR) 21A: Upgrade to a major two-lane county road standard between CR 85B and State Route (SR) 16,
- ▲ CR 85B: Upgrade to a major two-lane county road standard between SR 16 and CR 21A,



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Source: Yolo Habitat Conservancy 2017 (HCP/NCCP Figure 3-2)

- ▲ CR 99W: Widen to a four-lane arterial between CR 2 and CR 8,
- ▲ SR 16: Widen to a four-lane arterial between CR 21A and Interstate 505, and
- ▲ CR 6: This road improvement is subsumed within the Dunnigan Hills development identified in the discussion of General Rural Development.

The Yolo HCP/NCCP would provide coverage for the following additional roadway improvements, which include, but are not limited to, intersection control and lane configuration improvements, passing lanes, and/or wider travel lanes and shoulders:

- ▲ CR 89 between SR 16 and CR 29A, and
- ▲ CR 102 between CR 13 and Woodland city limits and between Woodland city limits and Davis city limits.

The Yolo HCP/NCCP would also provide coverage for the replacement/rehabilitation of up to 26 bridges and construction of up to three new bridges. The 26 bridges identified for replacement/rehabilitation are listed below. Although up to three new bridges are included in the covered activities, specific locations for these bridges have not been identified.

Bridges:

22C-0095 on CR 49 over Hamilton Creek	22C-0105 on CR 20 over Chickahominy Slough
22C-0126 on CR 96 over Union School Slough	22C-0055 on CR 26 over Winters Canal
22C-0127 on CR 96 over Dry Slough	22C-0004 on CR 94B over Cache Creek
22C-0085 on CR 32D over a branch of Putah Creek	22C-0045 on CR 31 over Chickahominy Slough
22C-0102 on CR 25 over Cottonwood Slough	22C-0075 on CR 25 over Cottonwood Slough
22C-131 on CR 12 over Willow Spring Creek	22C-0116 on CR 25 over the north fork of Willow Slough
22C-0144 on CR 19 over Slough S3	22C-0111 on CR 28 over Union School Slough
22C-0112 on CR 29 over Winters Canal	22C-0136 on CR 91B over Oat Creek
22C-0082 on CR 85 over Goodnow Slough	22C-0094 on CR 40A over Pine Creek
22C-0110 on CR 88 over Winters Canal	22C-0096 on CR 82 over Salt Creek
22C-109 on CR 88 over Union School Slough	22C-0121 on CR 91A over Dry Slough
22C-0108 on CR 27 over Union School Slough	22C-0059 on CR 23 over a tributary of Lamb Valley Slough
22C-0133 on CR 12A over Oat Creek	
22C-0138 on CR 97 over Slough S7	

Bike Lanes and Multi-Use Trails

Several bike lanes and multi-use trails are identified in the general plans for Yolo County and the city of Woodland and would be covered activities under the Yolo HCP/NCCP. Projects may be constructed along existing roads, levees, or railways or may require new alignments independent of existing or proposed infrastructure. The addition of bike lanes along existing roads would include expansion of existing roadways to accommodate four- to six-foot-wide bike lanes on either side of the road. Multi-use trails along levees or railways are expected to be between 10 and 40 feet. Trails would also be constructed on the Woodland Regional Park site, the Davis Communications Facilities site, and within the CCRMP boundaries. The location of trails on the Woodland Regional Park site will be subject to Wildlife Agency approval.

The Woodland-Davis Alternative Transportation Corridor project would provide an off-road path between the cities of Davis and Woodland. The path would be paved and 10 feet wide. It is expected to be used mainly by bicycles, but it could also be used by low-speed electric vehicles and pedestrians. The project would tie into the regional bikeway system along the Interstate 80 corridor through connections in Davis.

Airport Activities

Planned future development at the Yolo County Airport is included as a covered activity. This would include construction of new hangars and other airport-related uses, and runway improvements, over the next

twenty years. The expansion would occur on agricultural lands owned by the County and located adjacent to the existing airport runway and hangars.

Agricultural Economic Development

Covered activities in this subcategory include agricultural and economic development activities that occur outside of approved growth boundaries for unincorporated communities/places in the rural planning units (1 through 18). This subcategory is limited to agricultural industrial, and agricultural commercial land uses that are consistent with the Yolo County General Plan. It does not include general agricultural land uses and activities.

The Yolo HCP/NCCP provides coverage for activities associated with agricultural commercial and agricultural industrial development pursuant to the Yolo County General Plan that are under the discretionary authority of Yolo County. The primary project/activity with this category is the planned Clarksburg agricultural industrial/commercial project covering approximately 54 acres. Based on the Yolo County General Plan, agricultural industrial/commercial activities anticipated in Zamora and at the intersection of I-505 and SR-128 are also included in this category. Agricultural industrial uses include agricultural research, processing, and storage; supply; service; crop dusting; agricultural chemical and equipment sales; and surface mining. Agricultural commercial uses include roadside stands, wineries, farm-based tourism (e.g., u-pick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, and ancillary restaurants and/or stores.

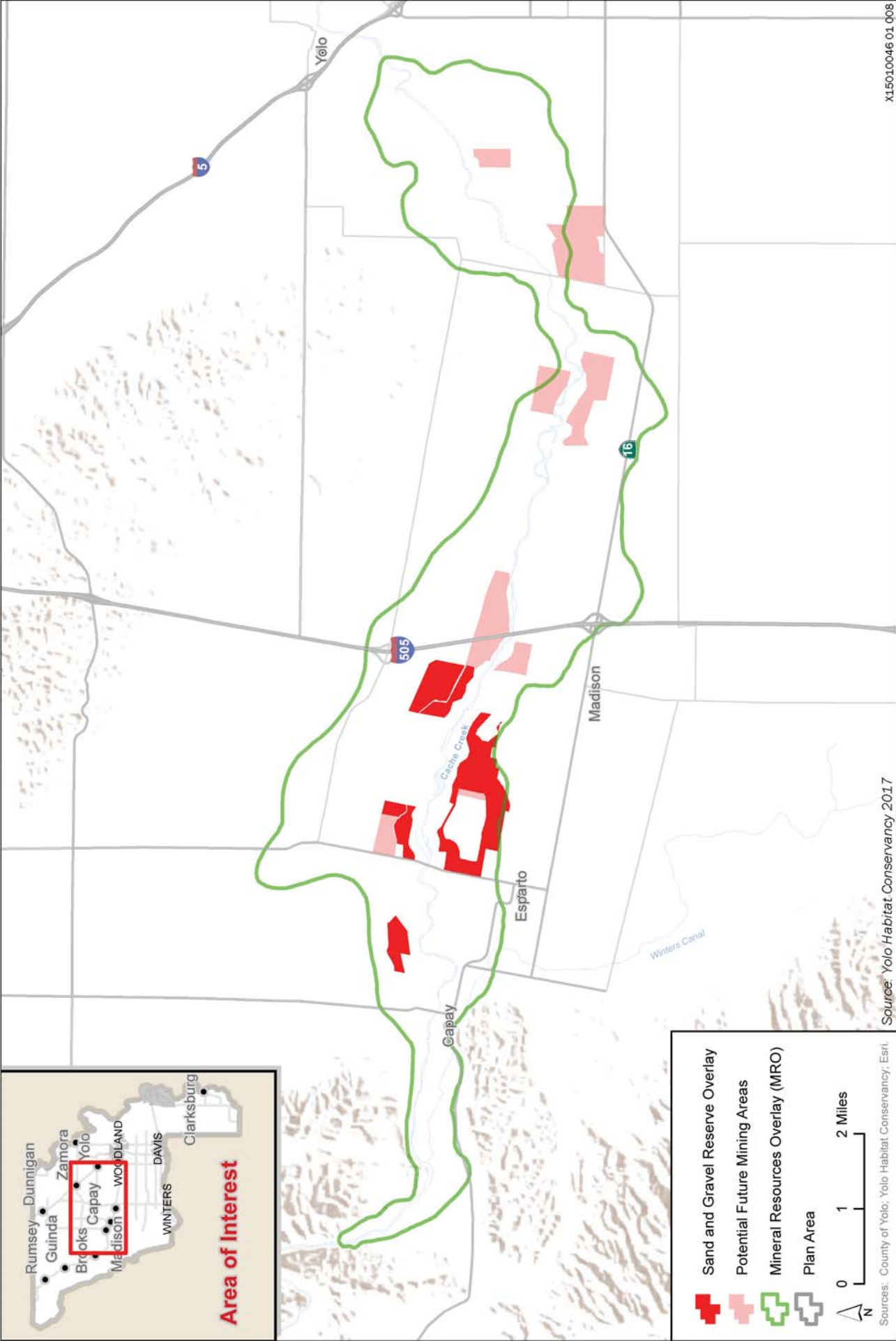
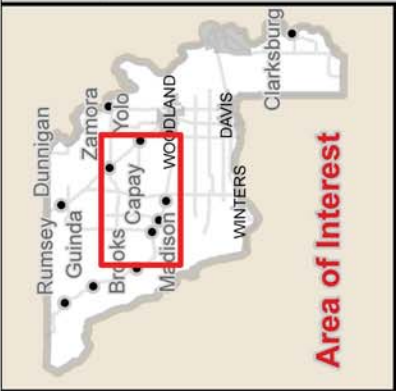
Open Space

The Yolo HCP/NCCP provides coverage for the expansion of existing and development of new planned park and open space uses and activities that are consistent with the Yolo County General Plan and the Yolo County Parks and Open Space Master Plan, and recreational activities within the CCRMP boundaries and consistent with the Yolo County Cache Creek Area Plan. Anticipated facilities and uses include areas for campsites, picnicking, swimming, water skiing, fishing, rafting and inner-tubing, archery, drone and model airplane use, dog park, horseshoes, beach access, nature study, general natural enjoyment, habitat preservation and educational tours, multi-use trails (horse, bicycle, pedestrian), barbeque areas, mooring docks, fishing piers, off-highway vehicle park, nature centers, overlooks/view platforms, restrooms, shade structures, hunting, fishing, birdwatching and other wildlife viewing, photography, gold panning, historic or archaeological exploration (provided no ground disturbance), camp host facilities, use of ATVs or other off-road vehicles for management purposes only, and general open space and passive recreational uses. Covered activities also include infrastructure and amenities associated with these facilities, such as access roads, utilities, signage, landscaping, parking lots, launch ramps, trash receptacles, lighting, and drinking fountains.

Aggregate Mining

The Yolo HCP/NCCP covers aggregate mining within the CCAP boundary, consistent with the OCMP (Yolo County 1996). This aggregate mining area is shown in Exhibit 2-4, *Cache Creek Aggregate Mining Area*. The OCMP and relevant implementing ordinances (i.e., the Off-Channel Surface Mining Ordinance and the Surface Mining Reclamation Ordinance) currently authorize seven off-channel mining operations along Cache Creek.

Development of a mining site typically follows a phased plan, which entails clearing of surface vegetation, removal and stockpiling of topsoil for future use in reclamation activities, mining of sand and gravel (i.e., construction aggregate), processing of mined aggregate at rock processing plants in the mine area, and reclamation of the mined lands to such uses as agricultural, lake, habitat, and open space. Facilities that would be constructed in the mine area to support aggregate mining activities include sand and gravel processing plants, asphalt-concrete hot mix plants, concrete batch plants, material stockpiles, settling ponds, water wells, and haul roads. Other covered activities include prospecting and exploration within the OCMP planning area, use of conveyor systems, dust control, equipment maintenance, site maintenance, and paved and unpaved road maintenance.



■ Sand and Gravel Reserve Overlay
■ Potential Future Mining Areas
■ Mineral Resources Overlay (MRO)
■ Plan Area

Sources: County of Yolo; Yolo Habitat Conservancy; Esri.

Source: Yolo Habitat Conservancy 2017

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Cache Creek Aggregate Mining Area

Site reclamation and restoration activities within approved mine sites are also covered activities. Activities necessary for reclamation may include backfilled excavation improvements supporting trails, roadways, agricultural fields, habitat restoration, and recreation/open space facilities; bank stabilization (grading, revegetation, and biotechnical/bioengineered stabilization); fencing; grading for field drainage and releveling; importing topsoil; soil compaction; seeding, planting, irrigation, and maintenance of revegetated areas until the desired reclaimed condition is established; and erosion control.

Mining of off-channel aggregate deposits along lower Cache Creek within the OCMP boundary is expected to continue throughout the 50-year study period and beyond.

Public and Private Operations and Maintenance

This category of covered activities includes activities that are necessary for the ongoing operation and maintenance of existing and planned land uses, facilities, and services in both urban and rural planning units throughout the Plan Area. Many common operations and maintenance activities do not typically require take coverage because the activities occur on existing developed sites and do not have the potential to affect covered species. However, situations could arise when operations and maintenance activities would benefit from take coverage. The public and private operations and maintenance category is divided into two subcategories: general urban and rural development operations and maintenance, and public services, infrastructure, and utilities operations and maintenance. The covered activities included under each of these subcategories are described below.

General Urban and Rural Development Operations and Maintenance

Covered activities in this subcategory include operations and maintenance activities related to park and open space facilities, including the management, operations, rehabilitation, replacement, repair, and maintenance of park and open space facilities described previously under other categories of covered activities. The following activities are specifically included in this subcategory:

- ▲ repair, maintenance, and replacement of signage;
- ▲ landscaping;
- ▲ placement of trash receptacles, lighting, drinking fountains, and associated infrastructure necessary to support these facilities;
- ▲ removal of infrastructure (e.g., building structures, roads, trails, stock ponds) for public safety, resource protection, and park management;
- ▲ vegetation management and erosion control;
- ▲ management of natural resources, such as enhancement of freshwater resources, sensitive species management and monitoring outside of the reserve system, prescribed burns, invasive vegetation management, management of exotic nuisance species, and managed grazing;
- ▲ trail maintenance, including grading, clearing vegetation, erosion control, paving, re-paving, abandonment, and restoration;
- ▲ pest abatement to manage rodents, insects, and disease and weed abatement to manage fire hazards outside the reserve system, including the removal of dead and dying wood, trees, and vegetation in agricultural areas. Use of pesticides is not a covered activity; therefore, authorization is not provided for pesticide use that would result in take of covered species;
- ▲ surveys and monitoring to support management decisions outside of the reserve system;
- ▲ enhancement and restoration projects outside of the reserve system;

- ▲ maintenance of water delivery systems: this includes maintenance of in-stream structures that have a screened pipe that pulls water from a local stream or channel into the property;
- ▲ activities associated with the maintenance of large facilities, including golf courses, large-event facilities, and sports complexes;
- ▲ equestrian facilities and uses, including equestrian stables, equestrian centers, trails, manure management, equestrian group camping and horse grazing activities; and
- ▲ minor remediation projects (less than 1.0 acre) for spills, illegal dumping, fuel/chemical storage, and firing ranges.

Covered activities in the urban planning units (described previously in the discussion of Urban Projects and Activities) as well as those activities occurring in unincorporated communities (described previously in the discussion of Agricultural Industrial and Agricultural Commercial) are generally assumed to result in the removal of all natural and agricultural land cover types. As such, coverage for operations and maintenance activities in the urban planning units is included in the urban projects and activities category and not described in this category. Similarly, operations and maintenance covered activities occurring in the growth boundaries of unincorporated communities/places are included in the general rural development subcategory and not described in this category.

Public Services, Infrastructure, and Utilities Operations and Maintenance

As described previously in the discussion of Rural Public Services, Infrastructure and Utilities, there is a variety of different infrastructure that will be constructed or expanded over the permit term. This is in addition to existing infrastructure. Although this infrastructure may be diverse in nature, it may share common operations and maintenance needs. The operations and maintenance activities listed below are covered activities within this subcategory. Further subcategories are included to specify any operations and maintenance activities that may be required for various infrastructure beyond this list of common operations and maintenance activities.

- ▲ general maintenance of existing or future facilities, including repair, replacement, and general upkeep;
- ▲ mechanical and manual vegetation management, including mowing, disking, and manual pruning. As identified previously for other covered activity categories, pesticide use (including herbicide) is not a covered activity;
- ▲ vegetation and wetland management for mosquito control purposes (as identified previously, use of pesticides is not a covered activity; therefore, authorization is not provided for pesticide use that would result in take of covered species);
- ▲ seeding or planting of disturbed areas;
- ▲ dust management;
- ▲ installation or maintenance of fencing or lighting;
- ▲ fuel management activities, including the maintenance of fire management zones along existing infrastructure (e.g., roads); and
- ▲ site inspections of facilities. Small-scale repairs (e.g., fence and gate repairs, graffiti removal, trash and small debris removal) may be made as part of regular site inspections.

These operations and maintenance activities apply to the following facilities:

- ▲ Yolo County Airport and the Port of West Sacramento;

- ▲ landfills, collection facilities, and transfer stations;
- ▲ energy generation and distribution facilities;
- ▲ wastewater collection, treatment, and disposal facilities; and
- ▲ stormwater and drainage collection, treatment, and retention/detention facilities.

These operations and maintenance activities also apply to the following types of activities that have special operations and maintenance requirements, which are described in more detail below; roadways, bridges, bikeways, and multi-use pathways; flood control facilities and levees; general utilities; water supply, treatment, storage, and distribution facilities and implementation of the CCRMP.

Roads, Bridges, Bike Lanes, and Multi-Use Pathways

The Yolo HCP/NCCP provides coverage for up to 246 acres of operations and maintenance activities at transportation facilities or infrastructure, including rehabilitation of and improvements to existing and future bridges; transit facilities, highways, freeways, interstates, public and private roadways, bicycle lanes, roadside parking and viewing facilities; and ancillary drainage systems. Covered activities are limited to actions within the rights-of-way of new and existing roadways and facilities.

Covered operations and maintenance activities include curbing, grading, and resurfacing of roadways; repair, replacement and maintenance of guardrails, lighting fixtures, fences, and signage; installation of safety devices/safety barriers; road sweeping; drainage measures associated with roads; and other maintenance, repair, and rehabilitation activities, including necessary modification of ditches/conveyance facilities, back-slopes, and shoulders. Coverage is also provided for bridge and culvert repair. Operation and maintenance of bridges and associated drainage structures includes in-channel operation of equipment to repair and prevent scour of the streambed beneath and adjacent to bridge structures, dewatering activities to support in-channel work, natural debris and trash removal from bridge piers and pilings or from streambeds, vegetation management beneath and adjacent to bridge structures, and erosion/sediment control for bridges and drainage infrastructure beneath and adjacent to bridge structures. Additional activities include patching bike paths and roadways; grading and mowing paths, roadways, and shoulders; and erosion and dust control.

Flood Control Facilities

The Yolo HCP/NCCP provides coverage for maintenance of up to 150 acres of flood control structures and associated water conveyance infrastructure, including sediment removal, bank stabilization, vegetation management, and natural and trash debris removal. Local flood control and water districts and reclamation districts would be the primary entities implementing flood control facility maintenance. Covered activities include the following:

- ▲ repairing previous erosion control work;
- ▲ bank and levee stabilization and repair projects. May include use of rock riprap, grouting of holes, planting vegetation, placing earthen fill, installing gabions or using other bank stabilization methods;
- ▲ installation of water measurement devices, scientific measuring devices, and water quality monitoring stations;
- ▲ sloping, planting vegetation, placing earthen fill, installing rocks and gabions or using other bank stabilization methods, and taking other necessary measures to control erosion on previously unrevetted areas;
- ▲ cleaning, washing, painting, or conducting minor repairs on structures;
- ▲ vegetation management, including:
 - cutting, mowing, disking, tilling, ripping, burning, and grazing (e.g., cattle, goats, or sheep);

- cutting, trimming, and removing the lower branches of large trees to facilitate site inspections, maintain channel capacity, and maintain native plant communities;
- removing downed trees and dead or live trees that are in clear danger of falling in, or across a channel and that would significantly reduce channel capacity, accelerate erosion, or otherwise cause an emergency;
- removing dead trees, dying trees, and new trees less than four inches in diameter at breast height to maintain channel capacity, preventing erosion, and maintaining native plant communities;
- scraping, scouring, and dredging channels to remove vegetation and/or maintain conveyance capacity and stockpiling removed material on channel banks or access roads;
- killing or removing nonnative invasive vegetation by nonchemical means;
- ▲ activities to restore native habitats, including adjusting land contours, shaping channel banks, tilling, plowing, disking, or otherwise preparing soils of channel banks and adjacent land for planting of native plants; seeding and planting native plants; and placing habitat features such as nest boxes;
- ▲ planting of channel vegetation using mechanized planters and hand-planting; and
- ▲ installation of irrigation systems during periods of plant establishment and application of irrigation water.

General Utilities

The Yolo HCP/NCCP provides coverage for operations and maintenance activities related to up to 150 acres of public and private utility facilities, including natural gas, electric, water, sewer, communications, and other utility infrastructure. The 150 acres are subsumed within the total acreage of development within the covered activities map. The operations and maintenance activities include surveying, excavation, trenching, replacement of above- or below-ground infrastructure, transmission line reconductoring, material storage, and restoration of disturbed ground at maintenance sites. Maintenance of underground utilities often requires trenching around existing pipelines and conducting repairs or replacing segments of pipeline.

Water Supply, Treatment, Storage, and Distribution Facilities

The following activities may be conducted as part of routine pipeline maintenance:

- ▲ internal pipeline inspection and leak repair: either activity may require dewatering of pipes to local uplands or streams and/or excavation to access pipelines;
- ▲ unscheduled releases of water due to a pressure surge in a pipeline that could damage the pipeline. Under such conditions, an automatic turnout valve will open and release the water to prevent the pipe from bursting. The valves typically open for less than one minute and shut as soon as system pressure drops;
- ▲ rehabilitation and/or replacement of pipeline components: activities may include excavation to access pipelines;
- ▲ bank stabilization and erosion control within a creek related to pipeline maintenance. Bank protection work would occur prior to a planned discharge in areas where banks within 50 feet of the discharge point show signs of erosion or instability. May require excavation;
- ▲ Replacement/repair of buried service valves (including valves within creek embankments that may require excavation and minor bank stabilization activities).
- ▲ Maintenance of pipeline turnouts, including access to pipelines.
- ▲ Replacement/repair of appurtenances, fittings, manholes, and meters.

- ▲ Vault maintenance. Vaults occur along segments of pipeline. Pipeline components are located within vaults. There are different types of vaults, and all are considered confined spaces. Structures other than the pipeline contained within the vaults include valves, electrical stations, turnout piping, etc. Telemetry pull boxes, corrosion monitoring stations, and some air release valves are not located within vaults. Vaults are typically made of concrete and may be located immediately below grade (i.e., below ground level) or partially or fully above grade.
- ▲ Telemetry cable/system inspections and repairs. Telemetry systems allow communication of data from the pipeline to the pipeline operator so that the operator can track the operations of the pipeline. Telemetry cables are often sited in the center of roads. May require excavation to access system components.
- ▲ Meter inspections and repairs. Flow meters measure the rate of flow through a pipeline. Some meters are located in vaults, while others are not; and.
- ▲ maintenance of pump stations, operation yards, utility yards, and corporation yards.

Cache Creek Resources Management Plan

The CCRMP addresses management of 2,324 acres of in-channel activities along a 14.5-mile reach of lower Cache Creek in the same area shown for aggregate mining in Exhibit 2-4. The Cache Creek Improvement Program (CCIP) was developed to implement the goals, objectives, actions, and performance standards of the CCRMP as it relates to the maintenance, stabilization, and restoration of lower Cache Creek.

The actions described in the CCRMP/CCIP are undertaken for the sole and/or primary purpose of the five activities listed below. With the exception of pesticide application, all activities associated with the CCRMP/CCIP are covered by the Yolo HCP/NCCP. Some activities described in the CCRMP/CCIP will be integrated with the conservation strategy of this HCP/NCCP described below in the section titled *Conservation Strategy*. However, other activities may occur independent of the HCP/NCCP conservation strategy.

The general types of in-channel activities that are covered activities include the following:

- ▲ habitat preservation, enhancement, and restoration;
- ▲ aquifer recharge and conjunctive water use;
- ▲ channel stabilization;
- ▲ erosion control and channel maintenance; and
- ▲ public open space and recreation, including trail construction.

Conservation Strategy Implementation and Covered Activities on Reserve Lands

In addition to the activities and projects described above, the Yolo HCP/NCCP provides take authorization for the actions included in the conservation strategy (acres quantified in Table 2-2 below), thereby making implementation of the conservation strategy a covered activity. Various elements of this portion of the covered activities are described below.

Management Activities

This category of conservation strategy covered activity includes all management actions required by the HCP/NCCP or other actions that might be necessary to achieve the specified biological goals and objectives. This category includes construction, maintenance, repair, replacement, and use of facilities needed to manage the reserve system, including, but not limited to, maintenance sheds, shade structures, roads, culverts, fences, gates, wells, stock tanks, and stock ponds. All reserve system management structures will be constructed to minimize adverse effects on covered species and natural communities. Facilities existing at the time of land acquisition will be used whenever feasible. Other actions may include, but are not limited to, the following.

- ▲ vegetation management using livestock grazing, manual labor, prescribed burning, and/or herbicides (Herbicides will be used in accordance with label instructions and in compliance with state and local laws. Any pesticide use must comply with all existing injunctions related to the use of pesticides. For example, a May 2010 injunction disallows the use of certain pesticides within habitat and buffer zones established for California tiger salamander. Pesticide use is not a covered activity under this HCP/NCCP; therefore, all pesticide use must avoid take of state or federally listed species.);
- ▲ seed collection from palmate-bracted bird's beak for depositing in a seed bank on a case-by-case basis, contingent on approval by the Wildlife Agencies;
- ▲ development of field facilities for workshop space and tool and machinery storage;
- ▲ construction, rehabilitation, and maintenance of facilities (e.g., corrals, fencing, gates, feed storage, water delivery) to support livestock grazing as a covered species management tool;
- ▲ maintenance of existing roads and new roads constructed for the reserve system to protect or enhance the conservation values of the reserve, including grading and relocation of roads to protect sensitive resources;
- ▲ demolition or removal of structures, roads, or human-made livestock ponds to restore habitat;
- ▲ use of motorized vehicles for patrolling, maintenance, and resource management activities in the reserve system;
- ▲ use of mechanized equipment for construction, maintenance, and resource management projects in the reserve system;
- ▲ control of nonnative wildlife species (e.g., feral cats and dogs, nonnative pigs, nonnative red fox, nonnative fish, bullfrogs, barred tiger salamanders, and hybrids). As identified previously for other covered activity categories, pesticide use (including rodenticide) is not a covered activity;
- ▲ stream maintenance for natural community and covered species habitat purposes;
- ▲ installation of wells, the water from which will be used to fill stock ponds or provide water sources for cattle consistent with management plans for California tiger salamander management plans, where this species potentially occurs. Wells will be installed only as necessary for natural resource management purposes and when no alternative surface water supplies are available. Wells will be sited so that they do not degrade surrounding habitat;
- ▲ surveys and monitoring for mitigation and restoration/habitat enhancement projects;
- ▲ fire management, including prescribed burning, mowing, and fuel-break establishment and maintenance;
- ▲ hazardous materials remediation, such as appropriate closure of underground storage tanks, soil remediation, cleanup of illegal dumping;
- ▲ repair or replacement of existing facilities damaged by flood, fire, or earthquake to pre-damage condition;
- ▲ operations related to water delivery for ponds and other aquatic habitat; and
- ▲ water delivery for use in operations facilities (e.g., field facilities and the native plant nursery).

Public Access and Recreation in the Reserve System

Limited public access and recreational use of reserves is permitted under this Yolo HCP/NCCP. To the extent possible, recreational facilities will use existing infrastructure such as existing trails and fire or ranch roads. Covered activities do not include off-trail recreational activities or any type of activity specifically prohibited by the Yolo HCP/NCCP.

Habitat Enhancement, Restoration, and Creation

The conservation strategy includes requirements for habitat enhancement, restoration, and creation. Examples of habitat enhancement, restoration, and creation activities include, but are not limited to, the following:

- ▲ creating hedgerows on farm field edges;
- ▲ pond creation;
- ▲ restoration projects in streams, riparian areas, wetlands, and uplands;
- ▲ native vegetation planting; and
- ▲ removal of invasive species (excluding uses of pesticide, herbicide, rodenticide, etc. that could result in take).

Species Surveys, Monitoring, and Research

As part of implementation of the conservation strategy, biologists will need to conduct surveys for covered species, natural communities, and other resources within the reserves on a regular basis for monitoring, research, and adaptive management purposes. These surveys may require physical capture and inspection of specimens to determine identity, mark individuals, or measure physical features, all of which may be considered take under the FESA or CESA. Surveys for covered species will also be conducted on private land that the Conservancy is considering for acquisition. Although these surveys are not expected to require as much handling of specimens, limited take may still occur. These actions are all considered covered activities.

Agricultural Practices within the Reserve System

Normal and routine agricultural practices on reserve lands are covered activities under the HCP/NCCP, provided they are consistent with the conservation easement. These covered agricultural activities are listed in HCP/NCCP Appendix M, *Yolo County Agricultural Practices*. Appendix M describes typical seasonal activities on farms in Yolo County, but the seasonal descriptions are provided only as a guide. Some farms conduct these activities outside the typical time periods listed, but their actions are still covered under the HCP/NCCP provided they are consistent with the conservation easement. All such activities on reserve lands must avoid and minimize effects on covered species as described in HCP/NCCP Section 4.3.6, *Avoidance and Minimization Measures within the Reserve System*.

Western Burrowing Owl Relocation

As described in HCP/NCCP Chapter 4, Section 4.3.4, *Avoidance and Minimization Measures*, Avoidance and Minimization Measure 17 (AMM17) provides for passive relocation of western burrowing owls from project sites to avoid and minimize adverse effects on this species. It also allows for active relocation upon Wildlife Agency approval. This relocation is a covered activity under the Yolo HCP/NCCP.

Neighboring Landowner Protection Program

The conservation strategy aims to increase populations of covered species through habitat protection, restoration, and enhancement. Certain covered species may disperse from the reserve system, in response to this active management, onto neighboring private lands that are not part of the reserve system. The Yolo HCP/NCCP includes a neighboring landowner protection program to protect landowners in the Plan Area near reserves on agricultural lands from the regulatory consequences of covered species dispersal.

The neighboring landowner protection program only applies to normal agricultural practices described in the Yolo HCP/NCCP Appendix M, *Yolo Agricultural Practices*. The neighboring landowner protection program also only provides coverage for species that disperse onto lands after the creation of the neighboring reserve (i.e., only for take authorization above baseline levels on the neighboring land as determined by surveys). Take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy due to take of individuals that disperse off the reserve lands. There

would be no additional take of covered species habitat (or natural communities) as a result of the neighboring landowner protection program. The neighboring landowner protection program is described in detail in HCP/NCCP Chapter 7, Section 7.7.7.1, *Neighboring Landowner Protection Program*.

The effects associated with the dispersal of covered species from the reserve system onto neighboring lands are anticipated to be very limited and restricted to the species that meet the criteria listed below.

- ▲ covered species that are expected to increase in numbers on the reserves;
- ▲ covered species that are likely to spread from the reserve system onto neighboring lands as their populations increase;
- ▲ covered species for which there is a reasonable likelihood of take from routine, ongoing agricultural activities that would occur on the neighboring lands.

Based on the criteria above, only four of the 12 covered species have the potential to disperse onto adjacent properties and result in take: valley elderberry longhorn beetle, giant garter snake, California tiger salamander, and western pond turtle. Take coverage is therefore only available through this program for these four covered species.

Participation in this program is voluntary. Interested landowners wanting coverage must sign an Opt-in Agreement with the Conservancy. Owners of private lands that are actively used for agricultural purposes (e.g., crop production) adjacent to reserve system lands will receive take coverage for one or more of these four species under the Yolo HCP/NCCP if they opt in to this program. Take coverage by species is based on the neighboring land's distance from the nearest reserve land. A radius was set for each species over which the program applies based on the species' typical dispersal distance. Although these species are capable of dispersing further than these distances, each radius accounts for the most likely area of effect.

- ▲ Valley elderberry longhorn beetle = 0.25 mile.
- ▲ Giant garter snake and western pond turtle = 0.5 mile.
- ▲ California tiger salamander = 1.0 mile.

Coverage would be provided to agricultural operations only for take beyond the baseline condition that existed prior to the establishment of the neighboring reserves. Furthermore, this coverage would be limited only to ongoing and routine agricultural activities on lands enrolled in the neighboring landowner protection program. Ongoing and routine activities would include normal farming practices. Coverage under the neighboring landowner protection program would expire when the permits expire. The neighboring landowner protection program would not transfer if the property is sold.

Based on the landowner participation in other counties with approved HCPs and NCCPs (e.g., San Joaquin County, East Contra Costa County, Santa Clara Valley) that have similar programs, it is assumed that up to three percent of eligible lands would enter into neighboring land agreements, for a total of no more than 2,347 acres. Of this, it is assumed that most of the potential effects will occur on land cover types that support farming (agricultural and grassland land cover types), which are used by California tiger salamander and western pond turtle for non-breeding, secondary foraging, or dispersal habitat, and not as breeding or primary habitat. The habitat for the valley elderberry longhorn beetle and western pond turtle on cultivated lands is typically of low value (and non-breeding), so the magnitude of impacts is expected to be low or very low. Giant garter snakes may use wetlands, rice lands, and irrigation channels adjacent to reserves for foraging, cover, or dispersal. Although rice lands and irrigation ditches can provide high-value habitat for the giant garter snake, ongoing agricultural practices are not expected to adversely affect populations of this species, as giant garter snakes commonly persist in cultivated landscapes, particularly rice lands.

Adverse effects from allowable agricultural activities on giant garter snake, and western pond turtle could result from rodent control, active farming practices, vehicle and machinery travel, runoff from fields, or disturbance to adjacent streams or wetlands.

The amount of take to be authorized for western pond turtle, California tiger salamander, and valley elderberry longhorn beetle through this program includes up to all individuals (or elderberry shrubs, in the case of valley elderberry longhorn beetle) that are above baseline conditions within up to 2,347 acres enrolled in the neighboring landowner protection program. The amount of take to be authorized for giant garter snake individuals are those above baseline and up to the take total included for all covered activities as listed in Table 5-2(b) of the HCP/NCCP.

COVERED SPECIES

Covered species are species that would be authorized for take and conserved and protected under the Yolo HCP/NCCP. The Yolo HCP/NCCP includes 12 species for coverage under the ITPs (Table 2-1).

Table 2-1		Covered Species	
Common Name		Scientific Name	Status Federal/State/Other ^a
Plants			
1	Palmate-bracted bird's beak	<i>Chloropyron palmatum</i> ^b	E/E/1B
Invertebrates			
2	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T/-/-
Amphibians			
3	California tiger salamander (Central California DPS)	<i>Ambystoma californiense</i>	T/T/-
Reptiles			
4	Western pond turtle	<i>Actinemys marmorata</i>	-/CSC/-
5	Giant garter snake	<i>Thamnophis gigas</i>	T/T/-
Birds			
6	Swainson's hawk	<i>Buteo swainsoni</i>	-/T/-
7	White-tailed kite	<i>Elanus leucurus</i>	-/FP/-
8	Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	T/E/-
9	Western burrowing owl	<i>Athene cunicularia hypugaea</i>	-/CSC/-
10	Least Bell's vireo	<i>Vireo bellii pusillus</i>	E/E/-
11	Bank swallow	<i>Riparia riparia</i>	-/T/-
12	Tricolored blackbird	<i>Agelaius tricolor</i>	-/C/-
^a Status:			
<u>Federal</u>		<u>State</u>	<u>Other</u>
E = Listed as endangered under the FESA		C = Candidate for listing under the CESA	1B = California Native Plant Society (CNPS)
T = Listed as threatened under the FESA		CSC = California species of special concern	designation for species that are rare or
- = No designation		E = Listed as endangered under the CESA	endangered in California and elsewhere.
		FP = Fully protected under California Fish and Game Code	- = No designation
		T = Listed as threatened under the CESA	
		- = No designation	
^b Formerly <i>Cordylanthus palmatus</i> .			
DPS = distinct population segment; FESA = Federal Endangered Species Act; CESA = California Endangered Species Act			

CONSERVATION STRATEGY

The Yolo HCP/NCCP conservation strategy and its component parts are part of the proposed action. The conservation strategy was designed to meet the regulatory requirements of FESA and the NCCPA and to streamline compliance with NEPA, CEQA, and other applicable environmental regulations. The conservation strategy provides for the conservation of covered species in the Plan Area necessary to meet the requirements of the NCCPA and includes the mitigation of impacts necessary under Section 10 of FESA to allow covered activities in the Plan Area to move forward. The conservation strategy, detailed in Chapter 6 of

the Yolo HCP/NCCP, consists of details regarding the reserve system, biological goals and objectives, conservation measures, and a monitoring and adaptive management program.

The conservation strategy also will build on decades of local, state, and federal conservation efforts in the Plan Area, including the establishment of the Yolo Bypass Wildlife Area, implementation of the CCRMP and Willow Slough Watershed Integrated Resources Management Plan, and the efforts of the LPCCC. Combined with the responsible land use planning of the Plan Area jurisdictions, existing and new conservation efforts will provide significant habitat for many species, including those covered by the Yolo HCP/NCCP. The Yolo HCP/NCCP is only one part of a significant conservation network in the Plan Area. Conservation resulting from the Yolo HCP/NCCP will add to the large amount of land that already has varying levels of conservation status in the Plan Area. This land conserves a diverse array of natural communities and species habitat. Furthermore, existing conservation organizations that work in the Plan Area, such as the Yolo County Resource Conservation District, Putah Creek Council, Yolo Basin Foundation, and the Cache Creek Conservancy, have long worked to improve habitat in the Plan Area, including through the installation of hedgerows on cultivated lands and the restoration of riparian vegetation and ponds to benefit wildlife. Furthermore, the Conservancy is developing the Yolo Local Conservation Plan concurrent with the Yolo HCP/NCCP. The Local Conservation Plan, which is compatible with but separate from the Yolo HCP/NCCP, will guide the conservation of sensitive species that are not covered by the HCP/NCCP and the natural communities upon which they depend. Although the Yolo HCP/NCCP will benefit many of these species and natural communities, the Local Conservation Plan extends the benefits of the HCP/NCCP to species and natural communities that may be addressed at the project level through CEQA.

To meet the NCCPA permit standards, the conservation strategy provides for the conservation of covered species by protecting, enhancing, restoring, and managing natural communities, covered species habitats, and occurrences of covered species.

The conservation strategy achieves the following objectives, pursuant to the NCCPA (Section 2820):

- ▲ conserve, restore, and provide for the management of representative natural and seminatural communities;
- ▲ establish reserves that provide for the conservation of covered species within the Yolo HCP/NCCP geographic area and linkages to adjacent habitat outside the Plan Area; and
- ▲ protect and maintain habitat areas that are large enough to support sustainable populations of covered species.
- ▲ incorporate in the reserve system a range of environmental gradients and high habitat diversity to provide for shifting species distributions in response to changing circumstances (e.g., in response to climate change); and
- ▲ sustain the effective movement and genetic interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the reserve system.

Reserve System

The key element of the conservation strategy is the development of the reserve system. As stated above, there have been decades of local, state, and federal conservation efforts in the Plan Area, and these have resulted in significant existing protected lands in Yolo County. The Conservancy will build the reserve system adjacent to and around these existing protected to expand and connect lands that are likely to remain in open space and support natural communities and covered species. The conservation strategy involves integrating lands placed into the reserve system via the Yolo HCP/NCCP (*newly protected lands*) with lands currently part of preserves or that are under existing conservation easements (*baseline public and easement lands*), as well as formally enrolling some of the baseline public and easement lands into the HCP/NCCP reserve system as *pre-permit reserve lands* so that the Conservancy, other Permit Applicants, or Wildlife

Agencies can monitor and adaptively manage these lands consistent with the Yolo HCP/NCCP's biological goals and objectives.

Table 2-2, *Reserve System Land Types*, provides further information on newly protected lands and pre-permit reserve lands, including commitments to minimum acreages of each land type to ultimately be included into the reserve system. Table 2-2 also makes a distinction between *mitigation lands* and *conservation lands*. Mitigation lands are those lands the Conservancy will protect to mitigate the impacts of take of covered species to meet the requirements of Section 10(a)(1)(B) of the Endangered Species Act. Conservation lands are those lands that the Conservancy will protect above and beyond the mitigation land commitments to meet conservation requirements of the NCCPA. Table 2-2 also provides information on the category of *restored/created lands*. Restored/created lands are lands that the Conservancy places under a permanent conservation easement, or that are already protected through a conservation easement, and the Conservancy restores or creates a wetland natural community type on the land. The ultimate amount of wetland restoration/creation will be directly linked to effects from covered activities, with restored/created mitigation land acreages retaining at least a 1:1 ratio with removal/fill of wetlands, open water, and riparian natural communities from covered activities. The Yolo HCP/NCCP provides a limit of 912 acres of removal of these natural communities; therefore, restored/created mitigation lands would total 912 acres or less at the end of the HCP/NCCP permit term. An additional 44 acres of restored/created conservation lands would be included in the reserve system.

Table 2-2 Reserve System Land Types

The reserve system consists of all lands that are protected, monitored, and adaptively managed consistent with commitments in the Yolo HCP/NCCP. All lands defined below comprise the reserve system.

Type of Conservation	Definition	Mitigation/Conservation	Commitment (acres)
Newly Protected Lands	Lands that were not previously (generally before permit issuance) protected through a conservation easement or other mechanism and that the Conservancy places under a permanent conservation easement and enrolls in the reserve system. These include lands protected for mitigation and conservation lands to meet NCCPA requirements.	Newly protected <i>mitigation lands</i> are those lands the Conservancy will protect to mitigate the impacts of take consistent with Section 10(a)(1)(B) of the Endangered Species Act.	16,175
		Newly protected <i>conservation lands</i> are those the Conservancy will protect above and beyond the <i>mitigation land</i> commitments to meet conservation requirements of the NCCPA.	8,231
		Newly Protected Lands Subtotal	24,406
Restored/Created Lands	Lands that the Conservancy places under a permanent conservation easement, or that are already protected through a conservation easement, and the Conservancy restores or creates as a wetland natural community type.	Restored/created <i>mitigation lands</i> are those lands that the Conservancy will restore or create to mitigate the impacts of take consistent with Section 10(a)(1)(B) of the Endangered Species Act (mitigation will occur through a combination of newly protected and restored lands).	1:1 ratio for wetlands, open water, and riparian ≤ 912
		Restored/created <i>conservation lands</i> are those that the Conservancy will restore or create above and beyond the <i>mitigation land</i> commitments to meet conservation requirements of the NCCPA. This restoration or creation will take place regardless of the level of natural community and habitat loss.	44
		Restored/Protected Lands Subtotal	≤ 956
Pre-permit Reserve Lands	Baseline public and easement lands that are enrolled into the reserve system.	Pre-permit reserve lands are <i>conservation lands</i> . They will not count toward <i>mitigation</i> .	8,000
TOTAL			33,362^a

^a Assuming the full 912 acres of restoration dependent on effect.

Source: Yolo Habitat Conservancy 2017, corresponds to Table 6-1(b)

Table 2-3, *Newly Protected Lands Commitments*, provides further detail on the commitments for lands in the newly protected lands category, providing acreages of natural communities and covered species habitat to be included this portion of the reserve system. Table 2-4, *Pre-permit Reserve Lands Commitments*, provides the same information for pre-permit reserve lands that will be enrolled into the reserve system. Table 2-5, *Covered Species Occupancy Commitments*, provides information on the minimum commitments to habitat availability and, where applicable, occupancy of covered species in the reserve system.

Table 2-3 Newly Protected Lands Commitments

Natural Community	Natural Community Protection Requirements	Covered Species Protection Requirements
Cultivated Lands (non-rice)	14,362 acres	2,500 acres western burrowing owl habitat
		14,362 acres Swainson's hawk foraging habitat
Cultivated Lands (rice)	2,800 acres	2,800 acres giant garter snake habitat
Grassland	4,430 acres, of which at least 3,000 acres is in planning unit 5.	2,115 acres western burrowing owl habitat
		At least 2,000 acres California tiger salamander habitat (prioritize protection in critical habitat)
		4,430 acres Swainson's hawk foraging habitat
Oak Woodland	30 acres (10 acres as mitigation for loss of three acres of Blue Oak Woodland and conservation of an additional 20 acres of valley oak woodland)	N/A
Alkali Prairie	33.7 acres on Woodland Regional Park	33.7 acres on Woodland Regional Park
Fresh Emergent Wetland	500 acres	300 acres giant garter snake habitat
		150 acres of tricolored blackbird nesting habitat and one active tricolored blackbird nesting colony (colony may be on pre-permit reserve land) (Table 6-2(b), <i>Pre-permit Reserve Lands Commitments</i>).
Valley Foothill Riparian	1,600 acres primarily in planning units 5 and 7.	Prioritize protection of valley elderberry longhorn beetle populations
		500 acres western yellow-billed cuckoo habitat
		600 acres least Bell's vireo habitat
Lacustrine and Riverine	600 acres	At least 36 acres of aquatic California tiger salamander habitat. At least five pools that support all life stages of the salamander through all water year types (restored pools may contribute to this requirement)
		At least 420 acres of giant garter snake habitat.
Other (Bank Swallow)	50 acres in planning unit 7	50 acres bank swallow habitat in planning unit 7, with at least one active bank swallow colony
All Natural Communities Protected (Total)	24,406	At least 1,160 acres of giant garter snake active-season upland movement habitat and 2,315 acres of giant garter snake overwintering habitat
		At least 18,865 acres of white-tailed kite foraging habitat
		At least 20 Swainson's hawk nest trees and 2 white-tailed kite nest trees (active within last five years)
		At least two breeding pairs of western burrowing owls for each pair displaced as a result of covered activities.

Source: Yolo Habitat Conservancy 2017, corresponds to Table 6-2(a)

Table 2-4 Pre-permit Reserve Lands Commitments

Natural Community	Natural Community Enrollment Requirement	Covered Species Requirements
Cultivated lands (non-rice)	3,649 acres	700 acres of western burrowing owl habitat 3,649 acres of Swainson's hawk foraging habitat
Cultivated lands (rice)	1,775 acres	1,775 acres of giant garter snake habitat
Grassland	335 acres	335 acres of western burrowing owl habitat 335 acres of Swainson's hawk foraging habitat
Fresh emergent wetland	750 acres	155 acres of tricolored blackbird nesting habitat 750 acres of giant garter snake habitat
Other Land Cover Types	1,491 acres	
Total	8,000 acres	

Source: Yolo Habitat Conservancy 2017, corresponds to Table 6-2(b)

Table 2-5 Covered Species Occupancy Commitments

Covered Species	Occupancy Commitment
Palmate-bracted bird's beak	Increase the 10-year average population size of palmate-bracted bird's-beak on Woodland Regional Park by at least 10% by managing and enhancing habitat. This will be achieved through monitoring and adaptive management of the population as described in Section 6.5.6.3.1, <i>Palmate-Bracted Bird's Beak</i> .
Valley elderberry longhorn beetle	Occupied habitat will be prioritized during the site selection process for the reserve system. The location of habitat protection is subject to Wildlife Agency approval consistent with Section 7.5.2, <i>Acquisition Process</i> . The intent of the HCP/NCCP is to protect occupied habitat, but protection may include unoccupied habitat that may become occupied in the future.
California tiger salamander	Protect at least five California tiger salamander breeding pools that are each found to support all life stages of the salamander through all water year types (i.e., drought year, wet year, moderate rainfall year).
Western pond turtle	Protect at least 3 breeding sites.
Giant garter snake	All giant garter snake habitat acquired for the reserve system that will count toward the achievement of the Yolo HCP/NCCP biological goals and objectives (Objectives GGS1.1, GGS1.2, and GGS1.3) will be occupied as defined in Section 6.4.1.8.3, Giant Garter Snake. A site is considered occupied if it is within an occupied habitat unit. The geographical extent of occupied habitat units at the time of Plan approval are shown in Figure 6-12. These units were identified based on species occurrence data, habitat quality, habitat connectivity, and habitat patch size. After five years, an occupied habitat unit is considered to remain occupied if there is documented presence of both male and female individuals in both adult and juvenile age classes during at least two out of every five consecutive calendar years (i.e., measurements start after five years of Plan implementation).
Swainson's hawk	Protect 20 Swainson's hawk nest trees (a nest tree is a tree that has been occupied within at least one of the previous five years). The schedule for nest tree protection will be based on the HCP/NCCP's Stay Ahead provisions (Section 7.5.3, <i>Stay Ahead Provision</i>).
White-tailed kite	Protect at least 2 nesting nest trees (a nest tree is a tree that has been occupied within at least one of the previous five years).
Western yellow-billed cuckoo	The HCP/NCCP has no occupancy requirements for this species, as there are no nesting populations currently known to occur in the Plan Area.
Western burrowing owl	Maintain at least two active burrowing owl nesting sites. Additionally, maintain at least two active nesting sites for each nesting pair displaced by covered activities, and one active nesting site or single owl site for each non-breeding single owl displaced by covered activities. (An active nesting site is defined as a breeding burrow or burrow complex occupied by a single breeding pair. A single owl site is defined as a burrow or burrow complex occupied by a or nonbreeding individual.)
Least Bell's vireo	The HCP/NCCP has no specific occupancy requirements for this species, as there are no nesting populations currently known to occur in the Plan Area.
Bank swallow	50 acres of habitat on a site or sites occupied by this species in Planning Unit 7 or along the Sacramento River (a "site" is a habitat patch within one tenth of a mile of an occupied burrow).
Tricolored blackbird	Maintain at least two tricolored blackbird nesting colonies in the reserve system.

Source: Yolo Habitat Conservancy 2017 (Corresponds to Table 6-2(c))

Overall, the Yolo HCP/NCCP reserve system would include 24,406 acres of newly protected natural communities and species habitat, up to 956 acres of restoration or creation if the maximum allowable wetland, open water, or riparian loss is reached, 44 acres of wetland, open water, and riparian restoration independent of effects, and 8,000 acres of additional pre-permit reserve lands enrolled into the reserve system, for a total of 33,362 acres conserved if the maximum natural community and covered species habitat loss occurs.

Lands may be acquired for inclusion in the reserve system through the following mechanisms:

- purchase in fee title by the Conservancy or a Permittee and put under a conservation easement consistent with the requirements in the Yolo HCP/NCCP (see HCP/NCCP Section 7.5.5, *Conservation Easements*);
- acquisition of conservation easements on private lands by the Conservancy, a Permittee, or a state or federal agency that meets Yolo HCP/NCCP habitat protection requirements (see HCP/NCCP Section 7.5.5, *Conservation Easements*);
- conservation easement and/or fee title acquisition by conservation organizations (e.g., land conservancies and land trusts) that protect and manage lands in conformance with Yolo HCP/NCCP requirements (see HCP/NCCP Section 7.5.4, *Land Acquired by Other Organizations or through Partnerships*); and
- purchase of mitigation credits from private mitigation or conservation banks approved by USFWS and CDFW, within the Plan Area, and meeting the protection and management requirements of the Yolo HCP/NCCP (see HCP/NCCP Section 7.5.10, *Use of Mitigation Banks*).

The Conservancy is expected to use conservation easements more frequently than other acquisition methods to protect the working landscape of agricultural lands and natural lands in the Plan Area. In general, lands the Conservancy acquires through fee title will be lands intended for substantial changes in land use for habitat improvement, such as habitat restoration, or that have significant habitat value and purchase of an easement is not possible. Use of conservation easements is the preferred habitat protection method for cultivated lands on which the ongoing agricultural use supports achieving the Yolo HCP/NCCP biological goals and objectives.

A Conservation Easement Template is included as Appendix K of the Yolo HCP/NCCP. The template addresses standards, conditions, rights, prohibitions, and other elements that would act as a starting point for negotiations with landowners for easement purchases. CDFW and USFWS, along with the Conservancy, must review and approve any substantive modifications to the template easement. The template anticipates preparation of a Management Plan concurrent with negotiation/preparation of the easement. The easement will generally include terms that are permanently tied to the property, where the Management Plan will contain terms relating to agricultural and other uses that may, with the consent of the landowner, the Yolo Habitat Conservancy, and the Wildlife Agencies, vary over time due to changing conditions. A Management Plan may also contain terms relating to recreational uses, public access, and other uses and activities that are of interest to an individual landowner and are determined to be compatible with the conservation of biological and other resources on the property. The Management Plan will also address monitoring of the easement property to ensure ongoing compliance with the terms of the Conservation Easement.

Biological Goals and Objectives and Conservation Measures

Biological goals and objectives are the foundation of the conservation strategy and are intended to provide the following functions (see Section 6.1.1 of the Yolo HCP/NCCP):

- describe the desired biological outcomes of the conservation strategy and how those outcomes will provide for the conservation of covered species and their habitats;

- ▲ provide quantitative commitments and timeframes for achieving the desired outcomes;
- ▲ serve as benchmarks by which to measure progress in achieving those outcomes across multiple temporal and spatial scales; and
- ▲ provide metrics for the monitoring program that will evaluate the effectiveness of the conservation measures and, if necessary, provide a basis to adjust the conservation measures to achieve the desired outcomes.

The biological goals and objectives reflect the expected ecological outcomes of full implementation of the Yolo HCP/NCCP. The biological goals set out the broad principles the Conservancy used to help guide the development of the conservation strategy. The biological objectives describe the conservation commitments. Objectives are measurable and quantitative to the extent possible; they clearly state a desired result and will collectively achieve the biological goals. Table 2-6, *Biological Goals and Objectives*, provides each of the biological goals and objectives at the landscape, natural community, and covered species levels. Further detail regarding biological goals and objectives is provided in Section 6.3, *Biological Goals and Objectives*, of the Yolo HCP/NCCP.

Table 2-6 Biological Goals and Objectives

Landscape-Level Goals and Objectives

Goal L-1: Large interconnected landscapes within the range of physical and biological attributes (e.g., slope, soils, hydrology, climate, and plant associations) in the Plan Area to support the distribution and abundance of covered species and their habitats, provide for the movement and genetic interchange among populations of covered species, and conserve native biodiversity.

Objective L-1.1: Conserve 32,406 acres of natural communities and covered species habitats, composed of 24,406 acres of newly protected lands and 8,000 acres of additional pre-permit reserve lands enrolled into the reserve system. Restore or create up to 956 acres of wetlands and riparian natural community.

Objective L-1.2: Include a variety of environmental gradients (e.g., hydrology, elevation, soils, slope, and aspect) within and across a diversity of protected and restored natural communities within the Plan Area.

Objective L-1.3: Increase the size and connectivity of the network of protected lands in the Plan Area by acquiring newly protected lands for the reserve system adjacent to and between baseline protected lands.

Objective L-1.4: Prioritize land acquisition and natural community restoration to support a corridor comprised of patches of woody and herbaceous riparian vegetation, where it can be sustained by natural flows, within the Cache Creek floodplain and extending the length of Cache Creek from the west boundary of planning unit 7 to the Cache Creek Settling Basin exclusive of existing and potential aggregate mining areas (Yolo HCP/NCCP Exhibit 6-3, *Ecological Corridors*).

Objective L-1.5: Prioritize land acquisition and natural community restoration to support a corridor comprised of patches of woody and herbaceous riparian vegetation, where it can be sustained by natural flows, within the Putah Creek floodplain and extending the length of Putah Creek from the west boundary of planning unit 9 to the Putah Sinks exclusive of existing and potential aggregate mining areas (Yolo HCP/NCCP Exhibit 6-3, *Ecological Corridors*).

Objective L-1.6: Prioritize land acquisition and restoration to support a corridor comprised of patches of woody and herbaceous riparian vegetation along the Sacramento River and Yolo Bypass in planning units 12, 14, 15, and 21 (Yolo HCP/NCCP Exhibit 6-3, *Ecological Corridors*).

Goal L-2: Ecological processes and conditions that sustain and reestablish natural communities and native species.

Objective L-2.1: Increase native species diversity and relative cover of native plant species, and reduce the introduction and proliferation of nonnative plant and animal species across the reserve system.

Objective L-2.2: Increase the abundance of native insect pollinators that support reproduction of native plant species and long-term production of agricultural crops that support habitat for covered and other native wildlife species.

Objective L-2.3: Allow for natural fluvial processes (erosion, deposition, meandering channels) along river reaches within the reserve system, consistent with goals of the Cache Creek Resources Management Plan and other relevant creek management plans that balance the need for natural fluvial processes with flood and erosion control needs.

Table 2-6 Biological Goals and Objectives

Natural Community Level Goals and Objectives
Cultivated Lands Seminatural Community
Goal NC-CL1: Cultivated lands that support habitat for covered and other native wildlife species.
Objective NC-CL1.1: Protect at least 14,362 acres of unprotected non-rice cultivated lands that provide habitat value for covered and other native species. Field borders mapped as <i>Semiagricultural/Incidental to Agriculture</i> that provide habitat for covered species will count towards this requirement. Some of these lands may be substituted for grassland habitat upon approval by the Wildlife Agencies.
Objective NC-CL1.2: Protect at least 2,800 acres of unprotected flooded rice that provides habitat value for covered and other native species. If these fields cannot be flooded due to drought or market conditions, ensure water remains in conveyance channels. Some of these lands may be substituted for wetlands that benefit covered species, upon approval by the Wildlife Agencies.
Objective NC-CL1.3: Enroll at least 5,424 acres of cultivated lands natural community on baseline public and easement lands into the reserve system as pre-permit reserve lands.
Objective NC-CL1.4: Maintain or enhance the habitat value of the cultivated lands natural community in the reserve system for raptors.
Grassland Natural Community
Goal NC-G1: Large, contiguous patches of grassland, and smaller patches within a mosaic of other natural community types, to sustain and enhance the distribution and abundance of associated covered and other native species in the Conservation Reserve Area.
Objective NC-G1.1: Protect 4,430 acres of unprotected grassland, including at least 3,000 acres in the Dunnigan Hills planning unit (PU 5).
Objective NC-G1.2: Maintain and enhance the functions of protected grassland in the reserve system as habitat for covered and other native species by increasing burrow availability for burrow-dependent species, and increasing prey abundance and accessibility for grassland-foraging species.
Valley Foothill Riparian Natural Community
Goal NC-VFR1: Functional valley foothill riparian natural community that benefits covered species and promotes native biodiversity in the Plan Area.
Objective NC-VFR1.1: Protect, manage, and enhance 1,600 acres of unprotected valley foothill riparian distributed primarily in planning units 7 and 9.
Objective NC-VFR1.2: Restore and manage 608 acres of valley foothill riparian natural community. Site the restoration to improve connectivity among patches of existing valley foothill riparian vegetation within the Cache Creek and Putah Creek corridors and the Sacramento River. Widen the riparian zones along creek corridors wherever feasible, creating larger nodes of riparian natural community along narrow riparian stretches.
Alkali Prairie Natural Community
Goal NC-AP1: A reserve system that protects the habitat values of the remaining alkali prairie natural community in the Plan Area.
Objective NC-AP1.1: Protect 33 acres of alkali prairie natural community on the Woodland Regional Park prior to any loss of this natural community as a result of covered activities (Yolo HCP/NCCP Exhibit 6-4, <i>Alkali Prairie Natural Community and Baseline Public and Easement Lands</i>).
Objective NC-AP1.2: Implement management activities (primarily control of nonnative plants and human activities) within the Woodland Regional Park to reduce adverse effects on habitat conditions and enhance the functions of alkali prairie within the reserve system as habitat for covered and other native species, such as saltgrass.
Fresh Emergent Wetland Natural Community
Goal NC-FEW1: Functional fresh emergent wetland natural community that benefits covered species and promotes native biodiversity in the Plan Area.
Objective NC-FEW1.1: Protect and manage 500 acres of fresh emergent wetland.
Objective NC-FEW1.2: Restore 88 acres of fresh emergent wetland natural community.
Objective NC-FEW1.3: Enhance the functions of protected fresh emergent wetland as habitat for covered species (e.g., giant garter snake) and other native species.
Lacustrine and Riverine Natural Community
Goal NC-LR1: Functional lacustrine and riverine natural community that benefits covered species and promotes native biodiversity in the Plan Area.
Objective NC-LR1.1: Protect, manage, and enhance 600 acres of lacustrine and riverine natural community providing habitat for covered and other native species.
Objective NC-LR1.2: Restore or create 236 acres of lacustrine/riverine natural community.

Table 2-6 Biological Goals and Objectives

Species Level Goals and Objectives
Palmate Bracted Bird's-Beak
Goal PBBB1: Provide for the conservation of palmate-bracted bird's-beak in the Plan Area.
Objective PBBB1.1: Increase the 10-year running average of the size of the palmate-bracted bird's beak population on Woodland Regional Park by 10 percent, by managing and enhancing habitat.
Valley Elderberry Longhorn Beetle
Goal VELB1: Provide for the conservation of valley elderberry longhorn beetle in the Plan Area.
Objective VELB1.1: Within the 1,600 acres of protected valley foothill riparian natural community (Objective NC-VFR1.1), prioritize protection of populations of valley elderberry longhorn beetle along Lower Cache Creek and Lower Putah Creek and Sacramento River, and adjacent lands to provide for valley elderberry longhorn beetle population expansion consistent with the occupancy commitment for valley elderberry longhorn beetle in Table 6-2(c) (equivalent to Table 2-5 above).
Objective VELB1.2: Within the restored valley foothill riparian natural community (Objective NC-VFR1.2), establish elderberry shrubs and associated riparian plant species, and prioritize lands adjacent to existing populations to provide for population expansion.
California Tiger Salamander
Goal CTS1: Provide for the conservation of California tiger salamander in the Plan Area.
Objective CTS1.1: Within the 3,000 acres of protected grassland in the Dunnigan Hills planning unit (Objective NC-G1.1), include at least 2,000 acres of modeled upland habitat within 1.3 miles of aquatic habitat for California tiger salamander and prioritize protection in designated critical habitat.
Objective CTS1.2: Within the 600 acres of protected lacustrine and riverine natural community (Objective NC-LR1.1), protect at least 36 acres of California tiger salamander aquatic habitat. Within the 236 acres of restored or created lacustrine/riverine natural community (Objective NC-LR1.2), restore or create 36 acres of aquatic habitat. Within the protected and restored aquatic habitat, include at least five California tiger salamander breeding pools that are each found to support all life stages of the salamander through all water year types consistent with the occupancy commitment for this species in Table 6-2(c) (equivalent to Table 2-5 above).
Objective CTS1.3: If California tiger salamander is present or assumed to be present at the site of a covered activity, the covered activity will not remove aquatic habitat until at least four new breeding habitat occurrences are discovered or established in the Dunnigan Hills area and protected in the Dunnigan Hills area.
Western Pond Turtle
Goal WPT1: Provide for the conservation of the western pond turtle population in the Plan Area.
Objective WPT1.1: Within protected and restored lacustrine and protected and enhanced riverine natural communities, add logs, rocks, and/or emergent vegetation for basking sites and other WPT habitat features and meet the occupancy commitment for this species in Table 6-2(c).
Giant Garter Snake
Goal GGS1: Provide for the conservation of giant garter snake in the Plan Area, including the Willow Slough/Yolo Bypass subpopulation and a segment of the Colusa Basin subpopulation, and connectivity between the two subpopulations.
Objective GGS1.1: Protect and manage the 2,800 acres of protected rice land (Objective NC-CL1.2) in modeled giant garter snake habitat. Suitable emergent marsh can be substituted for rice land.
Objective GGS1.2: Protect and manage 1,160 acres of upland natural communities (Objective L-1.1) to provide active season upland movement habitat and at least 2,315 acres to provide overwintering habitat for giant garter snake.
Objective GGS1.3: Protect, restore, and manage the 500 acres of fresh emergent wetland natural community (Objective NC-FEW1.1), at least 420 acres of the lacustrine/riverine natural community (Objective NC-LR1.1), the restored fresh emergent wetland (Objective NC-FEW1.2), and restored lacustrine and riverine natural community (Objective NC-LR1.2) to conserve the giant garter snake. Ensure at least 80% of the aquatic habitat is perennial, and the remainder provides aquatic habitat for the giant garter snake during the active season at least through July of each summer.
Objective GGS1.4: In addition to the newly protected and restored giant garter snake habitat (Objectives GGS1.1, GGS1.2, and GGS1.3), enroll at least 2,910 acres of giant garter snake habitat on eligible baseline public and easement lands into the reserve system as pre-permit reserve lands.
Objective GGS1.5: Meet the occupancy commitment for giant garter snake in Table 6-2(c) (equivalent to Table 2-5 above).
Swainson's Hawk
Goal SH1: Provide for the conservation of Swainson's hawk in the Plan Area.
Objective SH1.1: Within the 14,362 acres of protected non-rice cultivated land natural community (Objective CL1.1), maintain crop types that support Swainson's hawk foraging habitat.

Table 2-6 Biological Goals and Objectives

Objective SH1.2: Protect and manage the 4,430 acres of grassland natural community (Objectives NC-GR1.1) to ensure that it provides Swainson's hawk foraging habitat.

Objective SH1.3: Protect and maintain at least 20 unprotected Swainson's hawk nest trees (active within the last five years at the time tree is protected) within the reserve system, consistent with the occupancy commitment for this species in Table 6-2(c) (*equivalent to Table 2-5 above*).

Objective SH1.4: In addition to protection of newly protected lands (Objectives SH1.1, SH1.2, and SH1.3), enroll at least 4,580 acres of baseline public and easement lands into the reserve system as pre-permit reserve lands providing foraging habitat.

Objective SH1.5: In addition to restoration of riparian natural community (Objective NC-VFR1.2), establish trees suitable for Swainson's hawk nesting (native trees at least 20 feet in height) within the cultivated lands to meet a density of at least one tree per 10 acres (protected existing trees count toward the density requirement). Riparian restoration adjacent to these community types will also count toward nesting tree establishment.).

White-tailed Kite

Goal WTK1: Provide for the conservation of white-tailed kite in the Plan Area.

Objective WTK1.1: Meet the occupancy commitment for white-tailed kite in Table 6-2(c) (*equivalent to Table 2-5 above*).

Western Yellow-billed Cuckoo

Goal WYBC1: Provide sufficient western yellow-billed cuckoo habitat to provide opportunities for migration and breeding in the Plan Area.

Objective WYBC1.1: Within the 1,600 acres of protected valley-foothill riparian natural community (Objectives NC-VFR1.1), site at least 500 acres in modeled yellow-billed cuckoo habitat, and design at least 60 acres of the restored valley foothill riparian (Objective NC-VFR1.2) to provide suitable habitat for this species.

Western Burrowing Owl

Goal WBO1: Provide for the conservation of western burrowing owl in the Plan Area.

Objective WBO1.1: Of the 4,430 acres of protected grassland natural community (Objective NC-G1.1), site at least 3,000 acres in modeled western burrowing owl habitat.

Objective WBO1.2: Of the 14,362 acres of protected non-rice cultivated lands (Objective NC-CL1.1), provide at least 2,500 acres of modeled western burrowing owl habitat.

Objective WBO1.3: Maintain a minimum of two active burrowing owl nesting sites within the reserve system, and maintain two active nesting sites in the reserve system for each nesting pair displaced by covered activities and maintain one active nesting site or single owl site in the reserve system for each non-breeding single owl displaced by covered activities.

Objective WBO1.4: Prioritize the acquisition of habitat protected under Objectives WBO1.1 and WBO1.2. The first priority is to identify and preserve occupied habitats in the Yolo Bypass and adjacent lands (Planning Units 16 and 18). This is the portion of the Plan Area that supports the greatest potential for long-term sustainability of breeding colonies. The second priority is to identify and preserve habitat adjacent to occupied sites that have enhancement potential. The third priority will focus on modeled habitat in the Plan Area with historic records of burrowing owl occupancy and lands that are capable of supporting nesting activity through management and enhancement actions.

Objective WBO1.5: Implement management and enhancement practices to encourage burrowing owl occupancy on reserve lands. Management practices include maintaining appropriate vegetation height, prohibiting rodenticides, minimizing the spread of invasive weed species, and encouraging the presence of ground squirrels. Enhancement practices include the installation of artificial burrows to augment natural burrows where they are lacking, creating berms as future burrowing sites, and creation of debris piles to enhance prey populations. These actions are designed to maintain existing populations and encourage the expansion of nesting populations in the Plan Area.

Least Bell's Vireo

Goal LBV1: Provide sufficient habitat area to support least Bell's vireos that migrate through the Plan Area and to support potential future reestablishment of a nesting population in the Plan Area

Objective LBV1.1: Of the 1,600 acres of newly protected valley foothill riparian (Objective NC-VFR1.1), site at least 600 acres in modeled least Bell's vireo habitat, and design the restored valley foothill riparian (Objective NC-VFR1.2) to provide suitable habitat for this species.

Bank Swallow

Goal BS1: Provide for the conservation of bank swallow in the Plan Area.

Objective BS1.1: Protect 50 acres of unprotected bank swallow habitat on a site occupied by this species in planning unit 7 or along the Sacramento River.

Objective BS1.2: Manage the 50 acres of protected bank swallow habitat (Objective BS1.1) to enhance bank swallow foraging habitat value by promoting open grass and forb vegetation, and controlling invasive plant species.

Table 2-6 Biological Goals and Objectives**Tricolored Blackbird**

Goal TRBL1: Provide for the conservation of tricolored blackbirds in the Plan Area.

Objective TRBL1.1: Within the 500 acres of protected fresh emergent wetland natural community (Objective NC-FEW1.1), site at least 200 acres in modeled tricolored blackbird nesting habitat.

Objective TRBL1.2: Enroll at least 4,000 acres of tricolored blackbird foraging habitat and 150 acres of tricolored blackbird nesting habitat on baseline public and easement lands into the reserve system as pre-permit reserve lands.

Objective TRBL1.3: Maintain at least two tricolored blackbird nesting colonies in the reserve system and prioritize newly protected nesting habitat in additional occupied areas as they are found. To avoid intensive disturbances (e.g., heavy equipment operation associated with construction activities) or other activities that may cause nest abandonment or forced fledging, include a buffer zone of at least 250 feet around protected active breeding colonies. This minimum buffer may be reduced in areas with dense trees, buildings, or other habitat features between potential nearby disturbances and the protected nest colony or where there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance, as determined by a qualified biologist, with concurrence from the Wildlife Agencies.

Objective TRBL1.4: Maintain at least 300 acres, consisting of at least 150-acre blocks, of tricolored blackbird foraging habitat in the reserve system without pesticides.

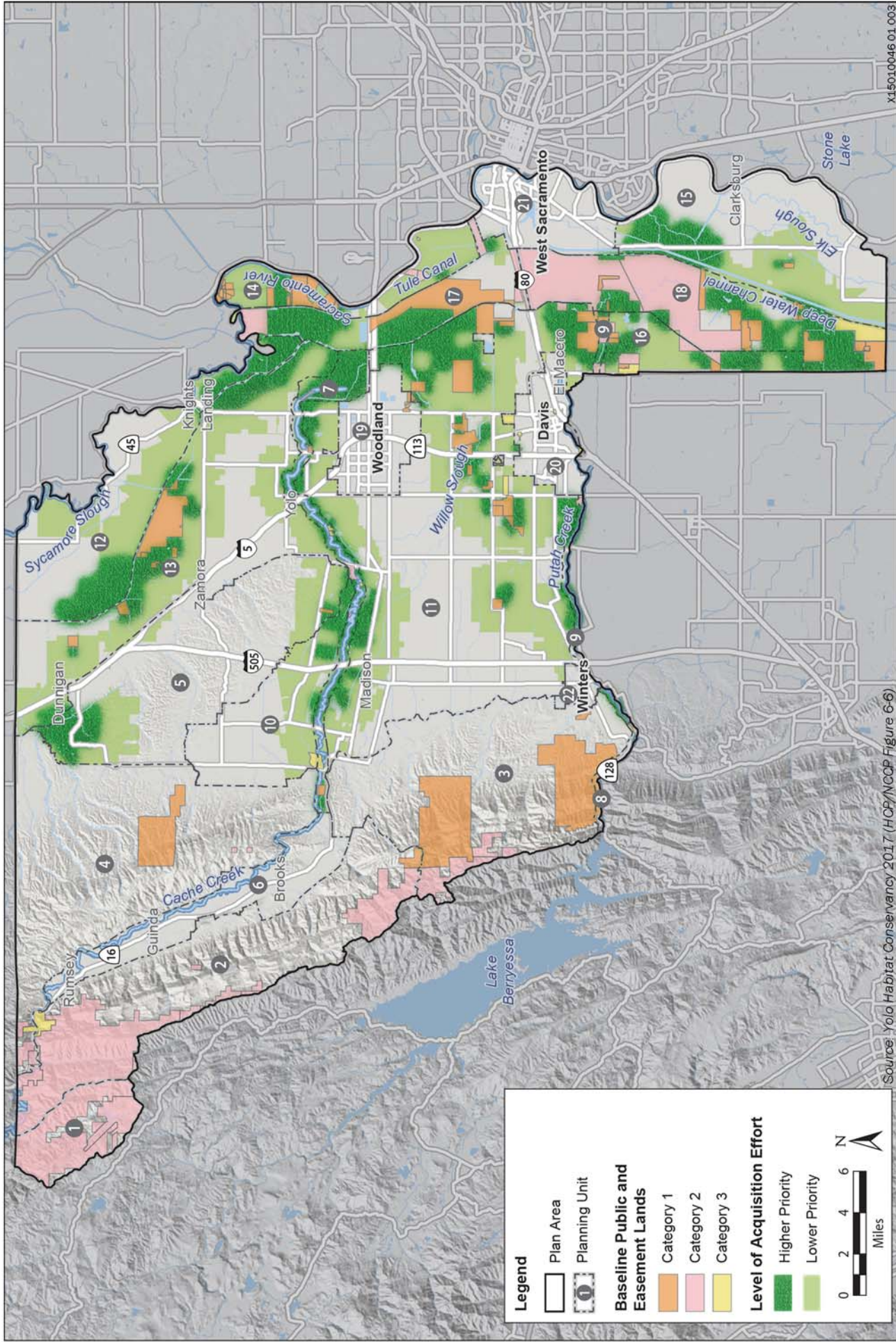
Objective TRBL1.5: Manage and enhance protected tricolored blackbird nesting habitat to maintain habitat value for this species.

Source: Yolo Habitat Conservancy 2017, corresponds to Table 6-3

Conservation measures are the actions the Conservancy will implement to meet the biological goals and objectives. The conservation measures have been developed to meet all of the biological goals and objectives; most of the conservation measures address several goals and objectives, and most objectives will be met through a combination of conservation measures. As a result of the large scale and long timeframe over which the Yolo HCP/NCCP will be implemented, the conservation measures are also designed to be flexible and allow for adaptive management with increasing knowledge over time. Preserving this flexibility is an important component of the conservation strategy. There are three identified conservation measures in the Yolo HCP/NCCP, with each including detailed guidance, requirements, and performance standards. These three conservation measures are summarized below, with the full content of the conservation measures provided in Section 6.4, *Conservation Measures*, of the Yolo HCP/NCCP.

- ▲ Conservation Measure 1, Establish Reserve System. This conservation measure provides conservation actions related to reserve design, land acquisition, and enrollment of baseline public and easement lands into the reserve system as pre-permit reserve lands to create the reserve system for the Yolo HCP/NCCP. Topics addressed include land protection mechanisms, reserve system assembly, reserve system design criteria, reserve system prioritization guidelines, land acquisition requirements, the land acquisition and enrollment process, and species specific acquisition requirements.
- ▲ Conservation Measure 2, Restore Natural Communities. This conservation measure provides conservation actions related to the restoration of three natural communities; valley foothill riparian, fresh emergent wetland, and lacustrine and riverine; and their covered species habitat. Topics addressed include restoration siting and design measures, restoration siting and techniques, restoration and creation requirements, and restoration plan development.
- ▲ Conservation Measure 3, Manage and Enhance the Reserve System. This conservation measure provides conservation actions related to managing and enhancing the reserve system consistent with reserve management plans. Topics addressed include reserve management plans, invasive species control, management and enhancement of reserve system connectivity, natural community management and enhancement, and covered species management and enhancement.

Through consideration of the biological goals and objectives and the conservation measures, priority areas have been identified for reserve acquisition, as shown in Exhibit 2-5, Reserve System Priority Acquisition Areas.



Avoidance and Minimization Measures

This section describes the AMMs included in the Yolo HCP/NCCP (see Section 4.3 of the Yolo HCP/NCCP). AMMs are designed to avoid or minimize take of covered species and to reduce impacts to natural communities. The AMMs are also intended to ensure consistency and provide standard and predictable requirements for those implementing projects using the HCP/NCCP (i.e., project proponents). The Permit Applicants will evaluate all projects respective to their authorities to ensure that project proponents incorporate and implement all applicable AMMs.

AMMs are grouped into six categories; AMMs for (1) General Project Design, (2) General Construction and Operations and Maintenance, (3) Sensitive Natural Communities, (4) Covered Species, (5) Cache Creek Area Plan Projects, and (6) activities, including agricultural activities, occurring in the reserve system. A number and title is provided for each AMM in the first five categories and these are listed in Table 2-7, *Yolo HCP/NCCP Avoidance and Minimization Measures*. The full text of each AMM is provided in Appendix C. For the sixth category of avoidance and minimization measures, specific to activities within the reserve system, these measures focus on, and are organized by the covered species that could be adversely affected by activities in the reserve system; valley elderberry longhorn beetle, California tiger salamander, giant garter snake, western pond turtle, Swainson's hawk and white-tailed kite, western burrowing owl, and tricolored blackbird. The full text of these AMMs are also provided in Appendix C.

Table 2-7 Yolo HCP/NCCP Avoidance and Minimization Measures

General Project Design
AMM1, Establish Buffers
AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces
General Construction and Operations and Maintenance
AMM3, Confine and Delineate Work Area
AMM4, Cover Trenches and Holes during Construction and Maintenance
AMM5, Control Fugitive Dust
AMM6, Conduct Worker Training
AMM7, Control Night-Time Lighting of Project Construction Sites
AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas
Sensitive Natural Communities
AMM9, Establish Buffers Around Sensitive Natural Communities ^a
AMM10, Avoid and Minimize Effects on Wetlands and Waters ^a
Covered Species
AMM11, Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak
AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle
AMM13, Minimize Take and Adverse Effects on Habitat of California Tiger Salamander
AMM14, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake
AMM15, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite
AMM16, Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo
AMM17, Minimize Take and Adverse Effects on Western Burrowing Owl
AMM18, Minimize Take and Adverse Effects on Least Bell's vireo
AMM19, Minimize Take and Adverse Effects on Habitat of Bank Swallow
AMM20, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird
Cache Creek Area Plan Projects
AMM21, Implement Performance Standards of the Off-Channel Mining Plan and the Cache Creek Resources Management Plan
^a Following design requirements for the valley foothill riparian and lacustrine and riverine natural communities described in AMMs 9 and 10 will also benefit western pond turtle.

Monitoring and Adaptive Management

The Yolo HCP/NCCP directs the integration of monitoring and adaptive management into one cohesive program where monitoring will inform and change management actions to continually improve outcomes for covered and natural communities. The program is designed to:

- ▲ ensure compliance with the Yolo HCP/NCCP requirements; assess the status of covered and other native species, natural communities, and ecosystem processes within the reserve system and in certain cases outside of the reserve system; and
- ▲ measure the effectiveness of the conservation strategy in achieving the biological goals and objectives.

The following is a summary of the monitoring and adaptive management program. More information on the program is provided in Section 6.5, *Monitoring and Adaptive Management*, of the Yolo HCP/NCCP.

By regulation, an HCP must incorporate monitoring of conservation measures and the response of covered species to these measures (50 CFR 17.22[b][1][iii][B] and 50 CFR 222.22[b][5][iii]). An adaptive management strategy is an important and required component of HCPs, especially those with data gaps that would substantively affect how the species is managed and monitored in the future (65 FR 35242). The USFWS Five-Point Policy (65 FR 35242) describes adaptive management as an integrated method for addressing uncertainty in natural resource management and states that management must be linked to measurable biological goals and monitoring. To that end, the Yolo HCP/NCCP integrates biological goals and objectives, conservation actions, and monitoring actions to ensure the program evaluates the conservation measures and assesses the implementation of the biological goals and objectives.

An NCCP must include both a monitoring program and an adaptive management program (California Fish and Game Code Section 2820[7] and [8]). An NCCP also must integrate adaptive management strategies that are periodically reviewed and modified on the basis of the results of monitoring efforts and other sources of new information (California Fish and Game Code Section 2820[a][2]).

The monitoring and adaptive management program described in the Yolo HCP/NCCP is intended to fulfill HCP and NCCP requirements to monitor covered species, natural communities, and species response to management activities. This program will continually incorporate recommendations for monitoring and adaptive management based on the most recent guidelines for regional HCPs and NCCPs provided by the Wildlife Agencies.

The monitoring and adaptive management program is linked to the development and implementation of reserve unit management plans. The Conservancy will prepare reserve unit management plans within 5 years of the first parcel acquired in each reserve unit. Each of these reserve unit management plans will be subject to review and approval by the Conservancy, USFWS, and CDFW. Initial reserve unit management practices and restrictions intended to be applied to sites in the reserve unit will be developed concurrent with the first site-specific management plan developed within the reserve unit, although the conservancy has 5 years to finalize the associated reserve unit plan (e.g. finalizing geographic boundaries, completing narrative descriptions of the unit, etc.) starting at the point in which the first parcel acquired in each reserve unit. The Conservancy will update these reserve unit management plans every five years.

Objectives of the monitoring and adaptive management program are (also see Section 6.5.2 in the Yolo HCP/NCCP):

- ▲ provide an organizational framework and decision-making process for evaluating monitoring, targeted studies, and other data to adjust management actions;
- ▲ document the baseline condition of biological resources in the reserve system and other key habitat outside of the reserve system using existing data, modeling, and the results of ongoing field surveys;

- ▲ develop conceptual models for natural communities and covered species, if applicable, that the Conservancy can use as a basis for collecting information, verifying hypotheses, and designing and changing management practices;
- ▲ incorporate hypothesis testing and experimental management, including targeted studies to address key uncertainties and to improve management and monitoring efforts;
- ▲ develop and implement scientifically valid monitoring protocols at multiple levels to ensure that data collected will inform management and integrate with other monitoring efforts; and
- ▲ ensure that monitoring data are collected, analyzed, stored, and organized so the data are accessible to the Conservancy and other Permittees, the Wildlife Agencies, scientists and, as appropriate, the public.

These objectives will be achieved through implementation of a program that monitors conditions at three levels, landscape-, natural community-, and species-level monitoring. Landscape-level monitoring is designed to detect large-scale changes, such as changes in ecosystem processes, shifts in natural community distribution, and the integrity of landscape linkages. Community-level monitoring is designed to detect changes in the composition and function of natural communities, populations of key predator or prey populations, invasive species, and other important habitat factors for covered species. Species-level monitoring measures the effects of management actions on covered species and tracks the abundance, distribution, and other variables of covered species in the reserve system and the Plan Area.

In addition to the levels of scale (i.e., landscape, community, and species), three main types of monitoring are specified: compliance monitoring, effectiveness monitoring, and targeted studies. Compliance monitoring tracks the status of HCP/NCCP implementation and documents that the HCP/NCCP is meeting all its requirements. Compliance monitoring verifies the Permittees are carrying out the terms of the HCP/NCCP, Permits, and IA.

Effectiveness monitoring assesses the biological success of this HCP/NCCP—specifically, it evaluates the implementation and success of the conservation strategy described in this chapter. Effectiveness monitoring includes monitoring the effects of management activities.

The Yolo HCP/NCCP includes three types of targeted studies, which fulfill three major objectives, as follows:

1. Methods testing. The objective of methods testing is to identify the best methodologies for monitoring;
2. Pilot projects. The objective of pilot projects is to provide information about the efficacy of management techniques; and
3. Directed studies. The objective of directed studies is to resolve critical uncertainties allowing for improved management of systems and covered species.

Plan Implementation

Plan Implementation is addressed in Chapter 7 of the Yolo HCP/NCCP. The conservation strategy would be implemented over a period of 50 years, and obligations for reserve system management and monitoring would extend beyond this time period. Implementation of the Yolo HCP/NCCP would begin after the IA is executed and the Section 10(a)(1)(B) ITPs and NCCPA Section 2835 permit are issued. A schedule of key tasks over the 50-year permit term and beyond is provided in Table 2-8, *Schedule of Major Implementation Tasks*.

It is expected that ecological conditions in the Plan Area may change as a result of future events and circumstances, since the implementation timeframe for the Yolo HCP/NCCP conservation strategy would be over 50 years. Section 7.7, Plan Assurances, of the Yolo HCP/NCCP details changes in circumstances that are reasonably foreseeable, outlines a process for identifying changed circumstances, and provides planned responses intended to address these events. Changed circumstances include: new species listings, climate change, wildfire, nonnative invasive species or disease, flooding, drought, earthquakes, and regional loss of

Swainson's hawk habitat. The planned responses to these events, if needed, would be covered activities by the Yolo HCP/NCCP. Examples of planned responses include: inspections of affected conservation lands within a specific time from the end of the event (e.g., within 45 days after a flood event); evaluation of the extent of the damage; purchasing of additional water supplies, if necessary, to maintain crops supporting habitat functions; and habitat enhancement or restoration in affected areas.

Responsibility for implementing the Yolo HCP/NCCP would rest with the Permit Applicants. Most elements of Plan implementation would be directed by the Conservancy.

Table 2-8 Schedule for Major Implementation Tasks

Time Period	Tasks and Milestones	Responsible Party ^a
0–6 months	Train Conservancy and Permittee staff members to review and process HCP/NCCP applications. This task will be ongoing.	Conservancy
	Provide each Permittee with detailed maps of land cover types so they can process and evaluate HCP/NCCP applications.	Conservancy
	Prepare and review applications for public sector activities under the Yolo HCP/NCCP to be submitted to the Conservancy. This task will be ongoing.	Conservancy
	Collect Yolo HCP/NCCP fees. This task will be ongoing.	Cities and County, Conservancy
6 months–1 year	Investigate restoration and creation opportunities on existing open space and newly acquired land to ensure compliance with stay-ahead provision. This task will be ongoing.	Conservancy, Permittees
1–5 years	Update fees annually according to HCP/NCCP Chapter 8, <i>Costs and Funding</i> . Provide new fee schedule to Permittees (the Conservancy will give 30-day notice to Permittees prior to fees going into effect). This task will be ongoing.	Cities and County, Conservancy
	Every 5 years, perform financial assessment as described in Chapter 8. This task will be ongoing.	Conservancy
	Submit annual report to the wildlife agencies. This task is performed on an annual basis by April 30 of every year for the previous fiscal year (July 1 to June 30).	Conservancy
	Conduct annual meeting to report on implementation progress of HCP/NCCP. This task will be ongoing.	Conservancy
	Prepare reserve unit management plans as described in HCP/NCCP Chapter 6, <i>Conservation Strategy</i> . Plans must be prepared within 5 years of the first parcel acquired in each reserve unit and updated as needed but reviewed no less than every 5 years.	Conservancy
	Initiate adaptive management and monitoring of biological resources. This task will be ongoing.	Conservancy
	Initiate or continue management and monitoring in reserve system.	Conservancy
	Continue to acquire land to assemble reserve system and meet stay-ahead provision requirements (by Year 2). This task will be ongoing; however, the Conservancy must complete all land acquisition by Year 45.	Conservancy, Permittees
	Begin design of habitat restoration and creation and additional environmental compliance for restoration and creation. This task will be ongoing.	Conservancy
	Implement land cover restoration and creation projects described in HCP/NCCP Chapter 6. This task will be ongoing; however, the Conservancy must complete construction of all habitat restoration and creation projects for land cover types and plant occurrences by Year 40.	Conservancy
	Open selected reserve lands to public access according to reserve unit management plans. Develop enforcement procedures for the reserve system before newly acquired land is open to public access.	Conservancy or Applicable Local Agencies
	Prioritize implementation of studies described in HCP/NCCP Chapter 6.	Conservancy
	Update land cover map with most recent aerial photograph (at least every 5 years).	Conservancy
	Develop framework for landowner incentive program for Swainson's hawk foraging habitat.	Conservancy
6–50 years	Continue coordination of annual audit, including reports to the Conservancy Board.	Conservancy
	Ten-year comprehensive reviews.	Conservancy

Table 2-8 Schedule for Major Implementation Tasks

Time Period	Tasks and Milestones	Responsible Party ^a
	Finalize post-permit implementation structure prior to Permit expiration (Chapter 8, Section 8.4.4.5, <i>Funding for Post-Permit Management and Monitoring</i>).	Conservancy
More than 50 years	Continue adaptive management and limited monitoring of biological resources to ensure management actions are working.	Conservancy

Costs and Funding

Costs and funding for the Yolo HCP/NCCP are addressed in Chapter 8 of the Plan titled *Costs and Funding*. The costs for implementing the Yolo HCP/NCCP have been estimated for various categories of activities and are shown in Table 2-9, *Yolo HCP/NCCP Implementation Cost Summary by Cost Category, 50-year Permit Term*. Reserve system assembly is the largest single component of the Plan costs, totaling approximately \$188 million over the permit term, or about 52 percent of Plan costs. The reserve system assembly cost category includes acquisition costs (i.e., the price of the land or conservation easement or related enrollment costs for pre-permit reserve lands), the cost to conduct pre-acquisition assessments, and transaction costs. The cost to acquire cultivated lands and grasslands in fee title for wetland restoration is not included in this section but, rather, is included as a cost in the *Restore Natural Communities* category.

Table 2-9 Yolo HCP/NCCP Implementation Cost Summary by Cost Category, 50-year Permit Term

Cost Category ^a	50-Year Total	Average Annual Cost
Establish Reserve System (except restored lands) ^b	\$187,613,000	\$3,752,260
Restore Natural Communities ^c	\$60,528,000	\$1,210,560
Manage and Enhance ^d Easement and Pre-Permit Reserve Lands ^c	\$14,211,000	\$284,220
Monitoring (except restored lands) ^d	\$16,936,000	\$338,720
Plan Administration	\$27,852,000	\$557,040
Local Partner Activities in Riparian Corridors	\$20,550,000	\$411,000
Contingency Fund	\$26,308,000	\$526,160
Total	\$353,998,000	\$7,079,960

Notes: In 2014 dollars; detail may not add up to total because of independent rounding to nearest thousand dollars.

^a Includes permit term implementation costs only; does not include additional costs of plan preparation and endowment. Those costs are estimated separately and described in Yolo HCP/NCCP Sections 8.3.8, *Costs in Perpetuity*, and 8.3.9, *Plan Preparation Costs*.

^b Reserve system assembly is assumed to occur at an even pace throughout the first 45 years of Plan implementation. Actual reserve system assembly may differ to meet the rough proportionality standard or because of other factors.

^c Includes costs of fee title acquisition of land where restoration activity occurs, costs to restore, as well as ongoing management and monitoring of restored lands.

^d Management and monitoring on restored lands is included in the Restore Natural Communities line item.

Source: Yolo Habitat Conservancy 2017, adapted from Table 8-1

Plan funding will come from several different sources, which fall into one of four categories:

- ▲ HCP/NCCP fees: this source includes private and public sector development effect fees. Fees are also charged on specialized effects such as wetlands (wetland fee) and temporary effects (temporary effect fee). These fees are described in Yolo HCP/NCCP Section 8.4.1, *HCP/NCCP Fees*;
- ▲ Local funding: non-fee local funding will complement fee-based funding sources. Non-fee local funding will take many forms but consist primarily of activities funded and managed by local government agencies in cooperation with the Conservancy that will offset costs to implement the Yolo HCP/NCCP.

Additional funding is expected from private foundations. These non-fee local funding sources cannot be used for mitigation purposes; they will be directed toward the NCCP portion of the Yolo HCP/NCCP (i.e., provide for the conservation of covered species in the Plan Area necessary to meet the requirements of the NCCPA). Local funding sources are described in Yolo HCP/NCCP Section 8.4.2, *Local Funding*;

- ▲ Interest income: the Conservancy is expected to gain substantial revenue from interest on the Yolo HCP/NCCP endowment as it grows prior to its use to fund costs in perpetuity after the 50-year permit term. The Conservancy will also gain limited income from interest on revenue not yet spent. Interest income is described in Yolo HCP/NCCP Section 8.4.2.5, *Interest Income*; and
- ▲ State and federal funding: this source includes federal and state grant programs. Certain state and federal funding can be used only for portions of the Yolo HCP/NCCP that provide for the conservation of covered species in the Plan Area (i.e., not for mitigation). State and federal funding for HCPs has varied over time and is expected to continue to vary in the future. These funding opportunities are not guaranteed, but it can be anticipated that some level of state and federal funding will be available over the permit term. State and federal funding sources are described in Yolo HCP/NCCP Section 8.4.3, *State and Federal Funding*.
- ▲ Foundations and other non-profit organizations: this source includes foundations such as the Packard Foundation and organizations such as the National Audubon Society (California Chapter) that have a history of supporting land conservation in Yolo County and are supportive of regional conservation planning in general. Funding related to foundations and other non-profit organizations is described in Yolo HCP/NCCP Section 8.4.2.4, *Foundations and Other Non-profit Organizations*.

It is estimated that the highest level of funding will be generated by HCP/NCCP fees, totaling approximately \$238 million, or roughly 64 percent of total Plan funding. Local, state, and federal sources would be the next highest funding category, totaling approximately \$124 million, or roughly 33 percent of total Plan funding.

2.3.3 Alternative C-Reduced Take Alternative

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight geographic areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. These locations are in the vicinity of Clarksburg, Davis, the Dunnigan Specific Plan, West Sacramento, and Woodland and are shown in Exhibit 2-6. Table 2-10 identifies the size of each of the eight areas. The total area in which take would not be permitted under the Reduced Take Alternative is 1,335 acres.

It is assumed for the purposes of this alternative that any currently planned development that does not occur in the eight locations due to the take restriction could be displaced to another location within the Plan Area. However, any displaced development would also be subject to the take restriction and no take of covered species would be permitted at any new locations.

Other than assuming that no take of covered species would occur in the identified 1,335 acres, and that development could be displaced to another location under the same take restriction, all other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, AMMs, monitoring, funding) remain the same under this alternative.

The selection of areas for reduced take was based on a review of the GIS natural community data and covered species habitat models developed during preparation of the HCP/NCCP. Areas that provided potential habitat for multiple covered species and would be converted to a developed use as part of covered activities were identified. After identification of these areas, the locations of recorded species observations were reviewed. Additional consideration was given to the selection of habitat areas that had a higher

probability of actually supporting covered species based on reported occurrences on, or near the site. Recent aerial images were then consulted to confirm whether conditions at selected sites appeared suitable as potential covered species habitat. Local jurisdictions were contacted to obtain updated information on each location and to select areas most suitable for inclusion in the Reduced Take Alternative. This process led to the selection of the eight areas shown in Exhibit 2-6 and described in Table 2-10.

Table 2-10 Elements of the Reduced Take Alternative

Location	Approximate Size	Comments
Clarksburg	36 acres	Inset D in Exhibit 2-6
Davis	517 acres	Inset E in Exhibit 2-6
Dunnigan Specific Plan A	48 acres	Inset A in Exhibit 2-6. Covered activity footprint is the Dunnigan Specific Plan Area. Parcel in the northwest corner of the Dunnigan Specific Plan Area
Dunnigan Specific Plan B	40 acres	Inset A in Exhibit 2-6. Covered activity footprint is the Dunnigan Specific Plan Area. Parcel in the southwest corner of the Dunnigan Specific Plan Area
Dunnigan Specific Plan C	5 acres	Inset A in Exhibit 2-6. Covered activity footprint is the Dunnigan Specific Plan Area. Parcel in the southeast corner of the Dunnigan Specific Plan Area. Encompasses a canal and associated riparian habitat.
West Sacramento	286 acres	Inset C in Exhibit 2-6. A corridor extending 50 ft. west of Gregory Ave. is not included in the parcel to accommodate potential flood control covered activities.
Woodland A	20 acres	Inset F in Exhibit 2-6
East of Woodland B	383 acres	Inset B in Exhibit 2-6. Encompasses the Elkhorn Specific Plan area.
Total	1,335 acres	

2.3.4 Alternative D-Reduced Development Alternative

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, are assumed to not be included in the covered activities (Exhibit 2-7). The portion of the Dunnigan Specific Plan selected for exclusion from the Covered Activities layer under this Alternative covers approximately 1,012 acres and the Elkhorn Specific Plan Area covers approximately 383 acres. In each of these two areas it is assumed that some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the Yolo HCP/NCCP; therefore, the HCP/NCCP would not be available as a mechanism to address losses of covered species. Any permitting required for compliance with FESA or CESA for future development would be undertaken for each of these two areas individually on a project by project basis. Permitting and mitigation would be implemented in a manner similar to the No Action Alternative.

Other than characteristics described above, all other elements of the Plan (e.g., covered species, remaining covered activities, Plan Area, conservation strategy, AMMs, monitoring, funding) remain the same under this alternative.

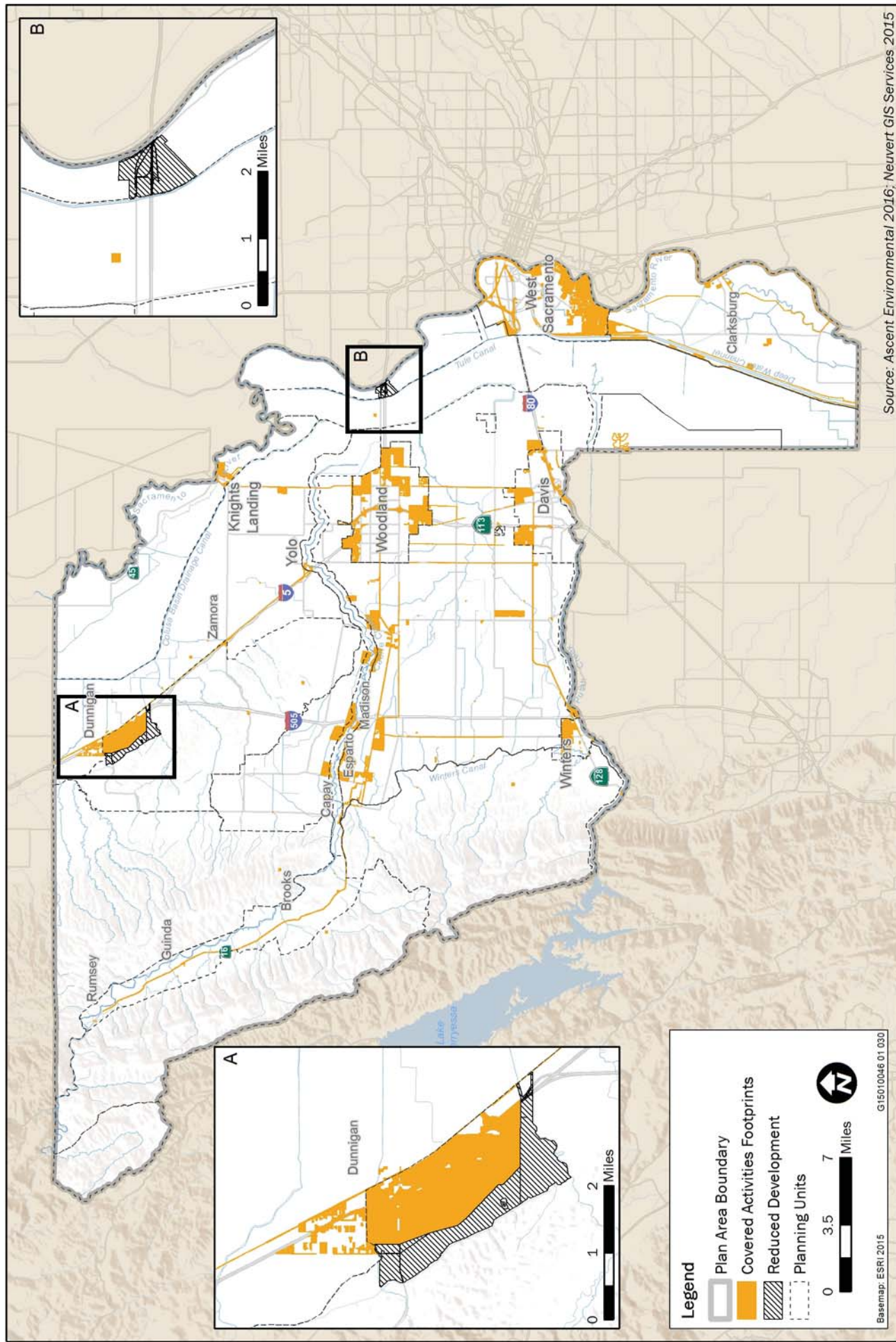


Exhibit 2-7

Reduced Development Alternative

3 APPROACH TO THE ANALYSIS

3.1 INTRODUCTION

This chapter discusses common terminology used in this EIS/EIR, its organization, the approach taken to define existing conditions and analyze the effects of the alternatives.

3.2 NEPA AND CEQA REQUIREMENTS FOR ENVIRONMENTAL ANALYSES

Both an EIS prepared under the National Environmental Protection Act (NEPA) and an EIR prepared under the California Environmental Quality Act (CEQA) are public disclosure documents to ensure environmental factors are considered during the governmental decision-making process.

The Council on Environmental Quality (CEQ) regulations for implementing NEPA specify that a federal agency preparing an EIS must consider the environmental effects of the proposed action and alternatives, and the significance of those effects. These include effects on ecological, aesthetic, historical, and cultural resources and economic, social, and health effects. Environmental effects include direct, indirect, and cumulative effects. An EIS also must discuss possible conflicts with the objectives of federal, state, regional, and local land use plans, policies, or controls for the area concerned; energy requirements and energy conservation potential; urban quality; the relationship between short-term uses of the environment and long-term productivity; and irreversible or irretrievable commitments of resources. An EIS must identify relevant, reasonable mitigation measures not already included in the proposed action or alternatives that could avoid, minimize, rectify, reduce, eliminate, or compensate for the project's adverse environmental effects (40 CFR 1502.14, 1502.16, 1508.8).

The State CEQA Guidelines for implementing CEQA affirm that the environmental analysis for an EIR must evaluate impacts associated with the project and identify mitigation for any potentially significant impacts. All phases of a proposed project, including construction and operation, are evaluated in the analysis. Section 15126.2 (a) of the State CEQA Guidelines states:

An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected.

An EIR also must discuss inconsistencies between the proposed project and applicable general plans and regional plans (State CEQA Guidelines Section 15125[d]).

An EIR must describe any feasible measures that could minimize significant adverse impacts, and the measures are to be fully enforceable through permit conditions, agreements, or other legally binding

instruments (State CEQA Guidelines Section 15126.4[a]). Mitigation measures are not required for effects that are found to be less than significant.

3.3 APPLICATION OF NEPA AND CEQA PRINCIPLES AND TERMINOLOGY IN THIS EIS/EIR

While many concepts are common to NEPA and CEQA, there are several differences between the two in terminology, procedures, environmental document content, and substantive mandates to protect the environment. For this EIS/EIR, the more rigorous of the two laws was applied in cases in which NEPA and CEQA differ. Table 3-1 compares NEPA and CEQA terminology.

Table 3-1 Correlated NEPA and CEQA Terminology	
NEPA Term	Correlating CEQA Term
Environmental Impact Statement	Environmental Impact Report
Notice of Intent	Notice of Preparation
EPA Filing/Federal Register Notice and Agency/Public Review (also known as a Notice of Availability)	Notice of Completion/Notice of Availability
Record of Decision	Certification, Findings, Statement of Overriding Considerations, and Notice of Determination
Lead Agency	Lead Agency
Cooperating Agency	Responsible Agency
Purpose and Need Statement	Project Objectives
Action	Project
Proposed Action and Alternatives	Proposed Project and Alternatives
No Action Alternative	No Project Alternative
Affected Environment	Environmental Setting
Effect	Impact
Environmental Consequences	Impact Assessment

This EIS/EIR uses both NEPA and CEQA terminology in certain instances (e.g., in Chapter 1 where the purpose and need statement, and underlying project objectives are discussed). The discussion of environmental consequences, generally a NEPA term, is also known as *environmental impacts* or *environmental effects*. Although these terms are often considered to be synonymous (e.g., 40 CFR 1508.8), this EIS/EIR frequently uses the phrase “environmental effects” (instead of environmental impacts).

There are additional key similarities and differences between NEPA and CEQA that are relevant to this EIS/EIR:

1. **Baseline for Impact Analysis** – For the purposes of NEPA and CEQA, the baseline is existing conditions.
2. **No Action Alternative Analysis** – For the purposes of NEPA and CEQA, the No Action Alternative is compared to existing conditions.
3. **Proposed Action Analysis** – For the purposes of NEPA, the Proposed Action is compared to the No Action Alternative. For the purposes of CEQA, the Proposed Action is compared to existing conditions.

4. Alternatives Analysis – For the purposes of NEPA, the Reduced Take Alternative and the Reduced Development Alternative are compared to the No Action Alternative. For the purposes of CEQA, the Reduced Take Alternative and the Reduced Development Alternative are compared to the Proposed Action.
5. Cumulative Effects Analysis – The cumulative effects analysis will follow the same approach as described above in bullet #3 for the proposed action analysis.

This EIS/EIR is drafted to address the distinct legal requirements of NEPA and CEQA, as set forth above. Issuance of ITPs by the Wildlife Agencies—together with subsequent adoption and implementation of the Yolo HCP/NCCP (or Plan) by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. The Applicants developed the Proposed Action in coordination with the Wildlife Agencies. The Proposed Action is intended to address the conservation needs of the Covered Species based on implementation of five categories of Covered Activities: urban projects and activities, rural projects and activities, public and private operations and maintenance, implementation of the conservation strategy and covered activities on reserve lands, and implementation of the neighboring landowner protection program. Chapter 2, *Proposed Action and Alternatives* describes the Covered Activities in more detail. This EIS/EIR is being circulated for review along with the draft Plan. The draft Plan is incorporated by reference into this EIS/EIR.

All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects. Issuance of permits by the Wildlife Agencies provides compliance only with the Federal Endangered Species Act (FESA) and Natural Community Conservation Planning Act (NCCPA). Approval of the proposed HCP/NCCP does not confer or imply approval to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis under CEQA and, in some cases, NEPA for those projects involving federal agencies. This EIS/EIR is intended to provide compliance with CEQA and NEPA for all Covered Activities regarding impacts to covered species and other biological resources that would be authorized by a Section 10(a)(1)(b) permit pursuant to the FESA and Section 2835 of the NCCPA chapter of the Fish & Game Code. As the Proposed Action facilitates the Covered Activities by addressing certain of the various statutory and regulatory requirements tied to project authorization, reasonably foreseeable environmental effects of the Covered Activities are discussed herein to provide context for the analysis of the Proposed Action and various alternatives.

Under the No Action Alternative:

- ▲ Biological resource impacts from take associated with development and other related activities would be considered on a case-by-case basis, with no regional framework for impact avoidance and minimization.
- ▲ Biological resource mitigation would be considered on a case-by-case basis, with various types of mitigation measures including compensatory mitigation in offsite areas. There would be no established regional framework for conservation of natural communities and preservation of habitat linkages.
- ▲ There would be no added conservation values beyond the specific mitigation required for each individual project.

Under the Proposed Action Alternative effects on biological resources from take associated with lawfully undertaken covered activities are examined assuming implementation of the HCP/NCCP.

Under the discussion of the Proposed Action Alternative in each impact analysis chapter, the effects of adoption and implementation of the Plan are compared to No Action Alternative for NEPA purposes and to existing conditions for CEQA purposes.

Under the discussions of the Reduced Take Alternative (Alternative C) and the Reduced Development Alternative (Alternative D) in each impact analysis chapter, the effects of each alternative are compared to

No Action Alternative (Alternative A) for NEPA purposes, and to the Proposed Action Alternative (Alternative B) for CEQA purposes.

3.4 RESOURCE TOPICS CONSIDERED

A key issues analysis was completed early in the EIS/EIR planning process to identify environmental resource topics warranting analysis in the EIS/EIR. The list of potential resources considered was derived from the Council on Environmental Quality regulations for implementing NEPA, Appendix G of the CEQA Guidelines, and input received from the public during the project scoping period. The key issues analysis identified the following resources that could be affected by the proposed action or alternatives or were identified during scoping as resources of concern and will be addressed in the following EIS/EIR chapters:

- ▲ Chapter 4 – Biological Resources
- ▲ Chapter 5 – Land Use
- ▲ Chapter 6 – Agricultural Resources
- ▲ Chapter 7 – Public Services and Utilities
- ▲ Chapter 8 – Recreation and Open Space
- ▲ Chapter 9 – Hydrology and Water Quality
- ▲ Chapter 10 – Population and Housing
- ▲ Chapter 11 – Socioeconomics and Environmental Justice
- ▲ Chapter 12 – Cultural Resources
- ▲ Chapter 13 – Transportation
- ▲ Chapter 14 – Noise
- ▲ Chapter 15 – Air Quality
- ▲ Chapter 16 – Climate Change
- ▲ Chapter 17 – Geology, Soils, and Mineral Resources
- ▲ Chapter 18 – Visual Resources
- ▲ Chapter 19 – Hazardous Materials

3.5 CONTENTS OF RESOURCE CHAPTERS

Each resource chapter contains the following information:

- ▲ Affected Environment includes two sections, “Regulatory Setting” and “Environmental Setting.” These sections include the following information.
 - **Environmental Setting.** This section provides an overview of the most current available information on physical environmental conditions in the area at the time of preparation of the publication of the Draft EIS/EIR that could be affected by implementation of the proposed action and alternatives in accordance with NEPA regulations (40 CFR 1502.15) and State CEQA Guidelines Section 15125.
 - **Regulatory Setting.** This section lists and describes applicable laws, regulations, and policies that affect the resource addressed in the particular chapter, or the assessment of effects on the resource.
- ▲ Environmental Consequences describes the analysis and potential effects for each resource topic. This section includes:
 - **Methodology and Significance Criteria.** This section describes the methods, models, process, procedures, data sources, and/or assumptions used to conduct the effect analysis. Where possible, effects are evaluated quantitatively. Where quantification is not possible, effects of each alternative are evaluated qualitatively. This section also provides the criteria used in this document to define the

level at which an effect is considered significant in accordance with CEQA. Significance criteria (sometimes called *thresholds of significance*) used in this EIS/EIR are based on CEQA's mandatory findings of significance (as summarized in State CEQA Guidelines Section 15065); the checklist presented in Appendix G of the State CEQA Guidelines; and where appropriate, factual or scientific data and regulatory standards of federal, state, and local agencies. The significance criteria are applied to each effect to reach a significance conclusion (e.g., significant effect, less than significant effect). While CEQA requires a determination of effect significance for each effect discussed in an EIR based on the significance criteria, NEPA does not necessarily require this for an EIS. Under NEPA, preparation of an EIS is triggered if a federal action has the potential to "significantly affect the quality of the human environment," which is based on the context and intensity of each potential effect. The significance thresholds used in this EIS/EIR also encompass the factors taken into account under NEPA to evaluate the context and the intensity of the effects of an action. If all, or a portion of a significance criteria are not applicable to the Proposed Action and alternatives, this is identified in a subsection titled *Issues Not Evaluated Further*.

- **Effects of Proposed Action and Alternatives.** This section evaluates the effects of each EIS/EIR alternative. For the action alternatives (i.e., the Proposed Action Alternative, Reduced Take Alternative, and Reduced Development Alternative), there are typically separate discussions and effect conclusions for each applicable significance criterion. The discussions are separated by a subheading with a short-name for each effect analysis, such as **Effect VIS-2: Potential Damage to Scenic Resources**. At the end of each discussion, the analysis will include a significance finding in **bolded** text.

For describing the No Action Alternative, the CEQA and NEPA basis of comparison is existing conditions. For the No Action Alternative, in each resource chapter, there is a discussion of the future condition of the resource without the Plan. This is compared to existing conditions to provide a description of the environmental effects of the No Action Alternative.

Under NEPA, the basis of comparison for the Proposed Action Alternative is the No Action Alternative. The No Action Alternative "provides a benchmark, enabling decision-makers to compare the magnitude of environmental effects of the action alternatives" (40 CFR 1502.14[d]; Forty Questions No. 3). Under CEQA, however, the basis of comparison for the Proposed Action Alternative is existing conditions (i.e., the information presented in the Environmental Setting of that resource chapter). To best satisfy the requirements of both laws, impact conclusions for the Proposed Action Alternative are provided based on both a comparison with the No Action Alternative "benchmark" under a header titled "NEPA Level of Significance" and the existing condition baseline under a header titled "CEQA Level of Significance." For the NEPA analysis of the Reduced Take Alternative and Reduced Development Alternative, effects are identified based on a comparison with the No Action Alternative, per the typical approach used under NEPA, under a header titled "NEPA Level of Significance." For the CEQA analysis of the Reduced Take Alternative and the Reduced Development Alternative, effects are identified based on a comparison to the Proposed Action Alternative, the typical approach under CEQA, under a header titled "CEQA Level of Significance."

The effects of all EIS/EIR alternatives are analyzed over a 50-year study period. This study period was selected primarily because the Proposed Action Alternative includes a 50-year permit term. Although the reserve system established under the Proposed Action Alternative would be managed and monitored in perpetuity, the adverse effects of the Proposed Action Alternative would occur from the Covered Activities implemented during the 50-year permit term. To present a consistent analysis for the No Action Alternative, the Reduced Take Alternative, and the Reduced Development Alternative, the same 50-year study period was used for all alternatives.

Cumulative Effects. The impact analysis for each alternative in each resource chapter (Chapters 4 – 19) includes a discussion of cumulative effects after the discussion of alternative specific effects. The incremental effects of each EIS/EIR alternative is added to the effects of other past, present, and reasonably foreseeable future projects/actions, and a conclusion is presented as to whether

there is a significant contribution to a significant adverse cumulative effect. Refer to Section 3.6, *Cumulative Effects Analysis Methodology*, for a detailed description of how cumulative effects are analyzed throughout the EIS/EIR. When there are specific approaches or assumptions for cumulative effects unique to a specific resource area, they are described under the Methods and Assumptions in that resource area section.

Under NEPA, the cumulative effects of the Proposed Action are compared to the No Action Alternative. Under CEQA, the cumulative effects of the Proposed Action are compared to existing conditions. Also under NEPA, the cumulative effects of the Reduced Take Alternative and the Reduced Development Alternative are compared to the No Action Alternative. Under CEQA, the cumulative effects of the Reduced Take Alternative and the Reduced Development Alternative are compared to the Proposed Action.

Mitigation Measures. Both NEPA and CEQA require presentation of mitigation measures. Mitigation under both CEQ's NEPA Regulations and the State CEQA Guidelines is defined as either avoiding the impact, minimizing the impact rectifying the impact, reducing or eliminating the impact over time, or compensating for the impact (40 CFR 1508.20; State CEQA Guidelines 15370). CEQ's NEPA Regulations require the EIS to specifically include a discussion of a means to mitigate adverse environmental effects (if not covered in the alternatives). CEQA requires the EIR to present all feasible mitigation for significant adverse impacts (Section 15126.4). Therefore, measures to mitigate effects considered adverse or significant are provided, as necessary, with the effect discussions. Each mitigation measure (MM) will be listed numerically and sequentially (e.g., MM BIO-1a, MM BIO-1b, MM BIO-2a, etc.).

Mitigation Measures, where needed, are provided immediately following each effects discussion, if measures are required to address a significant direct, indirect, and/or cumulative effect. The significance of the effect after applying the mitigation measure is then presented.

- ▲ References and sources of information used in preparing each EIS/EIR chapter are provided in Chapter 23, *References*.

3.6 CUMULATIVE EFFECTS ANALYSIS METHODOLOGY

This section describes the cumulative effect analysis methodology common to the evaluation of cumulative effects for resource topics analyzed in Chapters 4 through 19. Any approaches or assumptions for cumulative effects analysis that are specific to one resource area are described in the Methods and Assumptions section in that resource area chapter.

3.6.1 Definition of Cumulative Effects/Impacts

Both NEPA regulations (42 USC 4321 et seq.) and the CEQA statute (CCR 15000 et seq.) require environmental documents consider cumulative effects of a proposed action. NEPA regulations define a "cumulative impact" as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions; cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (CEQ 2005). NEPA requires that the cumulative analysis assess the direct and indirect effects of the alternative on the affected environment, when added to the total sum of the past, present, and the reasonably foreseeable future actions (CEQ 2005).

The CEQA Guidelines define a cumulative impact as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts

can result from individually minor but collectively significant projects taking place over a period of time” (14 CCR 15355). The CEQA Guidelines require environmental documents evaluate whether a project’s incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guideline Section 15355, means that the “incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

This document analyzes cumulative effects in compliance with the requirements of both NEPA and CEQA.

3.6.2 Cumulative Effect Approach

Under NEPA, agencies are encouraged to evaluate proposed actions in context with actions occurring in the same general location or which have relevant similarities (40 CFR 1502.4). The CEQA Guidelines identify two basic methods for establishing the cumulative environment in which a project is considered: (1) the use of a list of past, present, and probable future projects; or (2) the use of projections from an adopted local, regional, or state-wide plan, such as a general plan; another regional planning document; or a certified EIR for such a planning document (14 CCR 15130).

In compliance with both NEPA and CEQA, the cumulative analysis of each action alternative uses a two-pronged approach. Within the Plan Area, the analysis considers reasonably foreseeable past, present, and future projects/actions as described below in Section 3.6.3, *Past, Present, and Reasonably Foreseeable Actions/Projects Considered in the Cumulative Effects/Impacts Analysis*. Where the cumulative analysis must consider more regional effects, this EIS/EIR may use a combination of reasonably foreseeable projects (such as nearby HCPs or NCCPs) as well as SACOG growth projections to estimate the cumulative effects related to projects/actions outside of the Plan Area. For resources where quantitative information is available, a quantitative analysis is provided; otherwise, a qualitative cumulative effect analysis is provided.

The significance criteria used in each resource chapter to determine the significance of an alternative’s effects on the resource are also applied to the evaluation of cumulative effects. When considered in the context of other present and probable future projects, an alternative’s contribution to cumulative effects for some resources could be significant, while the identified direct and indirect effects of the action alone are considered less than significant.

3.6.3 Past, Present, and Reasonably Foreseeable Actions/Projects Considered in the Cumulative Effects/Impacts Analysis

The following discussion describes the past, present, and reasonably foreseeable activities that have occurred or may occur within the Plan Area over the 50-year study period.

PAST AND PRESENT ACTIONS IN THE PLAN AREA

As described in Chapters 4 through 19, the affected environment in the Plan Area (and the region) has been shaped by past and ongoing land uses and other activities that have influenced environmental conditions. This section provides a brief summary of these past and ongoing land uses and activities that have contributed to (and continue to contribute to) cumulative effects.

Agriculture and Urban Development

Land conversion in the Plan Area includes the conversion of natural lands to farmland and the subsequent conversion of farmland to urban and rural residential uses. In addition, land conversion includes the conversion of farmland with high habitat value to farmland with low habitat value (e.g., the conversion of row crops to orchards and vineyards). Land conversion can also include the direct conversion of natural lands to

urban and rural residential uses. The conversion of farmland back into natural lands has also occurred, although this is less common.

Agricultural lands in the Plan Area represent an altered landscape that retains little resemblance to the historical (pre-European settlement) condition. Formerly consisting of extensive grasslands, wetlands, broad riparian systems, and oak woodlands, the conversion to agriculture has removed a large portion of these natural communities. However, while generally supporting less wildlife diversity compared with most natural communities, some agricultural systems, if managed properly, can continue to support abundant wildlife and provide essential breeding, foraging, and roosting habitat for many resident and migrant wildlife species. In the Plan Area, cultivated land provides important habitat value for many special-status species and species of local concern, including Swainson's hawk, white-tailed kite, tricolored blackbird, and giant garter snake. In many locations, growers have enhanced field edges with hedgerows that provide habitat and refugia for common wildlife species that provide prey for Swainson's hawk and other raptors. However, the development of orchards and vineyards has reduced or eliminated habitat for many species whose habitat requirements are not compatible with these agricultural landscapes. In addition, the land disturbances associated with farming have contributed to sedimentation of waterways, and use of fertilizers and pesticides (including rodenticides) also have contributed to water pollution and may have contributed (directly and indirectly) to species mortality.

Similarly, grazing has altered or degraded habitat conditions for many species through conversion of some natural habitats to grassland and savannah, adverse effects on water quality, and promoting conditions for non-native plant species. However, appropriately managed grazing and rangeland can be compatible with the habitat needs many plant and wildlife species.

Since 1984, slightly over 10,000 acres of farmland, and grazing land in the Plan Area has been converted to urban development (California Farmland Conservation Report 2015, California Department of Conservation). This conversion comprises less than 2 percent of the Plan Area, but has contributed to an incremental decrease in available habitat for species that utilize these land covers. Urbanization has also resulted in indirect effects to plants and wildlife such as noise disturbance, disruption of habitat linkages, and degradation of water quality. However, Yolo County and the four cities within the county have a longstanding commitment to the preservation of agricultural lands and open space, encapsulated in both county and city planning documents. These plans limit the geographic expansion of new development by concentrating growth in the urban areas and maintaining large areas of cultivated land and open space between the cities and towns.

Infrastructure Development and Operation

Urban and agricultural development in the Plan Area has been accompanied by the development of infrastructure to support these land uses. Some of the major infrastructure development activities and general effects on species and their habitats are described below.

- **Water Supply Development.** The domestic water supply in the County is obtained from both surface water and groundwater resources. There are numerous surface water diversions in the Plan Area from the major rivers and creeks, most of which support agricultural irrigation. Agriculture depends on a reliable irrigation water supply from a combination of groundwater and surface water; in most years, surface water is the primary source of irrigation water in Yolo County. Primary sources of surface water in Yolo County are Cache Creek, the Sacramento River, Putah Creek, the Yolo Bypass (including the Tule Canal/Toe Drain), Willow Slough, and the Tehama-Colusa Canal.

There are several major dams upstream of the Plan Area that allow for storage of upstream runoff for use in the Plan Area, including Monticello Dam on Putah Creek and Capay Diversion Dam and Cache Creek Dam on Cache Creek. Portions of Cache Creek and the North Fork of Cache Creek also provide hydroelectric power generation. These dam projects substantially changed flows downstream of the dams.

- **Restoration Projects.** Several restoration programs, such as the Yolo Bypass Wildlife Area, have worked to restore habitat in Yolo County. These types of restoration projects involve the rehabilitation of natural

processes related to hydrology, stream channels, sediment, floodplains, and ecosystem water quality and develop habitat management and restoration actions, including restoration of river corridors, reconstruction of channel floodplain interaction, and restoration of aquatic habitat.

- **Flood Control Projects and Planning Efforts.** Levee systems, flood bypasses, and the larger dams have been developed to provide flood protection for farmlands and communities in the Plan Area. Extensive work has been undertaken to bolster flood protection for urban areas, which require a higher level of protection than agricultural areas. Past and present flood control projects and planning efforts within the Plan Area include the following.
 - **Central Valley Flood Protection Plan.** The California Department of Water Resources prepared the Central Valley Flood Protection Plan (CVFPP), which was adopted in June 2012. The CVFPP provides a comprehensive framework for system-wide flood management and flood-risk reduction in the Central Valley. The CVFPP also addresses the standard of 200-year flood protection for urban areas in the Central Valley, originally established in Senate Bill 5 (2007), and describes actions to achieve this standard by 2025. Several recent levee projects, particularly in West Sacramento, are intended to help achieve this 200-year level of flood protection. The Lower Sacramento River/Delta North Regional Flood Management Plan is a more focused regional plan that encompasses the HCP/NCCP Plan Area and supports local implementation of the CVFPP. The CVFPP is updated every 5-years, with a 2017 version currently in preparation.
 - **The Sacramento River Flood Control Project.** This project consists of a system of weirs and flood relief structures that allow high flows in the Sacramento River to flow into adjacent basins. The basins are designed to contain flood waters and channel them downstream, to eventually be conveyed back into the Sacramento River. The Yolo Bypass is a key element of the project and there are over 200-miles of existing levees in Yolo County supporting the project's flood conveyance system.
 - **FloodSAFE Yolo Pilot Program.** This program emerged from the Yolo County Integrated Regional Water Management Plan (IRWMP) in response to citizens' concerns related to public safety and property damage associated with flooding from Cache Creek. The program's main objective is to minimize the threat of damage to property from flooding and to improve preparedness and response in the event of a flood. The floodSAFE Yolo Pilot Program takes a holistic approach; broadly considering policies regarding land use and habitat enhancement as well as building and maintaining physical structures such as levees and bypasses (YCFCWCD 2015).
 - **Sacramento River Bank Protection Project.** The U.S. Army Corps of Engineers (USACE) is responsible for implementation of the Sacramento River Bank Protection Project (SRBPP) in conjunction with its nonfederal partner, Central Valley Flood Protection Bureau (CVFPB). The SRBPP is a continuing construction project to provide existing levee and flood control facilities with protection from erosion. To date, work has been carried out in two phases to protect over 800,000 feet of levees.
 - **Sacramento River Flood Control System Evaluation.** USACE and the State of California, along with local partners, completed a comprehensive evaluation of the Sacramento River Flood Control Program and initiated a flood-risk management program aimed at repairing, raising, and strengthening urban levees, among other activities. This effort, known as the Sacramento River Flood Control System Evaluation (commonly referred to as System Evaluation) resulted in the repair of more than 70 miles of deficient levees by USACE. To date, not all the authorized repairs have been completed, but efforts are continuing.
 - **Sacramento–San Joaquin Rivers Comprehensive Study.** The State of California and USACE formulated comprehensive plans for flood-risk reduction and environmental restoration following the 1997 flood. The study resulted in a new set of engineering criteria for the design and evaluation of urban levees and a greatly expanded scope and cost for the ongoing urban levee improvement efforts on the Sacramento and American Rivers. The Central Valley Integrated Flood Management Study (CVIFMS) is

a continuation of the Sacramento–San Joaquin Rivers Comprehensive Study in which USACE and the State are defining a long-range program for the Sacramento and San Joaquin River Basins and the corresponding level of federal participation. This program will identify opportunities to reduce flood risk by improving the flood capacity of the system while restoring and protecting floodplain and environmental features, including wetlands and other fish and wildlife habitat.

Implementation of the flood control projects described above has generally degraded instream and nearby wetland and riparian communities in the Plan Area but may also have allowed for additional winter water storage in reservoirs that could be used to maintain instream flows in the summer. Efforts have been underway to upgrade flood control systems while restoring natural stream channels to the extent possible along the Sacramento River and area creeks.

Park Acquisition and Management

A substantial amount of open space preservation has occurred along with the urbanization of the Plan Area. In addition to urban parks within the planning limits of urban growth, notable regional park areas and other protected lands are as follows.

- ▲ Bureau of Land Management lands, including the Cache Creek Natural Area
- ▲ Cache Creek Canyon Regional Park
- ▲ Cache Creek Easements
- ▲ Capay Farm Easement
- ▲ Clarksburg Easements
- ▲ Davis-Woodland Corridor Easements
- ▲ Elkhorn Basin Ranch Easements
- ▲ Elkhorn Regional Park
- ▲ Grasslands Regional Park
- ▲ Hayes Easement
- ▲ Leland Ranch Easement
- ▲ Longview Ranch Easement
- ▲ Martinez Easement
- ▲ Putah Creek Easements
- ▲ Putah Creek Park
- ▲ Sacramento Bypass Wildlife Area
- ▲ South Madison Easement
- ▲ Staib Farm
- ▲ Tule Ranch Easement
- ▲ Valley Vista Regional Park
- ▲ Wild Wings Park
- ▲ Winters-Davis Corridor Easements
- ▲ Yolo Bypass Wildlife Area

These parks and wildlife refuges preserve habitat in the Plan Area and benefit many covered species.

REASONABLY FORESEEABLE PROJECTS IN THE PLAN AREA

Reasonably foreseeable projects in the Plan Area are new projects that are not considered part of the proposed action or action alternatives. Existing ongoing operations or maintenance of facilities in the Plan Area by agencies not participating in the Yolo HCP/NCCP would continue as is and would be considered part of the baseline. The following general categories of projects are considered new and, therefore, are considered reasonably foreseeable projects to be addressed in the analysis of cumulative projects for each relevant resource topic.

- ▲ Construction and widening on State and federal highways. Current known projects include:
 - The California Department of Transportation (Caltrans) is proposing a safety improvement project at three separate locations on State Route 16 in Yolo County between Cadenasso and the I-505 interchange. The project proposes to widen shoulders to 8 feet, install shoulder rumble strips and provide a 20-foot clear recovery zone (which includes the shoulder) at all three locations. In addition, the project would add a left turn pocket, a two-way left turn lane, flatten horizontal curves, and potentially add an additional access to the Madison Migrant Center from Co Rd 89.
- ▲ The California WaterFix project and California EcoRestore, the successor efforts to the Bay Delta Water Conservation Plan. Both infrastructure and habitat conservation elements of these programs could be located in the Plan Area.

- ▲ Potential new and expanding wind energy facilities (turbines and wind farms).
- ▲ Potential new and expanding large-scale solar energy facilities.
- ▲ Projects and activities implemented by agencies that are participants in the HCP/NCCP, but are not included among the covered activities, such as flood control projects protecting the City of Woodland
- ▲ Projects and activities implemented by agencies that are not participants in the HCP/NCCP including U.C. Davis, tribal organizations, the California Department of Water Resources (flood control projects) and the Pacific Gas and Electric Company (PG&E).

REASONABLY FORESEEABLE PROJECTS OUTSIDE THE PLAN AREA WHICH MAY CONTRIBUTE TO CUMULATIVE EFFECTS

A number of habitats, vegetation communities, and covered species that are being addressed by the Yolo HCP/NCCP overlap with other conservation planning areas. As part of an effort to understand the regional effects on species discussed in this EIS/EIR, the following regional conservation planning efforts may be addressed in the cumulative analysis.

- ▲ Solano Multi-Species HCP
- ▲ South Sacramento HCP
- ▲ Natomas Basin Habitat Conservation Plan
- ▲ Yuba-Sutter Regional Conservation Plan
- ▲ Sacramento Municipal Utilities District HCP

More detailed discussions of these related habitat conservation planning efforts are provided in the Biological Resources chapter.

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4 BIOLOGICAL RESOURCES

4.1 INTRODUCTION

This chapter provides information relevant to biological resource impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes several sections: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. Potential conflicts with other HCPs or NCCPs are addressed in Chapter 5, *Land use*.

4.1.1 Data Sources

The following sources of information were reviewed to prepare the biological resources chapter.

- ▲ California Natural Diversity Database (CNDDDB) records search of Yolo County (CNDDDB 2015);
- ▲ U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for Yolo County (USFWS 2015);
- ▲ California Native Plant Society Online Inventory of Rare and Endangered Vascular Plants of California for Yolo County (CNPS 2015);
- ▲ CalFlora's (2015) online Inventory of Vascular Plants of California;
- ▲ California Department of Fish and Wildlife (CDFW) Special Animals and Special Plants lists (CDFW 2015);
- ▲ *Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP)* (Yolo Habitat Conservancy 2017);
- ▲ The Background Report for the Yolo County 2030 Countywide General Plan Update (Yolo County 2005a);
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County 2009a); and
- ▲ Species Accounts for the Yolo Natural Heritage Program (Yolo County 2013)

4.1.2 Definitions

Covered Species: Covered species are those species for which take authorization would be provided by the permits issued for the approved HCP/NCCP. The Yolo HCP/NCCP provides for the conservation and management of these species in the Plan Area to offset the effects of implementing the covered activities on these species.

Land Cover: Land cover is the observed physical cover on the earth's surface. Land cover in this document includes vegetation classifications, bare land, man-made features, and water surface classifications.

Special-status Species: Special-status species are defined as animals and plants that are legally protected under the federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), or other regulations and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- ▲ species that are listed or proposed for listing as threatened or endangered under the FESA (50 Codes of Federal Regulations [CFR] 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register [FR] for proposed species);
- ▲ species that are candidates for possible future listing as threatened or endangered under FESA (73 FR 75178, December 10, 2008);
- ▲ species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5);
- ▲ considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines, Appendix G).
- ▲ otherwise meets the definition of rare or endangered under CEQA Section 15380(b) and (d).
- ▲ animals listed as California species of special concern on CDFW's Special Animals List (CDFW 2015);
- ▲ animals fully protected in California (California Fish and Game Code [CFG] 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]; and
- ▲ plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq.); and plants considered by CNPS to be "rare, threatened, or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). The California Rare Plant Ranks correspond with and replace former CNPS listings. While these rankings do not afford the same type of legal protection as FESA or CESA, the uniqueness of these species requires special consideration under CEQA.

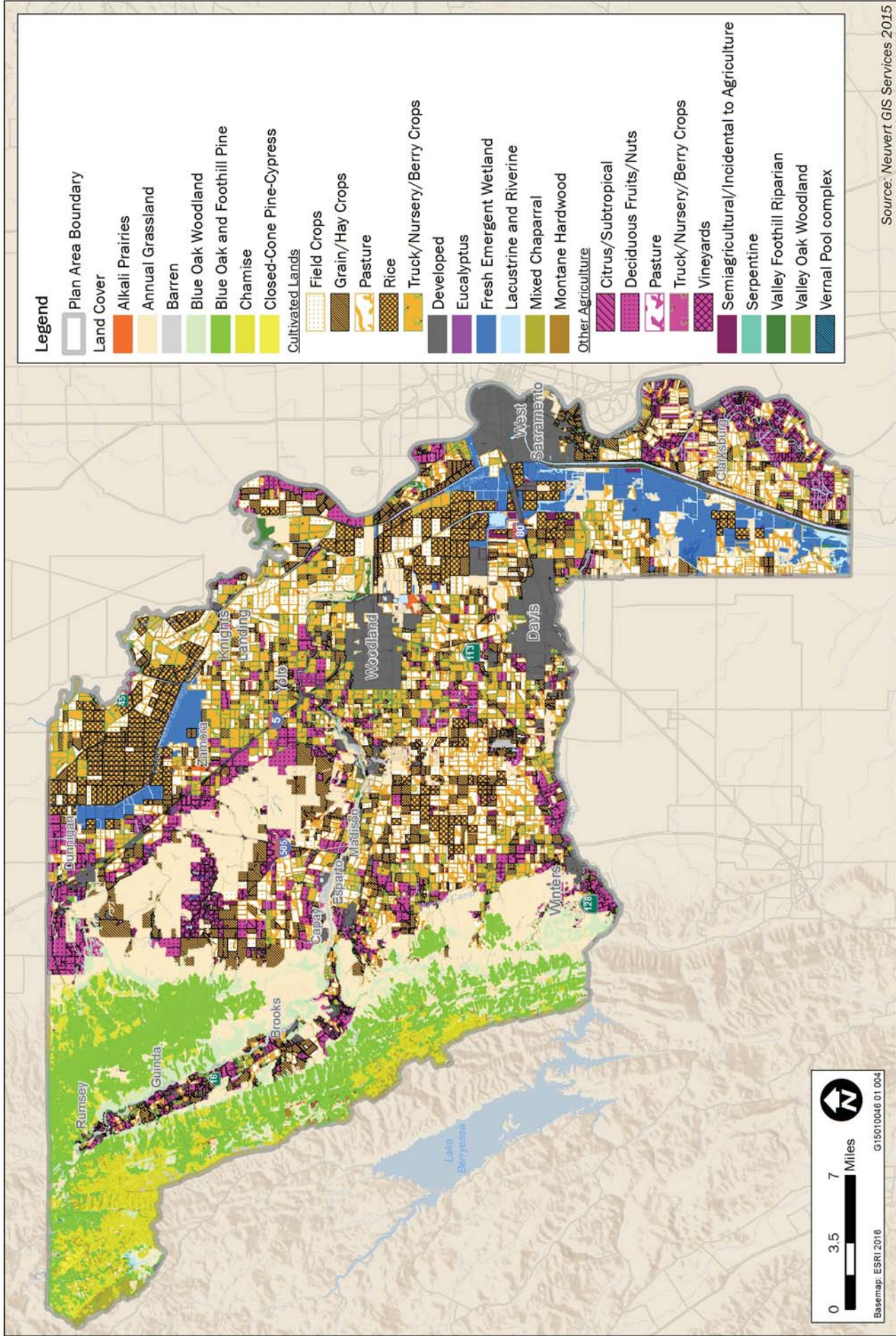
4.2 AFFECTED ENVIRONMENT

4.2.1 Environmental Setting

The following vegetation and land cover type information for the Yolo HCP/NCCP Area (Plan Area) was derived from the Draft HCP/NCCP (Yolo Habitat Conservancy 2017); all land cover types within the Plan Area cover approximately 653,494 acres. The expanded Plan Area along Putah Creek in Solano County covers an additional 1,174 acres and is not included in the land cover acreages provided below. See Section 2.3.2, Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation), for further information on the expanded Plan Area. The methodology used to classify, describe, and map land cover types within the Plan Area is described in Chapter 2, *Existing Ecological Conditions*, of the HCP/NCCP. See Exhibit 4-1 for more detail.

VEGETATION AND LAND-COVER TYPES

Farmlands cover the majority of the Plan Area (53 percent), while undeveloped lands account for most of the remainder (40 percent). Developed and barren lands account for approximately seven percent of the Plan Area. Of the undeveloped lands, woodlands, forests, and grassland each make up approximately 25 percent of the land cover for this category, while shrublands make up approximately seven percent. Sensitive habitats such as wetlands and riparian areas compose another eight percent of undeveloped land.



Land Cover Types within the Yolo HCP/NCCP Plan Area

Exhibit 4-1

Cultivated Land

Cultivated Lands (or Agriculture as identified in the legend of Exhibit 4-1) is a category of *Seminal* *Community* land cover that encompasses 250,662 acres (38 percent) of the Plan Area. The Cultivated Lands category includes the following agricultural land types that can provide habitat for covered species: alfalfa, field crops, grain/hay crops, pasture, rice, and truck/berry crop agricultural types. The distribution these agricultural land types within the Plan Area may expand and contract rapidly with market conditions and crop rotations. These agricultural types are described below.

Alfalfa

Alfalfa fields account for 48,879 acres (eight percent) of the Plan Area. Alfalfa (*Medicago sativa*) is a relatively low-growing perennial herbaceous legume species that is periodically irrigated and cut for hay five times during the growing season. Since it can fix nitrogen, alfalfa is often used as a green manure and is incorporated into the soil as part of many crop rotations. The high protein content of its leaves also make alfalfa highly palatable for rodents such as ground squirrels and gophers, which are often present in high numbers in the fields.

Common wildlife species known to forage in alfalfa fields include American kestrel (*Falco sparverius*), horned lark (*Eremophila alpestris*), American pipit (*Anthus rubescens*), western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), California meadow vole (*Microtis californicus*), house mouse (*Mus musculus*), brown rat (*Rattus norvegicus*), and black-tailed jackrabbit (*Lepus californicus*) may use these areas as primary habitat.

Alfalfa in particular supports special-status raptor species because it provides such important forage for ground squirrels, gophers, voles, and other small mammals. Special-status Raptors such as burrowing owl (*Athene cunicularia hypugaea*), loggerhead shrike (*Lanius ludovicianus*), long-eared owl (*Asio otus*), short-eared owl (*Asio flammeus*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and Swainson's hawk (*Buteo swainsoni*) can be found foraging in these fields. Alfalfa fields are particularly important for Swainson's hawk which preferentially congregate in large numbers in these fields to forage on insects, voles, and other prey flushed during harvesting or flood irrigating.

Field Crops

Field crops in the Plan Area consist of irrigated row crops and represent one of the most abundant agricultural types within Yolo County, accounting for approximately 42,131 acres (six percent) of the Plan Area. Field crops in the Plan Area include corn, dry beans, sorghum, safflower, Sudan grass, and sunflowers.

Common wildlife species known to forage in field crops include American kestrel, horned lark, American pipit, western meadowlark, red-winged blackbird, yellow-billed magpie (*Pica nuttalli*), house finch (*Carpodacus mexicanus*), herons and egrets. California meadow vole, house mouse, brown rat, and black-tailed jackrabbit may use these areas as primary habitat.

Field crops support special-status wildlife species including Swainson's hawks, which often congregate in large numbers to forage on insects, voles, and other prey flushed during harvesting or flood irrigating. Additionally, Townsend's big-eared bat (*Corynorhinus townsendii townsendii*) and mountain plover (*Charadrius montanus*) may utilize plowed fields for foraging.

Grain and Hay Crops

Grain and hay crops include dryland grain and hay production operations and encompass 65,303 acres (10 percent) in the Plan Area. In dryland farming, wheat is the dominant grain crop, with smaller acreages of barley and rye. Oat hay is the dominant hay crop, with an average of approximately 12,000 acres. Plan Area. In some years, dryland grain and hay production occurs on less fertile soils such as those in the Dunnigan Hills and along the base of the Blue Ridge.

Grain and hay crops support common wildlife species, including mourning dove (*Zenaida macroura*), western meadowlark, Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird, yellow-billed magpie, coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit.

Grain and hay crops provide foraging for special-status wildlife, including Swainson's hawk, northern harrier, tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and pallid bat (*Antrozous pallidus*).

Pasture

Pastures comprise 15,197 acres (two percent) of the Plan Area, are typically planted with non-native grasses or leguminous plant species, and are actively irrigated. Pastures are generally located on landscapes with flat to gently rolling terrain to facilitate border or sprinkler irrigation. Within Yolo County, the majority of the pasture lands are located on valley floors and are concentrated in the south-central and southeastern sections of the Plan Area. Pasture lands that have been planted with non-native grasses (i.e., lacking natural/ historic biological conditions) do not represent potential habitat for any special-status plant species.

Common wildlife species found in pastures include mallard (*Anas platyrhynchos*), killdeer (*Charadrius vociferus*), western kingbird (*Tyrannus verticalis*), western meadowlark, yellow-billed magpie, and red-winged blackbird.

Pasture lands provide foraging opportunities for special-status wildlife species, including California tiger salamander (*Ambystoma californiense*) (using existing burrows), western spadefoot (*Spea hammondi*), Swainson's hawk, American Peregrine falcon (*Falco peregrinus anatum*), northern harrier, burrowing owl, loggerhead shrike, long-eared owl, short-eared owl, yellow-headed blackbird, tricolored blackbird, Townsend's big-eared bat, and pallid bat. Additionally, these areas provide breeding habitat for northern harrier and burrowing owl (where existing squirrel burrows are present).

Rice

Rice is a flood-irrigated crop that is a seed-producing annual grass. It is generally grown in leveled fields that are flooded for most of the growing period and then dried to mature and facilitate harvesting. Commercial rice generally grows to about 2-feet tall and has 100 percent canopy closure when it matures. Rice is generally planted in the spring and harvested in the fall. Within Yolo County, rice is found on 35,724 acres (five percent) of the Plan Area.

Rice provides valuable habitat that varies seasonally for a range of wetland and upland wildlife species. Rice is a particularly important food source for wintering waterfowl. Rice fields support a number of common wildlife species, including the great blue heron (*Ardea herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), tundra swan (*Cygnus columbianus*), greater white-fronted goose (*Anser albifrons*), snow goose (*Chen caerulescens*), mallard, gadwall (*Anas strepera*), northern pintail (*Anas acuta*), black-necked stilt (*Himantopus mexicanus*), long-billed dowitcher (*Limnodromus scolopaceus*), dunlin (*Calidris alpina*), least sandpiper (*Calidris minutilla*), mourning dove, western meadowlark, red-winged blackbird, and various rodents. Rice is known to provide habitat for one special-status species, giant garter snake (*Thamnophis couchi gigas*).

Truck and Berry Crops

Truck and berry crops, which encompass 43,464 acres (seven percent) of the Plan Area, include intensive agricultural operations that produce food and landscaping plants that are typically transported for sale elsewhere. Truck farming is the cultivation of one or a few fruit or vegetable crops on a relatively large scale for transport to distant markets and includes the production of asparagus, broccoli, onions, garlic, and carrots. The berry crops category encompasses more than typical berries, and in the Plan Area is dominated by tomato cultivation, but other berry crops include melons, squashes, cucumbers, onions, garlic, peppers, and strawberries. Farming practices associated with these crops generally suppresses the growth of other vegetation.

Common wildlife species associated with this land cover include foraging raptors, skunks, foxes, yellow-billed magpie, and brewer's blackbirds. Special-status species that utilize truck and berry crops include northern harrier and Swainson's hawk.

Grassland

The grassland category includes both the grassland and serpentine land covers.

Grassland

The grassland land cover encompasses a total of 80,911 acres (12 percent) of the Plan Area. Most of the grassland within this land cover consist of annual grassland, dominated by nonnative species. While perennial grassland may occur, no mapping data currently exist for perennial grassland in the Plan Area. Many of the species that occupy this land cover type also occur as understory plants in other land cover types such as blue oak woodland. Within in the Plan Area, grassland is mainly found in the Blue Ridge and Capay Hills planning units (Exhibit 2-1). In other valley planning units, it can be difficult to distinguish grassland and fallow, weedy agricultural fields.

Grassland is typically dominated by non-native, naturalized grasses such as barbed goatgrass (*Aegilops triuncialis*), wild oats (*Avena* spp.), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), Medusahead (*Taeniatherum caput-medusae*), and rattail fescue (*Vulpia myuros*). Grassland supports both native and non-native forbs. Native forbs that occur in grassland include fiddleneck (*Amsinckia menziesii*), miner's lettuce (*Claytonia perfoliata*), blue dicks (*Dichelostemma capitatum*), doveweed (*Eremocarpus setigerus*), California poppy (*Eschscholzia californica*), miniature lupine (*Lupinus bicolor*), baby blue-eyes (*Nemophila menziesii*), California plantain (*Plantago erecta*), vinegar weed (*Trichostema lanceolatum*), tomcat clover (*Trifolium willdenovii*), butter-and-eggs (*Triphysaria eriantha*), and Ithuriel's spear (*Triteleia laxa*). Non-native forbs that typically are present in grassland include yellow star-thistle (*Centaurea solstitialis*), mustard (*Brassica* spp.), introduced clovers (*Trifolium* spp.), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), radish (*Raphanus* spp.), redstem filaree (*Erodium cicutarium*), big heronbill (*Erodium botrys*), broadleaf filaree, birdfoot trefoil (*Lotus corniculatus*), bindweed (*Convolvulus arvensis*), and cutleaf geranium (*Geranium dissectum*).

Common wildlife species known to utilize grassland include reptiles such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalis viridis*); mammals such as black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California meadow vole and coyote; and birds such as horned lark, and western meadowlark. Annual grassland also provides important foraging habitat for turkey vulture (*Cathartes aura*), American kestrel, and red-tailed hawk (*Buteo jamaicensis*).

Special-status wildlife species known to utilize grassland within the Plan Area are as follows. Grassland provides foraging habitat for Pallid bat, and foraging and denning habitat for American badger (*Taxidea taxus*). Bird species for which grassland provides primary foraging and nesting habitat include northern harrier, and western burrowing owl. Grassland also provides foraging habitat for raptor species including Swainson's hawk, white-tailed kite, golden eagle (*Aquila chrysaetos*), short-eared owl, and long-eared owl. Grassland also serve as primary foraging habitat for loggerhead shrike, grasshopper sparrow (*Ammodramus savannarum*), purple martin (*Progne subis*), tricolored blackbird, and yellow-headed blackbird. California tiger salamander and western spadefoot utilize vernal pools and other wetlands within grassland for breeding and the grassland themselves for cover during movement or during dry periods.

Serpentine

Serpentine vegetation types identified in the Plan Area are serpentine chaparral, serpentine grassland, and serpentine barrens; all are rare in the Yolo County. The combined acreage and percentage of the Plan Area comprising serpentine vegetation types is 247 acres and less than one percent. Serpentine soils in the Plan Area are derived from Franciscan Complex rock of the Little Blue Ridge. Serpentine substrates are characterized by low levels of calcium, high levels of magnesium, typically have a high amount of nickel and chromium (both of which are toxic to plants), low in key nutrients (i.e., nitrogen, phosphorus, and potassium),

and are commonly very wet in winter but extremely dry in summer (Ornduff et. al. 2003; p.65). Relatively few plant species are able to tolerate these conditions, and the contrasts between serpentine vegetation and vegetation on adjacent substrates that do not contain serpentine are very pronounced (Ornduff et. al. 2003; p.63). Serpentine grassland supports a low vegetative cover of annual grassland species. Serpentine chaparral is most often dominated by leather oak with an overstory of foothill pines (*Pinus sabiniana*). Serpentine barrens, aptly named because they support little or no plant cover, may even lack soil and have a substrate consisting entirely of rock fragments (Kruckeberg 2006; p.95)

Common wildlife species known to utilize these areas are comparable to those that utilize grassland, however, serpentine does not provide primary habitat for special-status species.

Shrublands and Scrub

Chamise

Chamise (*Adenostoma fasciculatum*) shrublands encompass 30,187 acres (five percent) of the Plan Area. Chamise shrublands may consist of nearly homogenous areas of chamise or may have wedgeleaf ceanothus as a co-dominant species. In addition to chamise and wedgeleaf ceanothus (*Ceanothus cuneatus*), chamise vegetation types can also support plant species such as California yerba santa (*Eriodictyon californicum*), pitcher sage (*Lepechinia calycina*), and deerweed (*Lotus scoparius*).

This vegetation type supports common wildlife species such as California scrub-jay (*Aphelocoma californica*), wrenit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), and California towhee (*Pipilo crissalis*). Numerous special-status bird species may fly over, forage or take cover in chamise located adjacent to primary habitat but are not dependent on these areas.

Mixed Chaparral

Mixed chaparral encompasses 14,518 acres (two percent), in the Plan Area and occurs on serpentine and non-serpentine soils. Shrub species dominant on non-serpentine soils are common manzanita (*Arctostaphylos manzanita*), scrub oak (*Quercus berberidifolia*), toyon (*Heteromeles arbutifolia*), and birch-leaf mountain mahogany (*Cercocarpus betuloides*). Other species present in mixed chaparral types are California bay (*Umbellularia californica*), and buckbrush (*Ceanothus cuneatus*). Herbaceous species present in chaparral are sparse annual grasses, pitcher sage, and deerweed. Mixed chaparral generally occurs as a mosaic on exposed sites in the Blue Ridge and Capay Hills. Shrub species dominant on serpentine soils include whiteleaf manzanita (*Arctostaphylos manzanita* ssp. *glaucescens*), California bay, and leather oak (*Quercus durata*).

Mixed chaparral supports several common wildlife species including year-round residents such as western fence lizard, western skink (*Eumeces skiltonianus*), gopher snake (*Pituophis catenifer*), common kingsnake (*Lampropeltis getula*), western rattlesnake, mule deer (*Odocoileus hemionus*), coyote, gray fox (*Urocyon cinereoargenteus*), mountain quail (*Oreortyx pictus*), California quail (*Callipepla californica*), mourning dove, Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltirparus minimus*), Bewick's wren (*Thryomanes bewickii*), California thrasher, wrenit, California towhee, spotted towhee (*Pipilo maculatus*), rufous-crowned sparrow (*Aimophila ruficeps*), sage sparrow (*Amphispiza belli*), and lesser goldfinch (*Carduelis psaltria*). Summer residents include blue-gray gnatcatcher (*Poliophtila caerulea*), black-headed grosbeak (*Pheucticus melanocephalus*), orange-crowned warbler (*Vermivora celata*), and lazuli bunting (*Passerina aemona*). Winter residents include hermit thrush (*Catharus guttatus*), fox sparrow (*Passerella iliaca*), golden-crowned sparrow (*Zonotrichia atricapilla*), white-crowned sparrow (*Zonotrichia leucophrys*), and dark-eyed junco (*Junco hyemalis*). Similar to chamise, special-status bird species may fly over, forage or take cover in mixed chaparral located adjacent to primary habitat but are not dependent on these areas.

Woodlands and Forests

Oak-Foothill Pine Woodland

Oak-foothill pine woodland land cover encompasses 43,772 acres (seven percent) of the Plan Area. Interior live oak (*Quercus wislizeni*) and foothill pine are the dominant overstory species; however, California buckeye (*Aesculus californica*), coast live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*) may also be present. Species typically found in the shrub understory are wedgeleaf ceanothus, whiteleaf manzanita, redberry (*Rhamnus crocea*), poison oak (*Toxicodendron diversilobum*), silver bush lupine (*Lupinus albifrons*), and blue elderberry (*Sambucus mexicana*). The herbaceous understory supports grass and forb species that are also associated with annual grassland.

Oak-foothill pine woodlands support several common wildlife species, including band-tailed pigeon (*Columba fasciata*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*), California scrub-jay (*Aphelocoma californica*), oak titmouse, Hutton's vireo (*Vireo huttoni*), mule deer, bobcat (*Lynx rufus*), and striped skunk (*Mephitis mephitis*).

Special-status species for which oak-foothill pine woodlands provide primary habitat include golden eagle, pallid bat, Townsend's big-eared bat, and western red bat (*Lasiurus blossevillii*).

Blue Oak Woodland

Blue oak woodland encompasses 35,891 acres (slightly less than six percent) of the Plan Area. Blue oak is the dominant overstory species, and the associate overstory species listed above for blue oak-foothill pine woodlands may also be present. Species typically comprising the shrub layer of blue oak woodland are poison oak, California coffeeberry (*Rhamnus californica*), wedgeleaf ceanothus, and manzanita species (*Arctostaphylos* spp.). The herbaceous understory of blue oak woodland is comparable to that of blue oak-foothill pine woodlands.

Common wildlife species known to utilize blue oak woodland are comparable to those described above for blue oak-foothill pine woodlands.

Special-status species for which blue oak woodland provides primary habitat include golden eagle, loggerhead shrike, white-tailed kite, American badger, pallid bat, Townsend's big-eared bat, and western red bat.

Closed-Cone Pine-Cypress Forest

Closed-cone pine-cypress forest encompasses 212 acres (less than one percent) of the Plan Area and is co-dominated by knobcone pine (*Pinus attenuata*) and MacNab Cypress (*Cupressus macnabiana*). Closed-cone pine-cypress forest in the Plan Area consists of relatively small trees that require periodic fires for seedling recruitment. Areas dominated by knobcone pine occur on the north-facing slope of the Blue Ridge, and along Yolo County's northern boundary immediately above Cache Creek. Areas dominated by MacNab cypress are present at the University of California's McLaughlin Reserve in the Little Blue Ridge at the junction of Yolo, Napa, and Lake Counties.

Common wildlife species known to utilize closed-cone pine-cypress forest include many of those listed for other forest and woodland land covers. Closed-cone pine-cypress does not provide primary habitat for special-status wildlife.

Montane Hardwood Forest

Montane hardwood forests encompass 3,087 acres (less than one percent) of the Plan Area and are characterized by a mixture of conifers and broad-leaved trees that are evergreen or deciduous and generally lack a well-developed shrub understory and herbaceous layer. Trees present in the overstory of montane hardwood forest in the Plan Area are canyon live oak (*Quercus chrysolepis*), black oak (*Quercus kelloggii*), foothill pine, California bay, and California buckeye.

Montane hardwood forest supports several common wildlife species, including western skink, northern alligator lizard (*Elgaria coerulea*), common kingsnake, gopher snake, western rattlesnake, red-tailed hawk, American kestrel, California quail, mourning dove, great horned owl (*Bubo virginianus*), western screech-owl (*Otus kennicottii*), northern pygmy-owl (*Glaucidium gnoma*), Anna's hummingbird, acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), California scrub-jay, oak titmouse, white-breasted nuthatch (*Sitta carolinensis*), Bewick's wren, house wren (*Troglodytes aedon*), blue-gray gnatcatcher, western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), orange-crowned warbler, black-headed grosbeak, lazuli bunting, spotted towhee, California towhee, Bullock's oriole (*Icterus bullockii*), house finch, lesser goldfinch, dark-eyed junco, deer mouse (*Peromyscus maniculatus*), western gray squirrel (*Sciurus griseus*), striped skunk, raccoon (*Procyon lotor*), bobcat, and mule deer.

Montane hardwood forest may provide primary habitat for special-status wildlife species including pallid bat and Townsend's big-eared bat.

Valley Oak Woodland

Valley oak woodland consists of stands dominated by valley oak that are located outside of riparian zones and encompasses approximately 181 acres (less than one percent) of the Plan Area. Valley oak woodland is considered separate from the Valley Foothill Riparian vegetation type described below under *Riparian and Wetlands*, which encompasses streamside habitats that are dominated by valley oak, but that also have a higher abundance of typical riparian species, such as Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), ash (*Fraxinus* spp.), and willows (*Salix* spp.).

Valley oak woodlands typically occur in lowland areas that have deep, well-drained alluvial soils. Valley oak woodlands were once much more abundant within lowland areas, but the conversion of these areas to agriculture has reduced the distribution within Yolo County to a few scattered, dense stands and small groves or individual trees adjacent to around farmsteads, agricultural work areas, roadsides, and within agriculture fields.

Valley oak woodlands support nesting and foraging of numerous common wildlife species, including, but not limited to Nuttall's woodpecker, yellow-billed magpie, California scrub-jay, oak titmouse, white-breasted nuthatch, western bluebird, American kestrel, and red-tailed hawk.

Special-status plant species with the potential to occur in valley oak woodlands are comparable to those that could potentially occur in oak-foothill pine woodland.

Riparian and Wetlands

Alkali Prairies

Alkali prairies encompasses 312 acres (less than one percent) of the Plan Area and are found in the western portion of the Plan Area. Alkali prairies occur in low-lying areas within alkaline or saline soils. The salts in the soils are dissolved during the wet winter months, and form high concentrations of salt (i.e., a crust) in these low-lying areas when the water evaporates. The high salt concentration restricts vegetation to salt-tolerant or halophytic (i.e. salt-loving) plant species; vegetation is often dominated by salt grass (*Distichlis spicata*). The amount of vegetative cover in alkali prairies tends to be less than in other saline habitats (i.e., saline emergent marsh) because when a certain salt concentration is reached, no plant species can survive, and as a result there are unvegetated areas (Ornduff et. al. 2003: p. 59).

Plant species present in alkali prairies in the Plan Area include flat-face downingia (*Downingia pulchella*), curly dock (*Rumex crispus*), gumplant (*Grindelia camporum*), alkali coyote thistle (*Eryngium aristulatum*), alkali heath (*Frankenia salina*), bush seepweed (*Suaeda moquinii*), common spikeweed (*Centromadia pungens*), and annual hairgrass (*Deschampsia danthonoides*).

Common wildlife species found in this land cover include great blue heron, killdeer, and song sparrow (*Melospiza melodia*).

Alkali prairies also support special-status wildlife species including western snowy plover (*Charadrius alexandrinus nivosus*). Many special-status hawk species including northern harrier, American peregrine falcon, Swainson's hawk, and white-tailed kite utilize these areas for foraging.

Freshwater Emergent Wetland

Freshwater emergent wetland encompasses 26,310 acres (four percent) of the Plan Area and is typically associated with level to gently rolling landscapes along rivers, lakes, and creeks, but can be found anywhere the topography permits perennial or seasonal soil saturation or flooding by fresh water.

Perennially flooded areas are typically dominated by cattails, tule, and California bulrush that can reach up to 12 feet in height. Seasonally saturated or inundated areas contain much smaller plant species and are more variable in their plant species composition. Dominant species in many lower elevation, seasonally-inundated wetlands include Baltic rush (*Juncus balticus*), iris-leaved rush (*Juncus xiphioides*), and spikerushes (*Eleocharis* spp.).

Within Yolo County, sedges (*Carex* spp.) and rushes (*Juncus* spp.) dominate the emergent wetlands that are found within the drainages located between the Blue Ridge and Highway 16, between Rocky Ridge and Interstate 5, and in the Dunnigan Hills. There are bulrush and cattail emergent wetlands in the Willow Slough Bypass just east of the City of Davis, and alkali bulrush emergent wetlands in the lowlands just west of the Sacramento River Deep Water Ship Channel in southeast Yolo County.

Saline emergent wetlands are also included in this category in the HCP/NCCP. Saline emergent wetlands are salt or brackish marshes consisting mostly of perennial grasses and forbs. Vegetation in saline emergent wetlands in the Plan Area includes perennial pepperweed (*Lepidium latifolium*), saltgrass (*Distichlis spicata*), pickleweed (*Salicornia subterminalis*), tule (*Scirpus acutus*), and white knotweed (*Polygonum punctatum*).

Freshwater emergent wetlands support a number of common wildlife species, including the great blue heron, great egret, snowy egret, black-crowned night-heron, Virginia rail (*Rallus limicola*), common moorhen (*Gallinula chloropus*), American coot (*Fulica americana*), marsh wren (*Cistothorus palustris*), song sparrow, and red-winged blackbird.

Freshwater emergent wetlands support special-status species including American peregrine falcon, black tern (*Chlidonias niger*), California black rail (*Laterallus jamaicensis coturniculus*), least bittern (*Ixobrychus exilis*), long-eared owl, northern harrier, short-eared owl, tricolored blackbird, western snowy plover, yellow-headed blackbird, and giant garter snake.

Valley Foothill Riparian Woodland

Valley foothill riparian woodland encompasses 12,565 acres (two percent) in the Plan Area and consists of an overstory that contains mature valley oak, Fremont cottonwood, ash (*Fraxinus* spp.), sycamore (*Plantanus racemosa*), white alder (*Alnus rhombifolia*), and willows (*Salix* spp.). In a mature riparian forest, canopy heights reach approximately 100 feet, and canopy cover ranges from 20 to 80 percent. The shrub layer contains blue elderberry, California rose (*Rosa californica*), poison oak, mulefat (*Baccharis salicifolia*), and coyote brush (*Baccharis pilularis*). Blackberry (*Rubus* spp.) may form dense thickets in the understory and California grape (*Vitis californica*) can create a dense network of vines in the canopy of the riparian forests. In areas disturbed by frequent flooding, fire, or human activity, riparian habitat often consists of smaller trees, more shrubs, and more invasive non-native species. Valley foothill riparian woodlands are usually associated with streams and creeks with low-velocity flows, floodplains, and areas of low topography. Non-native species observed in valley foothill riparian woodland in the Plan Area are giant reed (*Arundo donax*) and salt cedar (*Tamarix parviflora*).

Valley foothill riparian woodland occurs along Cache Creek, Putah Creek, Willow Slough, Union School Slough, Dry Slough, Chickahominy Slough, the Colusa Basin Drain, and the Sacramento River delta sloughs.

Valley foothill riparian woodland supports a number of common wildlife species, including the red-shouldered hawk, great horned owl, black-chinned hummingbird, California scrub-jay, Nuttall's woodpecker, downy woodpecker (*Picoides pubescens*), American crow (*Corvus brachyrhynchos*), bushtit, yellow-billed magpie, oak titmouse, white-breasted nuthatch, black-headed grosbeak, blue grosbeak (*Passerina caerulea*), lazuli bunting, Bullock's oriole, house finch, American goldfinch (*Carduelis tristis*), striped skunk, raccoon, and various rodents.

This type also contains habitat for the following special-status wildlife species, the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western pond turtle (*Actinemys marmorata*), bank swallow (*Riparia riparia*), Swainson's hawk, long-eared owl, western yellow-billed cuckoo (*Coccyzus americanus*), white-tailed kite, yellow-breasted chat (*Icteria virens*), pallid bat, Townsend's big-eared bat, and western red bat.

Vernal Pool Complex

Vernal pool complexes encompass a total of 299 acres (less than one percent) in the Plan Area. A vernal pool complex refers to a landscape-scale mosaic of vernal pools that are typically connected by surface features such as swales and/or subsurface water flow. Vernal pools are shallow seasonally-inundated depressions, that are characterized by the presence of a restrictive layer (clay alluvium) that prevents groundwater from percolating downward and effectively keeps water perched at or near the ground surface until it evaporates or is taken up by plants. Vernal pools receive precipitation during the wet winter months, gradually dry down during the spring, and are dry during the summer. Vernal pool complexes are located on the Davis Communications Site, Woodland Regional Park, and CDFW's Tule Ranch Unit of the Yolo Bypass Wildlife Area.

Plant species commonly observed in vernal pool complexes are coyote thistle (*Eryngium castrense*), downingia (*Downingia* spp.), vernal pool goldfields (*Lasthenia fremontii*), popcorn-flower (*Plagiobothrys* spp.) vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), vernal pool hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*).

Some common wildlife species that occur in vernal pool complexes include various aquatic invertebrates such as species of small crustaceans; seed shrimp, copepods, and daphnia; and insects; aquatic beetles, water boatman, backswimmers. Waterfowl may feed on these invertebrates during the wet season. During the dry season, common wildlife species would be similar to those associated with grassland.

Vernal pool complexes provide primary habitat for special-status wildlife species including Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), and California tiger salamander (within the designated critical habitat area for the species in the Dunnigan Hills). Other special-status wildlife species, including northern harrier, prairie falcon, Swainson's hawk and white-tailed kite presumably may use vernal pool complex incidental to foraging in adjacent grassland habitats.

Lacustrine and Riverine

Lacustrine and riverine includes a variety of lacustrine (lake, reservoirs, ponds), riverine (rivers and streams), and other open water areas (stock ponds, storm water detention ponds, wastewater treatment ponds). These may consist of inland topographic depressions or reservoirs formed by dams on riverine drainages, and range in size from less than 2.5 acres to several square miles, with water depths ranging from a few inches to hundreds of feet. Lacustrine and Riverine habitat is found on 13,493 acres (two percent) of the Plan Area.

Turbidity, water temperature, and oxygen content affect the quality of habitat for many plant and animal species. The amount of turbidity within the water body influences light penetration, which affects vegetation growth. Water temperature varies by season and depth. Oxygen content in lacustrine habitats is typically lower than in flowing water systems. Perennial lacustrine habitats usually contain fish, which may affect suitability for invertebrates, amphibians, and some reptiles, while ephemeral systems typically do not contain fish. Lacustrine and riverine habitats can support algae, mosses and other aquatic plants such as duckweed (*Lemna minor*).

Within Yolo County, lacustrine and riverine habitats support a number of common wildlife species, including eared grebe (*Podiceps nigricollis*), pied-billed grebe (*Podilymbus podiceps*), common goldeneye (*Bucephala clangula*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*), American coot, osprey (*Pandion haliaetus*), and California gull (*Larus californicus*).

Lacustrine and riverine areas also provide habitat for a number of special-status wildlife species including foraging habitat for American peregrine falcon, bald eagle (*Haliaeetus leucocephalus*), redhead (*Aythya americana*), and breeding and foraging habitat for western pond turtle, California tiger salamander, and foothill yellow-legged frog.

Other Land Cover Types

Other Agriculture

Other Agriculture land cover encompasses 62,164 acres (10 percent) of the Plan Area and includes citrus and subtropical orchards; deciduous fruit and nut orchards; flower, nursery, and tree farms; vineyards; and a form of pasture specific to this category. These agricultural types are described below.

Citrus and Subtropical Orchards

Citrus and subtropical orchards encompass 1,159 acres (less than one percent) in the Plan Area and include olives, oranges, and kiwis. Citrus and subtropical orchards in the Plan Area are typically actively irrigated and maintained (e.g., pruning, mowing between rows, pesticide application). If present, the herbaceous understory between rows is dominated by ruderal species and grasses.

Common wildlife including American crows, common raven (*Corvus corax*), Brewer's blackbird, and European starling (*Sturnus vulgaris*).

This type may provide foraging and roosting for western red bats, a special-status species.

Deciduous Fruit and Nut Orchards

Deciduous fruit and nut orchards encompass 43,591 acres (seven percent) in the Plan Area and include almonds, apples, apricots, cherries, figs, peaches, nectarines, pears, pistachios, prunes, and walnuts.

Deciduous fruit and nut orchards support a number of common wildlife species, including those listed above under citrus/subtropical and American robin, yellow-billed magpie, and house finch. Mule deer and rabbits (*Lepus californicus* and *Sylvilagus* spp.) may browse on trees, while California ground squirrels may consume fruits and nuts.

This type does support one special-status bat, the western pallid bat.

Flower, Nursery, and Tree Farms

The Flower, Nursery, and Tree Farm land cover, which encompass 122 acres (less than one percent) of the Plan Area, includes agricultural operations that produce landscaping plants that are typically transported for sale elsewhere. Nurseries produce flowering plants, shrubs, and trees for local and distant retail sales. Farming practices associated with these crops generally suppresses the growth of other vegetation.

Common wildlife species associated with this land cover will be similar to those listed for the orchard land covers above.

Vineyards

Vineyards account for 17,151 acres (three percent), of the Plan Area. Vineyards comprise single species planted in rows, usually supported on wood and wire trellises. Vineyards are usually treated with herbicides to prevent the growth of herbaceous plants. Vineyards are predominant in the north-central portion of Yolo County, near the Interstate 5 corridor, and along the Sacramento River, near the county's southern boundary.

Vineyards support a number of common wildlife species, including the American crow, California scrub-jay, American robin, European starling, mourning dove, and house finch. However, they are not primary habitat for special-status species.

Pasture

Pastures under the Other Agriculture land cover type comprise 141 acres (less than one percent) of the Plan Area, are typically turf farms planted with non-native grasses. These farms are mainly composed of heavily maintained sod with frequent fertilization, watering, and mowing activities. This crop has little value for wildlife because of the heavy maintenance, lack of cover, and elimination of pests (and, in doing so, a prey base).

Semiagricultural and Incidental to Agricultural

Semiagricultural areas include livestock feedlots, poultry farms, farmsteads, and miscellaneous semi-agricultural features such as small roads, ditches, and unplanted areas of cropped fields (e.g. field edges). Feedlots or “feedyards” are confined livestock feeding operations that are used for preparing livestock, mainly cattle, for slaughter. They may contain thousands of animals in an array of pens and support virtually no vegetation. Poultry farms raise chickens, turkeys, ducks, and geese for meat or egg production. Semiagricultural areas are found on 30,510 acres (five percent) of the Plan Area.

Common wildlife associated with this land cover include Brewer’s blackbird, European starling, rock dove (*Columba livia*), and mourning dove.

Tricolored blackbird, which is a covered wildlife species, may congregate in large numbers to feed on grain at feedlots and poultry operations. Additional special-status species which may use the farmsteads and field edges are Swainson’s hawk, white-tailed kite, loggerhead shrike, and western burrowing owl.

Barren

Barren areas include the following land cover types: Barren, Rock Outcrop, Levee (tops and rip-rapped areas), and Gravel/Sand Bars. The Barren category includes areas that have been cleared of vegetation and are not closely associated with a human structure (in contrast to the urban land cover type which is dominated by structures and pavement, see below). Rock outcrops (which do not include Serpentine Barrens, discussed separately above under ‘Grassland’) are natural formations on non-serpentine substrates that support sparse vegetation and limited or no soil. Gravel/sand bars are sparsely vegetated areas associated with active erosion and depositional processes along stream courses. Within the Plan Area the Barren land cover type is found on 2,122 acres (less than one percent) of the Plan Area.

Barren habitats support common wildlife species including killdeer, California gull, mourning dove, horned lark, and house sparrow (*Passer domesticus*). This habitat type also provides primary habitat for the western burrowing owl and western snowy plover, which are special-status wildlife species.

Developed

Developed habitats generally consist of disturbed areas that are dominated by pavement and built structures. The developed category also includes vegetated corridors along highways and patches of ornamental vegetation such as tree groves, street strips, shade trees, lawns, shrubs, and other ornamental vegetation typically supported by irrigation. In the Plan Area, the Developed category is found on 45,683 acres (seven percent).

Depending on their specific conditions, urban areas support a number of common wildlife species, including Nuttall’s woodpecker, barn swallow (*Hirundo rustica*), California scrub-jay, ruby-crowned kinglet (*Regulus calendula*), northern mockingbird (*Mimus polyglottos*), yellow-billed magpie, American robin, cedar waxwing (*Bombycilla cedrorum*), yellow-rumped warbler (*Dendroica coronata*), white-crowned sparrow, dark-eyed junco, house finch, raccoon (*Procyon lotor*), and numerous non-native species, including the European starling, house sparrow, Virginia opossum (*Didelphis virginiana*) eastern fox squirrel (*Sciurus niger*), house mouse, and roof rat (*Rattus rattus*). Urban areas support special-status wildlife species including roosting and nesting by the white-tailed kite and Swainson’s hawk. Purple martin has also been documented nesting recently only in urban overpasses and elevated freeways in Yolo County and adjacent lands.

Eucalyptus Stands

Non-native eucalyptus (*Eucalyptus* spp.) stands in the Plan Area encompass a total of 369 acres (less than one percent) and can mostly be found in the town of Dunnigan. Eucalyptus stands are typically homogenous in composition and have often been planted as windbreaks. Eucalyptus species have invaded riparian areas in some locations and may be spreading further.

Eucalyptus stands provide nesting habitat for several common wildlife species, including barn owl, red-shouldered hawk (*Buteo lineatus*), American crow, and Anna's hummingbird and in some cases have been known to support heron and egret rookeries. Eucalyptus stands may also provide nesting habitat for Swainson's hawk.

Special-Status Species

Special-status species are defined in section 4.1.2 above. The text below summarizes the special-status plant and animal species identified for analysis in this EIS/EIR.

Special-Status Plants

The review of the data sources listed above in Section 4.1.1 identified 33 special-status plant species that are known to occur or have the potential to occur in the Plan Area. The legal status, distribution, habitat requirements, blooming period, and likelihood for occurrence in the Plan Area for each of these species are provided in Table 1 of Appendix D. Twenty-eight of the special-status plant species had a high or moderate probability of occurrence in the Plan Area because they had either been reported in the Plan Area recently or neighboring counties near their border with Yolo County. Five species had a low probability of occurrence in the Plan Area either due to marginal habitat quality in the Plan Area, long distances between the Plan Area and known occurrences, or lack of recent occurrences (less than 20 years ago) in the vicinity of the Plan Area. The common and scientific names of each of the 28 special-status plant species with a moderate or high probability to occur in the Plan Area are listed below. One of these species, palmate-bracted bird's-beak, is designated as a covered species under the Plan and is shown in **bold** text below.

- ▲ Bent-flowered fiddleneck (*Amsinckia lunaris*)
- ▲ Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus*)
- ▲ Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*)
- ▲ Alkali milk-vetch (*Astragalus tener* var. *tener*)
- ▲ Brittlescale (*Atriplex depressa*)
- ▲ San Joaquin spearscale (*Atriplex joaquiniana*)
- ▲ Vernal pool smallscale (*Atriplex persistens*)
- ▲ Round-leaved filaree (*California macrophylla*)
- ▲ Pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)
- ▲ **Palmate-bracted bird's-beak (*Cordylanthus palmatum*)**
- ▲ Deep-scarred cryptantha (*Cryptantha excavata*)
- ▲ Dwarf downingia (*Downingia pusilla*)
- ▲ Snow Mountain buckwheat (*Eriogonum nervulosum*)
- ▲ Adobe-lily (*Fritillaria pluriflora*)
- ▲ Hall's harmonia (*Harmonia hallii*)
- ▲ Drymaria-like western flax (*Hesperolinon drymarioides*)
- ▲ Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*)
- ▲ Northern California black walnut (*Juglans hindsii*)
- ▲ Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- ▲ Colusa layia (*Layia septentrionalis*)
- ▲ Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)
- ▲ Mason's lilaeopsis (*Lilaeopsis masonii*)
- ▲ Jepson's leptosiphon (*Linanthus jepsonii*)
- ▲ Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)
- ▲ Colusa grass (*Neostapfia colusana*)
- ▲ Bearded popcorn flower (*Plagiobothrys hystriculus*)

- ▲ Green jewelflower (*Streptanthus hesperidis*)
- ▲ Suisun Marsh aster (*Symphotrichum lentum*)
- ▲ Saline clover (*Trifolium depauperatum* var. *hydrophilu*)
- ▲ Solano Grass (*Tuctoria mucronata*)

Special-Status Fish and Wildlife

A total of 40 special-status wildlife species and 11 fish species are known to occur or have potential to occur within the Plan Area. Refer to Tables 2 and 3 of Appendix D for a summary of the legal status, distribution, habitat, and likelihood for occurrence in the Plan Area for each of these special-status species. Of these species, six have low potential to occur within the Plan Area based on marginal habitat quality in the Plan Area, no known occurrences in the Plan Area, and/or lack of recent occurrences (less than 20 years ago) adjacent to the Plan Area. The following 46 wildlife species listed below are known to occur or have at least moderate potential to occur within the Plan Area because of known occurrences within the Plan Area or suitable habitat occurs in the Plan Area. The eleven species “covered” under the Plan appear in **bold** print.

Special-Status Wildlife Species

- ▲ Conservancy fairy shrimp (*Branchinecta conservation*)
- ▲ Vernal pool fairy shrimp (*Branchinecta lynchi*)
- ▲ Vernal pool tadpole shrimp (*Lepidurus packardii*)
- ▲ **Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)**
- ▲ **California tiger salamander – Central Distinct Population Segment (*Ambystoma californiense*)**
- ▲ Western spadefoot (*Scaphiopus hammondi*)
- ▲ Foothill yellow-legged frog (*Rana boylei*)
- ▲ **Western pond turtle (*Actinemys marmorata*)**
- ▲ **Giant garter snake (*Thamnophis couchi gigas*)**
- ▲ Northern harrier (*Circus cyaneus*)
- ▲ Golden eagle (*Aquila chrysaetos*)
- ▲ Bald eagle (*Haliaeetus leucocephalus*)
- ▲ **Swainson’s hawk (*Buteo swainsoni*)**
- ▲ **White-tailed kite (*Elanus leucurus*)**
- ▲ **Western burrowing owl (*Athene cunicularia hypugaea*)**
- ▲ Short-eared owl (*Asio flammeus*)
- ▲ American peregrine falcon (*Falco peregrines anatum*)
- ▲ Redhead (*Aythya americana*)
- ▲ California black rail (*Laterallus jamaicensis coturniculus*)
- ▲ Loggerhead shrike (*Lanius ludovicianus*)
- ▲ **Least Bell’s Vireo (*Vireo bellii pusillus*)**
- ▲ Western snowy plover (*Charadrius alexandrinus nivosus*)
- ▲ Mountain plover (*Charadrius montanus*)
- ▲ Black tern (*Chlidonias niger*)
- ▲ **Bank swallow (*Riparia riparia*)**
- ▲ Purple martin (*Progne subis*)
- ▲ **Tricolored blackbird (*Agelaius tricolor*)**
- ▲ Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)
- ▲ **Western-yellow billed cuckoo (*Coccyzus americanus*)**
- ▲ Grasshopper sparrow (*Ammodramus savannarum*)
- ▲ Yellow-breasted chat (*Icteria virens*)
- ▲ Least bittern (*Ixobrychus exilis*)
- ▲ Townsend’s big-eared bat (*Corynorhinus townsendii townsendii*)
- ▲ Pallid bat (*Antrozous pallidus*)
- ▲ Western red bat (*Lasiurus blossevillii*)
- ▲ American badger (*Taxidea taxus*)
- ▲ North American green sturgeon (*Acipenser medirostris*), Southern Distinct Population Segment (DPS)
- ▲ Delta smelt (*Hypomesus tranpacificus*)

- ▲ Longfin smelt (*Spirinchus thaleichthys*)
- ▲ Steelhead – Central Valley DPS (*Oncorhynchus mykiss*)
- ▲ Chinook salmon – Sacramento River winter-run Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*)
- ▲ Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)
- ▲ Chinook salmon – Central Valley fall/late-run ESU (*Oncorhynchus tshawytscha*)
- ▲ Eulachon (*Thaleichthys pacificus*)
- ▲ Sacramento splittail (*Pogonichthys macroepidotus*)
- ▲ River lamprey (*Lampetra ayresii*)

Sensitive Habitats

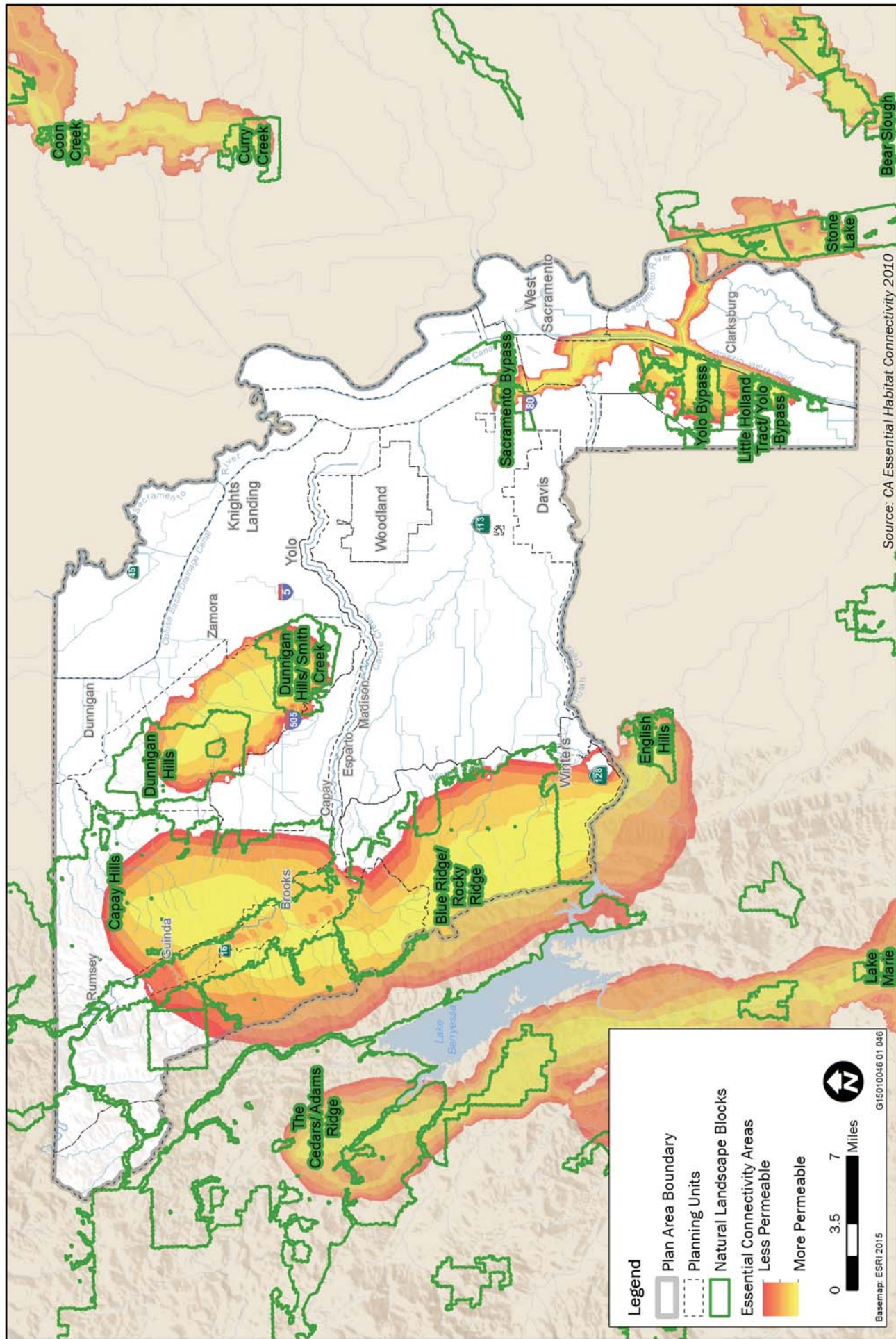
CDFW maintains a list of plant communities that are native to California (CDFG 2010). Within that list, CDFW identifies special-status plant communities (a.k.a. sensitive natural communities), which they define as communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects; these are afforded consideration as sensitive habitats under CEQA. Oak woodland, riparian, and wetland habitats are considered sensitive natural communities by CDFW (CDFW 2010). Riparian and wetland habitats are also protected by the State under the CDFG Code Section 1600 to 1607 (see Section 4.2.2, *Regulatory Setting*, for further information on laws and regulations referenced here). Habitats located in waters of the United States under the jurisdiction of Section 404 of the federal Clean Water Act (CWA) are also considered sensitive. Additionally, the importance of protecting and preserving wetland and riparian habitats is recognized in the County's General Plan policies. The State of California, through the Oak Woodland Conservation Act, also considers oak woodland preservation important.

Wetlands and Waters of the United States and State

Jurisdictionally protected wetland and waters of the United States and of the State of California (waters of the State) have not been delineated within the Plan Area. Potential wetlands and other waters of the United States and State that may occur within the Plan Area in the following land cover types: freshwater wetlands, valley foothill riparian, lacustrine and riverine (perennial streams, intermittent streams, and ephemeral streams), and vernal pool complex. Potentially jurisdictional hydrological features within the Plan Area are mostly features associated with the Willow Slough, Dry Slough, Elkhorn Slough, Sacramento River, Cache Creek, and Putah Creek. Wetlands and riparian areas associated with the settling basins of these rivers and creeks will likely be jurisdictional and protected by the federal and State regulations described below.

Wildlife Movement Corridors

The California Essential Habitat Connectivity Project is a peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife. This coarse-scale, statewide map was based primarily on the concept of ecological integrity over a very large region, rather than the specific movement and other life history requirements of particular species, and identified essential connectivity areas (ECAs) that support this large scale connectivity. ECAs in the Plan Area consist of the following (Exhibit 4-2), with the place names on each side of the dash indicating the beginning and end points of the connectivity area: English Hills - Blue Ridge/Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA.



4.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 and subsequent amendments provide for the conservation of listed endangered or threatened species or candidates for listing and the ecosystems on which they depend. USFWS has jurisdiction over federally listed plants, wildlife, and resident fish and the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals.

FESA Prohibitions (Section 9)

FESA Section 9 prohibits the *take* of any fish or wildlife species listed under the FESA as endangered. Take of threatened species is also prohibited under Section 9 unless otherwise authorized by federal regulations. *Take*, as defined by the FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” *Harm* is defined as “...an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3).” Harass is defined as “...an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3).” In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

FESA Interagency Cooperation (Section 7)

Under Section 7 of the FESA, the Secretary may exempt certain federal activities from the Section 9 take prohibitions described above through issuance of a biological opinion. Section 7 requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of habitat critical to such species’ survival. To ensure that its actions do not result in jeopardy to listed species or in the adverse modification of critical habitat, each federal agency must consult with the USFWS and/or NMFS regarding federal agency actions that may affect listed species.

FESA Exceptions (Section 10)

Under Section 10 of the FESA, the Secretary may permit “take” (of fish or wildlife species) otherwise prohibited by section 9(a)(1)(B). Section 10 includes two types of permits: 10(a)(1)(A) typically referred to as “recovery” permits; and 10(a)(1)(B) incidental take permits. Take associated with HCPs is addressed through Section 10(a)(1)(B) for take which is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Section 10 requires the issuance of an incidental take permit before any nonfederal action may be taken that would potentially take any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP), incidental to implementation of the project, which would offset the impact of the taking that may occur by providing for the overall preservation of the affected species through specific mitigation measures.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (Title 16, USC, Part 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes hunting seasons and capture limits for game species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 21; 50 CFR 10).

Executive Order 13186 (January 10, 2001) directs each federal agency taking actions that have or may have a negative effect on migratory bird populations to work with USFWS to develop a memorandum of

understanding (MOU) that will promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- ▲ avoid and minimize, to the extent practicable, adverse effects on migratory bird resources when conducting agency actions;
- ▲ restore and enhance migratory bird habitats, as practicable; and
- ▲ prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The executive order is designed to assist federal agencies in their efforts to comply with the MBTA, and does not constitute any legal authorization to take migratory birds.

Bald Eagle and Golden Eagle Protection Act

The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. Under the Act, it is a violation to “...take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof...” Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” Bald Eagle and Golden Eagle are not covered species in this HCP/NCCP. The Plan complies with provisions of the Bald Eagle and Golden Eagle Protection Act for golden eagles.

Clean Water Act

The CWA was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and includes programs addressing both *point-source* and *nonpoint-source* pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit; permit review is the CWA’s primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

CWA Section 404 regulates 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 of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- ▲ seasonal and perennial wetlands, including coastal wetlands

Various pieces of agency guidance and the outcome of court decisions further refine the definition of waters of the United States, and therefore the extent of U.S. Army Corps of Engineers (USACE) jurisdiction under the

CWA. Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into jurisdiction waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. 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. The nationwide permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The USACE cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, the FESA, and the National Historic Preservation Act (described in Chapter 12, *Cultural and Paleontological Resources*) have been met. In addition, the USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401 (described below).

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (SWRCB) is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs) (see the related discussion under “Porter-Cologne Water Quality Control Act” below). Yolo County is under the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Water Quality Certification (Section 401)

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 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.

Executive Order 11990: Protection of Wetlands

Executive Order 11990 (signed May 24, 1977) requires federal agencies to prepare wetland assessments for proposed actions located in or affecting wetlands. Agencies must avoid undertaking new construction in wetlands unless no practicable alternative is available and the proposed action includes all practicable measures to minimize harm to wetlands.

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order 13112 (signed February 3, 1999) directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The Executive Order requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

STATE LAWS AND REGULATIONS

California Endangered Species Act

California implemented the California Endangered Species Act (CESA) in 1984 (CFGF 2050 et seq.). The act prohibits the take of listed endangered and threatened species. Section 2090 of CESA requires State agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected).

California Fish and Game Code

Lake or Streambed Alteration Agreements

Section 1600 et seq. of the CFGF requires project proponents to notify CDFW before any project that would divert, obstruct, or change the natural flow, bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake, or use material from a streambed. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable changes to the project to protect the resources. These modifications are formalized in a Lake or Streambed Alteration Agreement (LSAA) that becomes part of the plans, specifications, and bid documents for the project.

Species Protection

The CFGF provides protection from take for a variety of species, defining take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Certain species are considered fully protected, meaning that the Code explicitly prohibits all take of individuals of these species, except for take required for scientific research, which may be authorized by CDFW in some situations. Section 5050 of the CFGF lists fully protected amphibians and reptiles, Section 5515 lists fully protected fishes, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

The CFGF provides less stringent protection for other species, prohibiting most take, but permitting CDFW to issue regulations authorizing take under some circumstances. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3513 and 3503.5, birds of prey under Section 3503.5, migratory nongame birds under Section 3800, and other specified birds under Section 3505.

Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act (Sections 2800-2835 of the CFGF) allows for the identification and provision of measures necessary to conserve and manage natural biological diversity while allowing compatible use of the land. A number of Natural Community Conservation Plans (NCCPs), which function as a habitat conservation plan (HCP) and more, have been established in various areas of the State.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California; take of rare and endangered plants; and sale of rare and endangered plants. The *threatened* category replaced *rare* when CESA was enacted in 1984. CESA prohibits take of listed plants except as otherwise authorized by the CNPPA, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA.

Removal of plants for performance of a public service by a public agency or a publicly or privately owned public utility is exempt from CNPPA. Accordingly, some Proposed Action activities may be considered exempt from the CNPPA. However, evaluation of potential impacts on State-listed plant species is required pursuant to CEQA Guidelines Section 15380(c)(1).

Porter-Cologne Water Quality Control Act

California Water Code Section 13260 requires “any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements).” Under the Porter-Cologne Act definition, waters of the State are “any surface water or groundwater, including saline waters, within the boundaries of the state.” Although all waters of the United States that are within the borders of California are also waters of the State, the reverse is not true. Therefore, California retains authority to regulate discharges of waste into any waters of the State, regardless of whether the USACE has concurrent jurisdiction under CWA Section 404. If the USACE determines that a wetland is not subject to regulation under Section 404, CWA Section 401 water quality certification is not required. However, the RWQCB may impose waste discharge requirements (WDRs) if fill material is placed into waters of the State. Yolo County falls within the jurisdiction of the Central Valley RWQCB.

California State Wetland Conservation Policy (Executive Order W-59-93)

Executive Order W-59-93 requires that all State government programs and policies conduct their activities consistent with the following three objectives: 1) long-term net gain and no overall net loss in quantity, quality, and permanence of wetland acreage and value in California; reduce procedural complexity in administration of State and Federal wetlands conservation programs; and encourage partnerships to make restoration, landowner incentive programs, and cooperative planning efforts the primary focus of wetlands conservation. The policy designates a task force and State agencies to create and maintain a wetlands inventory and wetlands accounting system in an effort to maintain these objectives. It also requires identification and implementation of restoration goals, and consistent standards and guidelines for mitigation, monitoring, and restoration efforts, including mitigation banking.

California Public Resources Code Section 21083.4 (Oak Woodlands)

Section 21083.4 of the California Public Resources Code requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

Delta Protection Act (1992)

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any local government’s general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the “Legal Delta.” The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Exhibit 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

The Delta Protection Commission is charged with preparing a regional plan for the Primary Zone to address land uses and resources management, with particular emphasis on agriculture, which was designated by the Delta Protection Act as the primary use of this zone. This plan, the Land Use & Resource Management Plan (LURMP) provides guidance to local governments. Specifically, Land Use Policy P-2 and Agriculture Policies P-1 through P-10 address the role of local governments in preserving and protecting long-term agricultural viability and open space values in the Primary Zone through implementation of general plan policies and zoning codes.

State Wildlife Action Plan

The California State Wildlife Action Plan 2015 Update (SWAP 2015) provides a vision and a framework for conserving California's diverse natural heritage. SWAP 2015 also recognizes the need and calls for developing a collaborative framework to manage ecosystems sustainably across the State in balance with human uses of the natural resources. The SWAP document was meant to be tiered to companion plans that supplement the overarching SWAP Plan. To address the need for a collaborative framework, CDFW, partner agencies, and organizations began preparation of sector-specific companion plans before the submission of the SWAP 2015 final document. Currently these plans are in draft form and have yet to be finalized. These companion plans are being developed with and without jurisdictional authority for implementing strategies and conservation activities described in SWAP 2015 and the associated companion plans. Participants in plan development include, but are not limited to, CDFW leadership team and staff, California Fish and Game Commission, cooperating State, Federal, and local government agencies and organizations, California Tribes and tribal governments, and partners (such as non-governmental organizations, academic, research institutions, and citizen scientists). Since these plans are not finalized, SWAP will not be discussed further in this analysis.

LOCAL LAWS AND REGULATIONS

Yolo County 2030 Countywide General Plan

The Conservation and Open Space Element of the 2030 Yolo County General Plan was established to provide guidance regarding the preservation of open space and the conservation, continued enjoyment, and enhancement of the natural resources of Yolo County. Policies described in the Conservation and Open Space Element that directly pertain to biological resources in the Plan Area and may be applicable to the analysis of the HCP/NCCP include:

- ▲ **Policy CO-1.14** Support the preservation of open space consistent with this general plan, via acquisition of fee title or easement interest by land trusts, government agencies, and conservancies from willing landowners.
- ▲ **Policy CO-1.15** Support efforts to acquire either fee title or easements on additional open space areas adjoining existing protected natural resource areas to increase the size, connectivity, and buffering of existing habitat.
- ▲ **Policy CO-1.16** Coordinate open space acquisition with habitat acquisition that occurs pursuant to the Yolo Natural Heritage Program.
- ▲ **Policy CO-1.25** Allow for specified areas of resource parks to be preserved, enhanced and/or restored as mitigation sites for public agencies only, consistent with the requirements of appropriate regulatory and funding agencies, provided that adequate compensation, including funding for operations and maintenance of the mitigation, is provided.
- ▲ **Policy CO-2.1** Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.
- ▲ **Policy CO-2.2** Focus conservation efforts on high priority conservation areas (core reserves) that consider and promote the protection and enhancement of species diversity and habitat values, and that contribute to sustainable landscapes connected to each other and to regional resources.
- ▲ **Policy CO-2.3** Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.

- ▲ **Policy CO-2.4** Coordinate with other regional efforts (e.g., Yolo County HCP/NCCP) to sustain or recover special-status species populations by preserving and enhancing habitats for special-status species.
- ▲ **Policy CO-2.9** Protect riparian areas to maintain and balance wildlife values.
- ▲ **Policy CO-2.10** Encourage the restoration of native habitat.
- ▲ **Policy CO-2.11** Ensure that open space buffers are provided between sensitive habitat and planned development.
- ▲ **Policy CO-2.13** Promote the use of oak woodlands conservation banks to mitigate for losses due to development impacts and to provide carbon sequestration for greenhouse gas emissions under applicable State programs.
- ▲ **Policy CO-2.14** Ensure no net loss of oak woodlands, alkali sinks, rare soils, vernal pools or geological substrates that support rare endemic species, with the following exception. The limited loss of blue oak woodland and grassland may be acceptable, where the fragmentation of large forests exceeding 10 acres is avoided, and where losses are mitigated.
- ▲ **Policy CO-2.15** Encourage the use of mosquito abatement methods that are compatible with protecting fish and wildlife, including native insect pollinators.
- ▲ **Policy CO-2.16** Existing native vegetation shall be conserved where possible and integrated into new development if appropriate.
- ▲ **Policy CO-2.17** Emphasize and encourage the use of wildlife-friendly farming practices within the County's Agricultural Districts and with private landowners.
- ▲ **Policy CO-2.18** Coordinate with the Yolo County Resource Conservation District, Natural Resource Conservation Service, UC Cooperative Extension, and other farm organizations to encourage farming practices and the management of private agricultural land that is supportive of wildlife habitat values.
- ▲ **Policy CO-2.19** Support the use of sustainable farming methods that minimize the use of products such as pesticides, fuels and petroleum-based fertilizers.
- ▲ **Policy CO-2.20** Encourage the use of wildlife-friendly Best Management Practices to minimize unintentional killing of wildlife, such as restricting mowing during nesting season for ground-nesting birds or draining of flooded fields before fledging of wetland species.
- ▲ **Policy CO-2.21** Promote wildlife-friendly farming through mechanisms such as farmland trusts, conservation easements and safe harbor-type agreements.
- ▲ **Policy CO-2.22** Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.
- ▲ **Policy CO-2.23** Support efforts to coordinate the removal of non-native, invasive vegetation within watersheds and replacement with native plants.

- ▲ **Policy CO-2.24** Promote floodplain management techniques that increase the area of naturally inundated floodplains and the frequency of inundated floodplain habitat, restore some natural flooding processes, river meanders, and widen riparian vegetation, where feasible.
- ▲ **Policy CO-2.26** Coordinate with local watershed stewardship groups to identify opportunities for restoring or enhancing watershed, instream, and riparian biodiversity.
- ▲ **Policy CO-2.27** Evaluate the need for additional water to support future riparian enhancement efforts, including the benefits of conjunctive management of groundwater and surface water resources.
- ▲ **Policy CO-2.28** Balance the needs of aquatic and riparian ecosystem enhancement efforts with flood management objectives.
- ▲ **Policy CO-2.29** Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.
- ▲ **Policy CO-2.30** Protect and enhance streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat and vernal pools in land planning and community design.
- ▲ **Policy CO-2.31** Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.
- ▲ **Policy CO-2.33** Create partnerships with landowners, non-government organizations, and other public agencies to implement the Yolo County Oak Woodland Conservation and Enhancement Plan.
- ▲ **Policy CO-2.34** Recognize, protect and enhance the habitat value and role of wildlife migration corridors for the Sacramento River, Putah Creek, Willow Slough, the Blue Ridge, the Capay Hills, the Dunnigan Hills and Cache Creek.
- ▲ **Policy CO-2.35** Consider potential effects of climate change on the locations and connections between wildlife migration routes.
- ▲ **Policy CO-2.36** Habitat preserved as a part of any mitigation requirements shall be preserved in perpetuity through deed restrictions, conservation easement restrictions, or other method to ensure that the habitat remains protected. All habitat mitigation must have a secure, ongoing funding source for operation and maintenance.
- ▲ **Policy CO-2.37** Where applicable in riparian areas, ensure that required state and federal permits/approvals are secured prior to development of approved projects.
- ▲ **Policy CO-2.38** Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds). Preserve the functional value of movement corridors to ensure that essential habitat areas do not become isolated from one another due to the placement of either temporary or permanent barriers within the corridors. Encourage avoidance of nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds) during periods when the sites are actively used and that nursery sites which are used repeatedly over time are preserved to the greatest feasible extent or fully mitigated if they cannot be avoided.
- ▲ **Policy CO-2.39** Require new or retrofitted bridges, and new or expanded roads to incorporate design and construction measures to maintain the functional value of wildlife movement corridors.
- ▲ **Policy CO-2.40** Preserve grassland habitat within 2,100 feet of documented California tiger salamander breeding ponds or implement required mitigation (equivalent or more stringent) as imposed by appropriate agencies or through the County HCP/NCCP, to fully mitigate impacts consistent with local, State, and federal requirements. Implementation and funding of mitigation measures for projects that

will be developed in phases over time may also be phased, with the applicable mitigation being implemented and funded prior to the final approval of each phase or sub-phase.

- ▲ **Policy CO-2.41** Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.
- ▲ **Policy CO-2.42** Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFG and the Yolo County HCP/NCCP Joint Powers Agency, or satisfy other subsequent adopted mitigation requirements consistent with applicable local, State, and federal requirements.
- ▲ **Policy CO-2.43** Projects that have the potential to impact California tiger salamander (California tiger salamander) breeding or terrestrial habitat in the Dunnigan Hills area, shall conduct a project-level biological assessment to determine the potential to impact California tiger salamander upland or breeding habitat (if such assessment has not already been done as part of an approved HCP/NCCP). Such an assessment will be required for all projects located within 1.3 miles of a known or potential breeding site. Development activities that would result in isolation of the breeding or upland habitat will be required to mitigate for such impacts. Mitigation shall consist of two components: 1) habitat preservation and enhancement of suitable upland habitat, and 2) preservation and construction of new breeding habitat. California tiger salamander upland habitat must be mitigated at a ratio of 3:1 (preserved:impacted), located within 2,100 feet of an occupied habitat, and include at least one suitable breeding pond. Equivalent or more stringent mitigation may be implemented as determined by trustee and responsible agencies. Mitigation must be coordinated with the HCP/NCCP program if adopted. (DEIR MM BIO-5c)

Yolo County Oak Woodland Conservation and Enhancement Plan

The *Yolo County Oak Woodland Conservation and Enhancement Plan* (Yolo County 2007) promotes voluntary efforts to conserve and enhance the county's existing oak woodlands to help minimize the effects of land conversion and other factors that disturb the health and longevity of existing oak woodlands.

Swainson's Hawk Interim Mitigation Fee Program

This program, established in 1993, utilizes mitigation fees to acquire conservation easements to protect Swainson's hawk habitat. In 2005, Yolo County established a program of "mitigation receiving sites" to provide developers with a fast, market-based system of mitigation for impacts on Swainson's hawk habitat. Changes to the program in 2006 require project applicants with projects over 40 acres in size to mitigate directly by providing land for conservation. Currently, the original agreement establishing this program has expired but is still being implemented voluntarily by all parties. The Yolo Habitat Conservancy (formerly the Yolo County HCP/NCCP Joint Powers Agency) administers this program. Once approved, the Yolo HCP/NCCP will replace the county's Swainson's Hawk Mitigation Fee Program and eliminate the need for mitigation receiving sites.

City of Davis General Plan

The City of Davis General Plan contains the following policies that pertain to biological resources in the Plan Area and may be applicable to the analysis of the HCP/NCCP:

- ▲ **Policy HAB 1.1:** Protect existing natural habitat areas, including designated Natural Habitat Areas.
- ▲ **Policy HAB 1.2:** Enhance and restore natural areas and create new wildlife habitat areas.
- ▲ **Policy HAB 1.3:** Commit adequate City resources and staff time so as to protect habitat and other natural resources.

- ▲ **Policy HAB 1.4:** Preserve and protect scenic resources.
- ▲ **Policy HAB 2.1:** Develop environmental educational programs and public access areas and programs to allow viewing of wildlife and habitat through controlled interactions of people with natural areas.
- ▲ **Policy POS 1.2:** Provide informal areas for people of all ages to interact with natural landscapes, and preserve open space between urban and agricultural uses to provide a physical and visual edge to the City.
- ▲ **Policy POS 1.8:** Support regional and state-wide efforts that encourage open space preservation.

City of Davis Tree Ordinance (Chapter 37)

The City of Davis acknowledges the importance of trees to the community's health, safety, welfare, and tranquility. On December 4, 2002, the City Council adopted the Tree Ordinance, Chapter 37 of the Municipal Code, to ensure that the community forest would be prudently protected and managed so as to ensure these multiple civic benefits. The Tree Ordinance protects the following trees:

- ▲ **Landmark Trees:** Any tree which has been determined by resolution of the City Council to be of high value because of its species, size, age, form, historical significance, or some other professional criterion. The Landmark Tree List is available from the Public Works Department website (<http://trees.cityofdavis.org/landmark-tree-list>), lists and identifies these trees.
- ▲ **Trees of Significance:** Any tree which measures 5 inches or more in diameter at breast height (4-6 feet above ground height).
- ▲ **Street Trees:** Any tree planted and/or maintained by the City, or recorded as a street tree, adjacent to a street or within a city easement or right-of-way, on private property, within the street tree easement.
- ▲ **City Trees:** Any tree, other than a street tree, planted or maintained by the City within a City easement, right-of-way, park, greenbelt, public place or property owned or leased by the City.
- ▲ **Private Tree:** Any tree privately owned and growing on private property, which may include a tree designated as a landmark tree and/or tree of significance, as defined within the definitions section of the Tree Ordinance, Chapter 37.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goals and policies that relate to biological resources and that may be applicable to the analysis of the HCP/NCCP:

Land Use Element

Goal LU-8: To protect sensitive native vegetation and wildlife communities and habitat in West Sacramento.

- ▲ **Policy LU-8 Open Space Uses.** The City shall strive to acquire and preserve open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water and agricultural resources protection, and overall community benefit. A perpetual funding mechanism for operations and maintenance shall be established at the time of acquisition.
- ▲ **Policy LU-8.3 Connected Open Space System.** The City shall ensure that new development does not create barriers to the connections among the various parts of the city's parks and open space systems.
- ▲ **Policy LU-8.4 Open Space Buffers.** The City shall use traditional, developed parks and innovative uses of open space to "soften" the edges between urban areas and the natural environment.

Natural and Cultural Resources Element

Goal NCR-2: To protect sensitive native vegetation and wildlife communities and habitat in West Sacramento.

- ▲ **Policy NCR-2.2 Yolo Habitat Conservancy Program.** The City shall continue to work cooperatively with other jurisdictions in the county, and with the State and Federal governments to conserve habitat through the preparation and implementation of the Yolo Habitat Conservancy Program. The goal of this effort shall be to preserve and enhance habitat values in appropriate large areas while allowing the orderly development within the incorporated areas of the county.
- ▲ **Policy NCR-2.3 Habitat Connectivity.** The City shall preserve, enhance, and create interconnected open space and natural areas to provide for wildlife movement and protect biodiversity.
- ▲ **Policy NCR-2.4 Habitat Surveys.** The City shall require site-specific surveys for discretionary development proposals that could potentially impact biological resources to determine if any significant wildlife habitat and vegetation resources will be adversely affected and, if so, to identify appropriate measures to avoid or mitigate such impacts.
- ▲ **Policy NCR-2.5 Habitat Buffer.** The City shall require the provision and maintenance of an adequate setbacks between significant habitat and adjacent development. The buffer shall be landscaped with native vegetation and may be used for passive recreation purposes.
- ▲ **Policy NCR-2.7 Rare, Threatened, & Endangered Species Protection.** The City shall preserve rare, threatened, and endangered species by ensuring that development does not adversely affect such species or by fully mitigating adverse effects. For developments where adverse impacts cannot be mitigated, the City shall not approve the project.
- ▲ **Policy NCR-2.8 Habitat Preservation.** The City shall support State and Federal policies for preservation and enhancement of riparian and wetland habitats by incorporating, as deemed appropriate, the findings and recommendations of the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service into site-specific development proposals.
- ▲ **Policy NCR-2.9 No Net Loss.** The City shall require new development to ensure no net loss of State and Federally regulated wetlands, other waters of the United States (including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands), and associated functions and values by regulating development in and near these habitats and promoting projects that avoid sensitive areas. Where habitat loss is unavoidable, the City shall require replacement consistent with State and Federal regulations protecting wetland resources.
- ▲ **Policy NCR-2.10 Wetland and Riparian Habitat Protection.** The City shall seek to minimize the loss or degradation of wetland and riparian habitats at the following sites: Lake Washington and associated wetlands, Bee's Lake and associated riparian woodlands, riparian woodlands along the Sacramento River north of the I Street Bridge and south of the barge canal, and riparian woodlands along the Deep Water Ship Channel and the Yolo Bypass.
- ▲ **Policy NCR-2.11 Riparian Vegetation Maintenance**
 - ▲ The City shall encourage the maintenance of marsh and riparian vegetation along irrigation/ drainage canals and along the Deep Water Ship Channel through routine maintenance and clearing and by disturbing only one bank per year.
- ▲ **Policy NCR-2.12 Floodway Design,** The City shall encourage floodway design and flood control facilities to foster riparian habitat enhancement, improved water quality, and groundwater recharge.

- ▲ **Policy NCR-2.13 Fisheries,** The City shall implement measures to ensure that development in the city does not adversely affect fishery resources in the Sacramento River, Deep Water Ship Channel, and Lake Washington.
- ▲ **Policy NCR-2.14 Public Areas.** The City shall ensure that public access and recreation facilities do not eliminate or degrade riparian habitat values. Trails, picnic areas, and other improvements shall be sited to minimize impacts on sensitive wildlife habitat or riparian vegetation.
- ▲ **Policy NCR-2.15 Landscaping with Native Plants,** The City shall promote the use of native plants, especially valley oaks, for landscaping roadsides, medians, parks, and private properties. In particular, native plants should be used along the Sacramento River, in areas adjacent to riparian and wetland habitats, and in other open space and natural areas.

West Sacramento Tree Ordinance (Chapter 8.24)

City Ordinance 04-01 Section 3 governs the removal and preservation of certain trees on private and public property within the city in addition to the planning and maintenance of street trees within new and already established developments. A permit is required for the removal or possible damage to street trees, landmark trees, or heritage trees, and any work within the dripline of these trees; permit exceptions for utility work are included in the ordinance. A heritage tree is any living tree with a trunk circumference of 75 inches or more or a native oak with a trunk circumference of 50 inches or more, both measured 4 feet 6 inches from ground level. The circumference of multi-trunk trees shall be based upon the sum of the circumference of each trunk. A landmark tree is any tree or stand of trees that is especially prominent, stately or which is of historical significance as designated by the city council. A street tree is any tree growing or placed within the tree maintenance strip or public right-of-way.

Any heritage or landmark tree removed for non-hazardous purposes must be replaced on the property of removal or within the city limits. Replacement trees will be planted at the rate of 1-inch diameter of replacement plant for every 1-inch diameter of tree removed. A diameter shall be measured at 4 feet 6 inches from ground level. Replacement trees may be a combination of 15-gallon size trees, which are the equivalent of a 1-inch diameter tree or 24-inch box trees which are the equivalent of a 3-inch diameter tree. The permit owner will replace the tree and continue to replace the replacement tree if the tree dies any time within 3 years of the initial planting. Trees removed as a result of a development project shall be replaced in accordance with the replacement schedule set forth for landmark, heritage and street trees. The permittee must replace street trees in accordance with the city of West Sacramento Landscape Development Guidelines. Any application for a development project will require a tree plan including a map of tree species within the development site and a program of preservation and replacement for landmark, heritage, and street trees.

City of Winters General Plan

The City of Winters General Plan contains the following policies that relate to biological resources and may be applicable to the analysis of the HCP/NCCP:

- ▲ **Policy VI.C.A:** Prior to approving public and private development projects in areas containing or adjacent to areas containing large trees, riparian vegetation, wetlands, or other significant wildlife habitat, the City shall require the project area and its environs to be field surveyed for the presence of special-status plant and animal taxa. If special-status taxa are encountered during field surveys, appropriate measures shall be developed to minimize disturbance and protect identified populations where feasible.
- ▲ **Policy VI.C.2:** The City shall ensure that there is a no net loss of riparian or wetland habitat acreage and value and shall promote projects that avoid sensitive areas. Where habitat loss is unavoidable, the City shall require replacement on a least a 1:1 basis.

- ▲ **Policy VI.C.3:** Unless there are overriding considerations as defined in the California Environmental Quality Act, the City shall not approve any project that would cause significant unmitigatable impacts on rare, threatened, or endangered wildlife or plant species.
- ▲ **Policy VI.C.4:** The City shall support and participate in local and regional attempts to restore and maintain viable habitat for endangered or threatened plant and animal species. The City shall work with surrounding jurisdictions and state and federal agencies to develop a regional Habitat Management Plan.
- ▲ **Policy VI.C. 6:** The City shall undertake a feasibility study for the establishment of an Open Space Preserve between the Urban Limit Line and Grant Avenue west of I-505. The preserve will be designed for a combination of uses including agriculture, habitat protection, groundwater recharge, and educational and recreational activities. It would also function as a flood control system.
- ▲ **Policy VI.D. 1:** The City shall require that all new development along Putah Creek and Dry Creek be set back at least 50 or 100 feet from the top of the creek bank.
- ▲ **Policy VI.D. 2:** Putah Creek and Dry Creek in the downtown area should be preserved as much as possible in their natural state. Public access and recreational facilities shall not eliminate or degrade riparian habitat values.

Winters Tree Ordinance (Chapter 12.08)

Ordinance no. 12.08 requires a tree permit for the planting, movement, removal and replacement of trees in control and public areas. Applications shall state the number and kind of trees proposed to be moved, removed or replaced, and such other information as the city manager shall find reasonably necessary to a fair determination of whether or not authority should be issued under this article. The city manager may require the planting of a new tree as a condition for granting authority to remove a tree. (Ord. 83-03 Section 1: Prior code Section 10-2.501). Before any street improvements in any new subdivision in the city are accepted by the city, the applicant for a building permit shall pay to the city the total costs of all trees and the planting thereof. Any person building on a vacant lot in the developed area shall be required to pay the city the total costs of all street trees and the planting thereof.

City of Woodland General Plan

The City of Woodland General Plan contains the following policies that relate to biological resources and that may be applicable to the analysis of the HCP/NCCP:

- ▲ **Policy 7.A.1:** The City shall cooperate with Yolo County in the conservation of Cache Creek for the protection of its water resources and its open space qualities. To this end, the City shall oppose the introduction of new potential sources of pollutants to Cache Creek.
- ▲ **Policy 7.A. 5:** The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect receiving waters from the adverse effects of construction activities and urban runoff.
- ▲ **Policy 7.A.6:** The City shall encourage the protection of floodplain lands and where appropriate, acquire public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.
- ▲ **Policy 7.B.1:** The city shall participate in the countywide Habitat Conservation Plan/Natural Community Conservation Plan and Joint Powers Agency to mitigate the impacts of growth projected under the General Plan on wildlife habitats in the Woodland area.
- ▲ **Policy 7.B.2:** Until the countywide Habitat Conversation Plan/Natural Community Conservation Plan is adopted, prior to approval of discretionary development permits involving parcels within a significant

ecological resource area, the City shall require, as part of the environmental review process, a biotic resources evaluation of the site by a wildlife biologist.

- ▲ **Policy 7.B.3.** In connection with the countywide Habitat Conservation Plan/Natural Communities Conservation Plan, the City shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations.
- ▲ **Policy 7.B.5** The City shall encourage the control of residual pesticides to prevent potential damage to water quality, vegetation, and wildlife.
- ▲ **Policy 7.B.7:** The City shall cooperate with, encourage, and support the plans of other public agencies to acquire fee title or conservation easements to privately-owned lands in order to preserve important wildlife corridors and to provide habitat protection of California Species for Concern and state or federally-listed rare, threatened, or endangered plant and animal species.
- ▲ **Policy 7.B.8:** The City shall support and cooperate with efforts of other local, state, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration
- ▲ **Policy 7.B.9:** The City shall support the management efforts of the California Department of Fish and Game to maintain and enhance the productivity of important fish and game species by protecting identified critical habitat for these species from incompatible suburban, rural residential, or recreational development.
- ▲ **Policy 7.C.1:** The City shall participate in the countywide Habitat Conservation Plan/Natural Communities Conservation Plan to mitigate the impacts of growth projected under the General Plan on vegetation habitats in the Woodland area.
- ▲ **Policy 7.C.8:** The City shall require that new development preserve natural woodlands to the maximum extent possible.
- ▲ **Policy 7.C.10:** The City shall require that new development avoid, as much as possible, ecologically-fragile areas. Where feasible, these areas should be protected through public acquisition of fee title or conservation easements to ensure protection.
- ▲ **Policy 7.D.2:** The City shall require that new development be designed and constructed to preserve significant stands of vegetation and any areas of special ecological significance as open space to the maximum extent feasible.
- ▲ **Policy 7.D.7:** The City shall plan and establish natural open space parkland as a part of the overall City park system.

Woodland Tree Ordinance (Chapter 20A)

Ordinance no. 2003-22 governs the planting, removal and preservation of street trees, heritage trees, specimen trees, and landmark trees on public property and specified private property within the City of Woodland. A street tree is any tree growing within the tree maintenance strip, whether or not planted by the city. Heritage tree is any valley oak tree with a trunk diameter of 33 inches or more at breast height (54 inches) which is of good quality in term of health, vigor, growth and conformity to generally accepted horticultural standards of shape for its species. A landmark tree is a tree or stand of trees which is of historical or public significance as designated by the city council upon the recommendation of both the tree commission and the historical preservation commission. A specimen tree is any tree of interest because of size or unusual species, other than a heritage tree, which is of good quality in terms of health, vigor or growth and conformity to generally accepted horticultural standards of shape for its species, as designated

by the city council upon the recommendation of the tree commission. A tree permit is required to plant, damage or remove any tree within a street maintenance strip. A tree plan is required for a development application that includes a map of trees (street, heritage, specimen, landmark and aesthetic value trees) within the project site and a program of preservation and replacement for removed trees. Trees would be replaced in accordance with Section 20A-1-100.

Cache Creek Coordinated Resource Management Plan

The *Cache Creek Coordinated Resource Management Plan* was adopted by Yolo County in 2002 and the U.S. Department of the Interior, Bureau of Land Management (BLM) in 2004. It provides the framework for the future management direction of BLM lands included within the Cache Creek Natural Area. Other collaborating agencies include CDFW, which manages the Cache Creek Wildlife Area, and Yolo County General Services Department, which manages Cache Creek Canyon Regional Park.

Biological resource goals include providing for a diverse riparian ecosystem within the Cache Creek channel that is self-sustaining and capable of supporting wildlife, creating a continuous corridor of riparian and wetland vegetation to link the foothill habitats of the upper watershed with those of the settling basin, and managing riparian habitats to contribute to channel stability.

Water resource goals include promoting the connected use of surface and groundwater to maximize the availability of water, to maintain the quality of surface and groundwater for agricultural productivity and drinking water supply, and to provide habitat restoration.

Putah Creek Nature Park Master Plan

The City of Winters developed the 2008 *Putah Creek Nature Park Master Plan* as an update to the *Winters Putah Creek Park Master Plan*. This plan is a conceptual document that discusses opportunities for public access and sustainable fish and wildlife habitat through restoration of natural channel form and function along a 1-mile stretch of Putah Creek between Railroad Avenue and I-505. The goals of the plan are to integrate the park into the community, support the City's economic vitality, provide access to native riparian habitat, and improve the ecological vitality of the creek (City of Winters 2008).

Other HCPs and Conservation Plans

There are several project or agency-specific HCPs and several regional HCPs that either provide coverage for activities within the Plan Area, provide conservation for the same covered species adjacent to the Plan Area, or encourage conservation actions within the Plan Area.

Low-Effect HCP - UC Davis

The Board of Regents of the University of California prepared a low-effect HCP for capital improvement and maintenance projects at the University of California, Davis (UC Davis) campus during 2001 and 2002. These projects had the potential to affect valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a species listed as threatened under the FESA. As a condition of these and other project approvals, UC Davis committed to (1) conducting project-specific surveys of valley elderberry longhorn beetle habitat; (2) avoiding and protecting Valley elderberry longhorn beetle habitat where feasible; and (3) where avoidance is infeasible, developing and implementing a mitigation plan in accordance with the most current USFWS Compensation guidelines (USFWS 1999) for unavoidable take of valley elderberry longhorn beetles, pursuant to Section 10(a)(1)(B) of the FESA. The USFWS issued an incidental take permit in July 2002

Sacramento Municipal Utility District HCP

The Sacramento Municipal Utility District (SMUD) is in the process of preparing a HCP to cover the operations and maintenance of their infrastructure system within the county. This plan was expected to be completed by 2013 but has yet to be finalized nor has a draft HCP been released for public comment. The exact Plan Area is unknown at this time, but is expected to include SMUD's existing rights-of-way and facilities, some of which overlap with the proposed Yolo HCP/NCCP Plan Area. The exact Covered Species are unknown at this time, but is likely to include federally listed species that are also covered by the Yolo HCP/NCCP.

Solano Multispecies Habitat Conservation Plan (MHCP)

The Solano MCHP is currently under development. A preliminary draft HCP was made available on the Solano County Water Agency's web page in 2012. The preliminary draft HCP covers 577,000 acres of Solano County and 8,000 acres of Yolo County. This plan contains coverage for 37 species and is administered largely by the Solano County Water Agency. This plan covers many of the same species that are proposed for coverage under the Yolo HCP/NCCP. A portion of the Solano Multispecies Habitat Conservation Plan covers lands within Yolo County, which are also covered under the Yolo HCP/NCCP. Interactions between the Solano Multispecies Habitat Conservation Plan and the Yolo HCP/NCCP are addressed in Chapter 5, *Land Use*. A formal public draft of the Solano Multispecies Habitat Conservation Plan and associated Environmental Impact Statement/Environmental Impact Report is not yet available for public comment, but the details of a draft plan are expected to be similar to those described above in the 2012 preliminary draft.

Natomas Basin HCP

The Natomas Basin Habitat Conservation Plan (NBHCP), adopted in November 1997 and revised in 2003 (the USFWS issued a revised permit in June 2003), is designed to promote biological conservation along with economic development and continuation of agriculture in the 53,341-acre Natomas Basin, located in portions of northern Sacramento and southern Sutter Counties. The NBHCP was also prepared to satisfy a condition of an USACE permit, with implementation under the direction of the USFWS, CDFW, and the City of Sacramento.

The NBHCP established a multi-species conservation program to mitigate the expected loss of habitat values and incidental take of 22 protected species that would result from urban development, operation of irrigation and drainage systems, and rice farming. Since the program inception, approximately 30 mitigation properties totaling over 4,500 acres have been acquired for conservation purposes. The NBHCP does not overlap with the proposed Yolo HCP/NCCP Plan Area, but is adjacent to and it covers many of the same species.

South Sacramento HCP

The South Sacramento Habitat Conservation Plan (SSHCP) is currently under development. The SSHCP presents a regional approach to preserve federal and State endangered and threatened species and to streamline the existing development-permitting process in the Planning Area. It is largely focused on vernal pool species conservation. As proposed, the SSHCP would allow the county to issue permits related to the CWA and the CFGC. The SSHCP Planning Area covers approximately 317,000-acre of south Sacramento County, California. It will preserve natural lands in Sacramento County and protect habitat for 28 special-status plant and animal species, including 10 species listed as threatened or endangered under FESA, CESA, or both. The SSHCP does not overlap with the proposed Yolo HCP/NCCP Plan Area, but it covers many of the same species.

Yuba-Sutter Regional Conservation Plan

The Yuba-Sutter Regional Conservation Plan is currently under development. Yuba and Sutter Counties and the cities of Live Oak and Yuba City are jointly preparing an HCP to cover approximately 18 species that would be affected by the conversion of agricultural land and lowland areas to urban development. The Plan Area does not overlap with the proposed Yolo HCP/NCCP Plan Area. Many of the same species being planned for coverage in the Yolo HCP/NCCP are being covered in this plan.

4.3 ENVIRONMENTAL CONSEQUENCES

4.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

The evaluation of the potential impacts that may result from each alternative is based on a review of the covered activities as described in the Yolo HCP/NCCP; review of the Yolo County General Plan, and planning documents from the Cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative will comply with applicable local, State, and federal regulations, general plan policies, and local agency codes and ordinances. For example, it is assumed that for any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, CDFW may require an LSAA, pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document prepared for the individual activity or project. The analysis also assumes the proposed Yolo HCP/NCCP conservation strategy and conservation measures would be fully effective in their stated objectives and that habitat conditions predicted to result from Plan implementation would develop within the term of the permits. This assumption is substantially supported by successful implementation of similar conservation measures in other HCPs and NCCPs in California.

The geographic information system (GIS) data and species habitat models prepared during development of the Yolo HCP/NCCP were used to overlay covered activities with occurrences of land cover types to quantify effects of covered activities on land covers and special-status species habitat. The Lead Agencies determined the data and models represent conditions in the Plan Area with sufficient accuracy to support the impact analysis.

This EIS/EIR also evaluates special-status species and biological resources not covered by the Yolo HCP/NCCP. The evaluation of impacts on noncovered species relied on a combination of the available natural community and land cover mapping included in the GIS data and development of habitat models for each species based on the species' habitat requirements and, in some cases, conditions at known occurrences in the Plan Area. The species occurrence information was compiled primarily from CNDDDB data.

Implementation of the Yolo HCP/NCCP or other alternatives could result in both direct and indirect effects on biological resources. Direct effects are those that occur at the same time and place as project implementation, such as removal of habitat from ground disturbance. Indirect effects are those that occur either later in time or at a distance from the project location but are reasonably foreseeable, such as loss of aquatic species from downstream effects on water quality. Direct and indirect effects can be permanent or

temporary. Biological resources could be affected directly or indirectly by activities associated with development as well as those associated with biological resources mitigation.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- ▲ have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- ▲ have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- ▲ interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- ▲ conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- ▲ conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan;
- ▲ substantially reduce the habitat of a fish or wildlife species;
- ▲ cause a fish or wildlife population to drop below self-sustaining levels;
- ▲ threaten to eliminate a plant or animal community; or
- ▲ reduce the number or restrict the range of a rare or endangered plant or animal.

ISSUES NOT EVALUATED FURTHER

As stated above in the discussion of Methods and Assumptions, it is assumed that all development and conservation related activities would be implemented in compliance with applicable general plan policies and local agency codes and ordinances. This would include policies, codes, and ordinances adopted to protect biological resources, such as tree ordinances. The County and each city are Plan Permittees. It is assumed that as they implement, or authorize implementation, of covered activities under the Plan, or any of the alternatives, that they would enforce applicable policies, codes, and ordinances. Therefore, the issue of conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, is not evaluated further in this chapter.

4.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the U.S. Fish and Wildlife Service (USFWS) or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. Under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is anticipated that some additional landowners would also place their land under easement in the future. It is also expected that under the No Action Alternative, the riparian forest along Putah Creek would continue to be protected via various laws and regulations (Section 4.2.2) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee. These conservation and enhancement activities in the expanded Plan Area are likely to have a general benefit to biological resources by limiting development in the area and enhancing riparian habitat that provides a buffer between the Creek and adjacent land uses. This general benefit is not discussed in the individual species and habitat effects sections below.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Clarksburg, Dunnigan, Esparto, Elkhorn, Knights Landing, and Madison). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county. Anticipated losses of modelled habitat for covered species under the No Action Alternative resulting from these projects and activities are shown in Table 4-1.

Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining ^a	Total Temp. Loss (acres)
Valley elderberry longhorn beetle							
Riparian habitat	9,447	501	13	0	523	94.5%	0
Non-riparian habitat	3,932	60	1	0	61	98.4%	1
Total	13,379	561	14	0	576	95.7%	19
California tiger salamander							
Aquatic breeding habitat	1,004	12	0	0	12	98.8%	1
Upland habitat	86,505	349	13	36	398	99.5%	1
Total	87,509	361	13	36	410	99.5%	2

Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining ^a	Total Temp. Loss (acres)
Ponds - seasonal in aquatic breeding habitat (no. of ponds)	434	3	0	0	3	99.3%	0
Western pond turtle							
Aquatic habitat	53,907	354	40	0	369	99.3%	31
Nesting and overwintering habitat	137,185	2,212	35	1,118	3,133	97.7%	112
Total	191,092	2,566	74	1,118	3,502	98.2%	143
Ponds - perennial in aquatic habitat (no. of ponds)	1,003	19	0	0	19	98.1%	1
Ponds - perennial in nesting and overwintering habitat (no. of ponds)	149	5	0	0	5	96.6%	0
Total (no. of perennial ponds)	1,152	24	0	0	24	97.9%	1
Giant garter snake							
Rice habitat	31,168	68	19	0	87	99.7%	0
Aquatic habitat	6,596	103	6	0	109	98.3%	1
Freshwater emergent habitat	25,897	71	4	0	76	99.7%	0
Active season upland movement	6,612	433	7	0	441	93.3%	3
Overwintering habitat	6,783	905	5	343	1,235	81.8%	5
Total	77,056	1,584	42	343	1,966	97.4%	9
Drainage miles	1,083	20	37	0	57	94.7%	0
Swainson's hawk							
Nesting habitat	15,673	920	31	0	651	95.8%	0
Natural foraging habitat	79,336	589	15	803	1,407	98.2%	0
Agricultural foraging habitat	214,078	9,099	65	236	9,399	95.6%	2
Total	309,087	10,718	111	1,039	11,757	96.2%	2
Nest trees	534	34	3	37	37	93.1%	0
White-tailed kite							
Nesting habitat	31,732	929	36	0	987	96.9%	0
Primary foraging habitat	101,758	2,347	26	236	2,609	97.4%	29
Secondary foraging habitat	134,740	7,125	41	803	7,969	94.1%	5
Total	268,230	10,401	103	1,039	11,565	95.7%	34
Nest trees	531	35	3	0	38	92.8%	0
Western yellow-billed cuckoo							
Nesting/foraging habitat	3,868	56	4	0	59	98.5%	0
Western burrowing owl							
Primary habitat	37,694	612	13	236	861	97.7%	1
Other habitat	66,160	1,467	41	803	2,311	96.5%	18
Total	103,854	2,079	54	1,039	3,172	96.9%	19

Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining ^a	Total Temp. Loss (acres)
Least Bell's vireo							
Nesting/foraging habitat	4,719	36	3	0	39	99.2%	0
Bank swallow							
Nesting habitat	962	0	37 ^b	0	0	96.2% ^b	0
Tricolored blackbird							
Nesting habitat	4,680	84	2	0	86	98.2%	0
Foraging habitat	261,133	7,832	80	1,030	8,942	96.6%	30
Total	265,813	7,917	81	1,030	9,028	96.6%	30
Palmate-bracted bird's beak							
Habitat	312	4	0	0	4	98.7%	0

^a Rounded to nearest 0.1 percent

^b Actual nest sites will be avoided. Up to 37 acres of barren floodplain may be permanently affected by bank stabilization activities along Cache Creek undertaken through the CCRMP as needed to protect property or valuable resources. Additional barren floodplain is expected to be created during the 50-year permit term, however, as a result of the natural, dynamic fluvial processes along Cache Creek.

Source: Yolo Habitat Conservancy 2017, data source shared by Table 5-2(a)

Effects on Palmate-Bracted Bird's-Beak

Palmate-bracted bird's-beak is listed as endangered under both the FESA and CESA. The detailed description of the species and known occurrences south east of Woodland, along with modeled suitable habitat can be found in Appendix D. The species is associated with small topographic features on seasonally flooded alkaline prairies. There is 312 acres of existing modeled habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative can result in mortality, as well as the permanent loss of 4 acres of habitat for Palmate-bracted bird's-beak (Table 4-1), though individuals and populations of the species are likely to be avoided during project design due to its endangered status.

Projects and activities implemented under the No Action Alternative can also result in permanent indirect effects to the species including; the fragmentation of existing habitat which limits or prohibits dispersal of the species, the spread and promotion of invasive plants that increase competition, runoff, and trampling as a result of recreational activities. While no temporary loss of habitat has been quantified for this species, temporary construction effects such as dust, trampling, and temporary vegetation removal can also occur under the No Action Alternative.

Projects and activities under the No Action Alternative would be required to mitigate impacts to Palmate-bracted bird's-beak through consultation with the USFWS under Section 7 or Section 10 of FESA, as well as under CESA. Mitigation measures may also be required as part of CEQA review.

Effects on Valley Elderberry Longhorn Beetle

The description of modeled valley elderberry longhorn beetle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. The valley elderberry longhorn beetle is listed as threatened under the FESA. This species is dependent on elderberry shrubs (*Sambucus glauca*, *S. mexicana*, *S. caerulea*) to host the larval stage of its lifecycle. Elderberry shrubs are primarily associated with riparian habitats, but may also be found in Oak-foothill pine woodland within the Plan Area. Valley elderberry

longhorn beetle-modeled habitat within the Plan Area includes 9,447 acres of riparian habitat and 3,932 acres of non-riparian habitat for a total of 13,379 acres of habitat for the species (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative can result in the removal of elderberry shrubs and mortality of individual valley elderberry longhorn beetle, as well as the permanent loss of 576 acres of riparian and non-riparian habitat (Table 4-1). The majority of habitat loss could occur in the South Yolo Basin (140 acres), most of which would occur within the unincorporated community of Clarksburg, and in West Sacramento (361 acres), as a result of urban development and flood control. Additional effects can occur from rural infrastructure and operations and maintenance (e.g., road maintenance, power line right-of-way clearance) that can remove or disturb vegetation, in particular the removal of elderberry shrubs, the species obligate host plant.

Projects and activities under the No Action Alternative can also result in permanent indirect effects. While the majority of the effects on valley elderberry longhorn beetle will be within areas of existing development, permanent habitat loss will likely also result in the fragmentation of existing habitat which would limit or prohibit dispersal of the species. Other potential indirect effects on valley elderberry longhorn beetle that may occur as a result of projects and activities under the No Action Alternative include; long term changes in lighting, dust, and spread of Argentine ant (*Linepithema humile*).

Temporary effects from construction activities, as well as public and private operations and maintenance such as noise, vibrations, and dust, can also occur under the No Action Alternative and are expected to result in a temporary loss of 19 acres of habitat for the species (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to valley elderberry longhorn beetle through consultation with the USFWS under Section 7 or Section 10 of the FESA as well as mitigation required under CEQA.

Effects on California Tiger Salamander

California tiger salamander is listed as a threatened species under the FESA and critical habitat has also been designated for the species. The species is also listed as a threatened species under CESA. The description of modeled California tiger salamander habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. California tiger salamander is generally found in grassland, oak savanna, and coastal scrub in areas where ephemeral pools, and fishless artificial ponds are available for breeding, along with rodent burrows in upland habitats used for refugia during the non-breeding season. There are 1,004 acres of modeled aquatic breeding habitat and 86,505 acres of modeled upland habitat for the species in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual California tiger salamander, though no development is planned in areas of known occurrences of the species. Projects and activities are estimated to result in the permanent loss of 12 acres of aquatic habitat and 398 acres of upland habitat (Table 4-1). The majority of this habitat loss will likely occur in the Dunnigan Hills and Colusa Basin Plains Planning Units. No loss of designated critical habitat for the species is anticipated under the No Action Alternative.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects including; noise and vibrations which could cause the species to avoid habitats; lighting which could negatively affect nocturnal foraging behavior; the introduction of non-native and domestic predators; increased pesticide associated with residential development of natural lands and operation and maintenance activities; hydrologic alterations that can result in the reduction of aquatic habitat, stormwater runoff that can increase turbidity reducing foraging effectiveness and introducing petroleum based pollutants, pesticides and other contaminants that may reduce prey species availability and; rodent control which can reduce the availability of upland burrows for California tiger salamander. In addition, permanent habitat loss will likely also result in the fragmentation of existing habitat which limits or prohibits dispersal of the species and increases the relative effects of the other indirect effects listed above.

Temporary effects from construction activities, as well as public and private operations and maintenance such as noise, vibrations, lighting, dust, and pollutant spills, can also occur under the No Action Alternative and are estimated to result in a temporary loss of 2 acres of habitat for the species (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to California tiger salamander through consultation with the USFWS under Section 7 or Section 10 of FESA as well as mitigation required under CEQA and CESA. Aquatic habitats would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and with the RWQCB (Section 4.2.2).

Effects on Western Pond Turtle

Western pond turtle is a California species of special concern. The description of modeled western pond turtle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. Western pond turtle is associated with both natural and artificial aquatic habitats such as stock ponds and other impoundments and irrigation ditches that have sufficient vegetated cover to provide refuge for the species. Western pond turtle also requires upland habitats adjacent to suitable aquatic habitat for nesting and overwintering. Within the Plan Area western pond turtle has been observed in the Sacramento River, Putah Creek Riparian Reserve, Putah Creek Sinks, Lower Willow Slough, West Sacramento, and in storm water detention basins in the City of Davis. There are 53,907 acres of modeled aquatic habitat and 137,158 acres of modeled upland habitat, including 1,152 perennial ponds in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual western pond turtles. Project and activities are also estimated to result in the permanent loss of 369 acres of aquatic habitat, including 24 perennial ponds, and 3,133 acres of upland nesting and overwintering habitat (Table 4-1). The majority of this habitat loss will likely occur in the West Sacramento and Woodland Planning Units though smaller amounts of habitat removal are anticipated in most of the Plan Area.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These indirect effects would be similar to those listed for California tiger salamander above, with the exception that western pond turtles would not be affected by rodent control in upland habitats.

Temporary effects from construction activities, as described for California tiger salamander, can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 143 acres of all habitat types for western pond turtle (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to western pond turtle as a species of special concern species of special concern under CEQA. Aquatic habitats would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and RWQCB (Section 4.2.2).

Effects on Giant Garter Snake

Giant garter snake is listed as threatened under both the FESA and CESA. This species is associated with permanent or seasonal marshes and rice fields in the Plan Area, and is absent from waters containing game fish and from areas with dense vegetation that lacks basking sites. Giant garter snake also requires upland habitat above the high water mark as winter refuge during dormancy. The species is known to occur northwest of Knights Landing and near Sycamore Slough and the Colusa Basin Drainage Canal in the northeastern portion of the Plan Area. The species is also known to occur east of Davis in the vicinity of the Yolo Bypass including the rice fields to the east of the Yolo Bypass Wildlife Area. The description of modeled giant garter snake habitat and list of occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 31,168 acres of rice field habitat, 25,897 acres of freshwater emergent habitat, and 6,596 acres of other aquatic habitat for giant garter snake in the Plan Area. There also 6,612 acres of upland movement habitat and 6,783 acres of overwintering habitat (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual giant garter snakes. Projects and activities are also estimated to result in the permanent loss of 87 acres of rice field habitat, 76 acres of freshwater emergent habitat, 109 acres of other aquatic habitat, 441 acres of upland movement habitat and 1,235 acres of overwintering habitat for giant garter snake in the Plan Area (Table 4-1). The majority of this habitat loss will likely occur in the Clarksburg, Woodland and West Sacramento Planning Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These indirect effects would be similar to those listed for California tiger salamander above.

Temporary effects from construction activities, as described for California tiger salamander, can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 9 acres of all habitat types for giant garter snake (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to giant garter snake through consultation with the USFWS under Section 7 or Section 10 of FESA as well as mitigation required under CEQA, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and RWQCB (Section 4.2.2).

Effects on Swainson's Hawk

Swainson's hawk is listed as a Bird of Conservation Concern by the USFWS, protected under the MBTA, and listed as threatened under CESA. Swainson's hawk is a resident of the Plan Area and is generally present from early March, to occupy previous nesting territories or establish new territories, until October, when young have fledged and fall migration is complete. Nesting habitat is predominately within natural riparian woodlands, though trees may be used in other natural and developed habitat types. Foraging habitat consists of natural grassland and agricultural land types that provide similar low open vegetation and high rodent densities (e.g., alfalfa, dry grain and row crops). A complete description of modeled Swainson's hawk habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 15,673 acres of nesting habitat, 534 nesting sites, 79,336 acres of natural foraging habitat, and 214,078 acres of agricultural foraging habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual Swainson's hawks. Project and activities are also estimated to result in the permanent loss of up to 20 nesting trees, 920 acres of nesting habitat, 589 acres of natural foraging habitat, and 9,099 acres of agricultural foraging habitat in the Plan Area (Table 4-1). This habitat loss will likely occur in locations throughout the Plan Area, with the highest loss in the Dunnigan Hills, Willow Slough Basin, Woodland and West Sacramento Plan Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting and foraging behavior; and increases in distance between nest trees and foraging habitat which would reduce foraging efficiency and potentially affect reproductive success.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 2 acres of foraging habitat for Swainson's hawk (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to Swainson's hawk with CDFW under CESA, and provide mitigation required under CEQA. Mitigation for impacts to Swainson's hawk under the No Action Alternative for projects under 40 acres in size would likely be conducted as part of the Swainson's Hawk Mitigation Fee Program administered by the Yolo Habitat Conservancy.

Effects on White-Tailed Kite

White-tailed kite is a California fully protected species and protected under the MBTA. White-tailed kite is year-round resident of the Plan Area that has similar nesting habitat to that described for Swainson's hawk though the species exhibits less of a preference for a specific vegetation type. Foraging habitat is also similar to that of Swainson's hawk, though defined for the purpose of this analysis as more frequently used primary and less frequently used secondary foraging habitat. A complete description of modeled white-tailed kite habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 31,732 acres of nesting habitat, 531 nesting sites, 101,758 acres of primary foraging habitat, and 134,740 acres of secondary foraging habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual white-tailed kite, although the species' fully protected status would make this unlikely. Projects and activities are also estimated to result in the permanent loss of up to 35 nesting trees, 929 acres of nesting habitat, 2,347 acres of primary foraging habitat, and 7,125 acres of secondary foraging habitat in the Plan Area (Table 4-1). This habitat loss is expected to occur in locations throughout the Plan Area, with the greatest losses in the Dunnigan Hills, Willow Slough Basin, Woodland, and West Sacramento Plan Units.

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative would have similar permanent indirect and temporary effects as discussed for Swainson's hawk above, although the total temporary white-tailed kite habitat loss would be 34 acres (Table 4-1).

Projects and activities under the No Action Alternative would be required to avoid mortality of white-tailed kite as a fully protected species, and mitigate impacts to habitat under CEQA.

Effects on Western Burrowing Owl

Western burrowing owl is USFWS Bird of Conservation Concern, protected under the MBTA, and a California species of special concern. The species is a year-round resident of the Plan Area that is associated with grassland and agricultural lands and is also found in developed areas where patches of habitat exist. Western burrowing owls utilize abandoned ground squirrel burrows for nesting and are often found in locations with a high density of burrows. Within the Plan Area there are 37,694 acres of primary habitat (e.g., natural lands, pastures, and other open or barren areas on the lower slopes and valley floors) and 66,160 acres of other habitat (e.g. margins of agricultural fields) suitable for the species (Table 4-1). A complete description of modeled western burrowing owl habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual western burrowing owls. A high risk to this species is entombment in nesting burrows and loss of nests during construction. Projects and activities are also estimated to result in the permanent loss of up to 861 acres of primary habitat and 2,311 acres of other habitat in the Plan Area (Table 4-1). This habitat loss would occur in locations throughout the Plan Area.

The No Action Alternative would have similar permanent indirect and temporary effects to those discussed for Swainson's hawk above, although burrowing owls are also likely to have additional impacts related to domestic pets (e.g., dogs and cats) because of predation on ground squirrels, which may result in fewer nesting burrows, and the potential for predation and harassment of owls themselves. The total temporary western burrowing owl habitat loss would be 19 acres (Table 4-1).

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to western burrowing owl and its habitat under CEQA.

Effects on Least Bell's Vireo

Least Bell's vireo is listed as endangered under both the FESA and CESA. The species is migratory and has historically nested within riparian habitats within the Plan Area, although surveys within the Yolo Bypass Wildlife Area have not detected breeding behavior in the last several years. There is currently 4,719 acres

of modeled nesting/foraging habitat for least Bell's vireo in the Plan Area (Table 4-1). A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Projects and activities (e.g., construction of urban and rural development) that occur within riparian habitat under the No Action Alternative may result in the mortality of individual least Bell's vireo. Project and activities are also estimated to result in the permanent loss of up to 39 acres of potential nesting/foraging habitat in the Plan Area (Table 4-1). This habitat loss would occur in the Lower Cache Creek, Colusa Basin, North Yolo Basin, and North Yolo Bypass Planning Units. The anticipated loss within the Cache Creek Planning Unit is part of the Cache Creek Resources Management Plan.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, lighting and human activity that may disturb breeding and foraging behavior; as well as the potential for development to increase invasion by non-native plant species. Temporary effects from construction activities, noise, lighting, temporary vegetation removal and dust could occur under the No Action Alternative, however there is not expected to be any temporary habitat loss for the species associated with these activities.

Projects and activities under the No Action Alternative would be required to mitigate impacts to least Bell's vireo through consultation with the USFWS under Section 7 or Section 10 of FESA and with CDFW under CESA, and provide mitigation required under CEQA.

Effects on Bank Swallow

Bank swallow is listed under CESA as threatened and protected under the MBTA. This species migrates to the Plan Area to breed in colonies in vertical cliffs and cut banks along rivers, streams, quarries, and road-cuts. Colonies have been documented in the past along the Sacramento River and Cache Creek. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Bank stabilization activities along Cache Creek under the No Action Alternative could result in the mortality of individual bank swallow. Project and activities are also estimated to result in the permanent loss of up to 37 acres of nesting/foraging habitat in the Plan Area (Table 4-1), all of which are located within the floodplain of Cache Creek as part of the Cache Creek Resources Management Plan.

Mining and operations and maintenance activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include noise and human activity that may disturb breeding and foraging behavior. Temporary effects from activities, noise, temporary vegetation removal and dust could occur under the No Action Alternative, however there is not expected to be any temporary habitat loss for the species.

Projects and activities under the No Action Alternative would be required to mitigate impacts to bank swallow through consultation with CDFW under CESA, and provide mitigation required under CEQA.

Effects on Tricolored Blackbird

Tricolored blackbird is a candidate for listing as endangered under CESA and protected under the MBTA. Tricolored blackbird is a year-round resident of the Plan Area and breeding colonies have been documented in several locations including the Yolo Bypass. The species is associated with a variety of habitats for nesting including wetlands, agricultural areas, and other areas that contain dense vegetation (e.g., cattails, blackberry, and willows). The species is known to forage in natural and agricultural areas that contain high densities of insects. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 4,680 acres of modeled nesting, and 261,813 acres of foraging habitat for tricolored blackbird in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, and operations and maintenance) under the No Action Alternative may result in the mortality of individual tricolored blackbird. Project and activities are also estimated to result in the permanent loss of up to 86 acres of nesting habitat, and 1,030 acres of foraging habitat in the Plan Area (Table 4-1). The majority of the nesting habitat loss will likely occur in the South Yolo Basin and West Sacramento Planning Units. Loss of foraging habitat would occur throughout the Plan Area.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting and foraging behavior; and habitat fragmentation.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 30 acres of foraging habitat for the species (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to tricolored blackbird through consultation with CDFW under CESA, and provide mitigation required under CEQA as well as mitigation required under CEQA.

Effects on Western Yellow-Billed Cuckoo

Western yellow-billed cuckoo is listed as threatened under the FESA and CESA and is protected under the MBTA. The species is migratory, arriving in the Central Valley of California in July and breeds and forages within riparian habitat. There are no current records of nesting individuals within the Plan Area, although nesting has been observed in nearby Sutter County. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 3,868 acres of modeled nesting and foraging habitat for western yellow-billed cuckoo in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, and operations and maintenance) under the No Action Alternative may result in the mortality of individual western yellow-billed cuckoo. Projects and activities are also estimated to result in the permanent loss of up to 60 acres of habitat in the Plan Area (Table 4-1). This loss of habitat is anticipated to occur in the Lower Cache Creek, Willow Slough Basin, North Yolo Basin, and South Yolo Basin Planning Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting that may disturb nesting and foraging behavior; and the introduction and spread of invasive plant species which may reduce foraging and nesting suitability. There are not estimated to be temporary effects from construction activities under the No Action Alternative though if they should occur, they would include, noise, vibrations, lighting, and dust.

Projects and activities under the No Action Alternative would be required to mitigate impacts to western yellow-billed cuckoo through consultation with the USFWS under Section 7 or Section 10 of FESA as well as consult with CDFW under CESA and implement mitigation required by CEQA.

Effects on Special-status Plants Not Covered by the Yolo HCP/NCCP

There are 27 special-status plant species other than palmate-bracted bird's-beak (addressed above) that are either known to occur or have at least a moderate potential to occur in the Plan Area. Information on these species' legal status, habitats, and occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis, these species are further categorized by the natural land cover types in which they are predominately found.

Those species associated within the serpentine community are; Jepson's milk-vetch, pink creamsacs, Snow Mountain buckwheat, Hall's harmonia, drymaria-like western flax, Colusa layia, and green jewel-flower. The projects and activities under the No Action Alternative (e.g., construction of urban and rural development,

operations and maintenance activities) are not expected to result in any permanent or temporary loss of the serpentine natural community type, and therefore are not likely to result in adverse effects on these species.

Species associated with alkali prairie are; alkali milk-vetch, brittlescale, San Joaquin spearscale, and Heckard's pepper-grass. The projects and activities under the No Action Alternative are estimated to result in the permanent loss of 4 acres and the temporary loss of an additional 4 acres of alkali prairie habitat, which may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Species associated with grassland, blue oak woodland, blue oak and foothill pine, and valley oak woodland are; bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon. The projects and activities under the No Action Alternative are estimated to result in the permanent loss of 3 acres of blue oak woodland and 1,734 acres of grassland. The temporary loss of 28 acres of grassland is also projected. These permanent and temporary losses of habitat may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Plant species associated with fresh emergent wetland are Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass, bearded popcorn flower, Suisun Marsh aster, saline clover, and Solano grass. The projects and activities under the No Action Alternative are estimated to result in the permanent loss of 88 acres of fresh emergent wetland, which may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Plant species associated with vernal pool complex are dwarf downingia and vernal pool smallscale. The projects and activities under the No Action Alternative are not estimated to result in any permanent or temporary loss to vernal pool complex. As such no adverse effects on these species are anticipated.

Northern California Black walnut is associated with the valley foothill riparian natural community type, which as a result of actions and projects under the No Action Alternative is estimated to be permanently reduced by 588 acres.

Permanent indirect effects on special-status plant species that are associated with natural land cover types affected by the projects and activities under the No Action Alternative can also occur. These adverse effects would be the same as those discussed above for Palmate-bracted bird's-beak.

Temporary effects from construction activities, as well as public and private operations and maintenance such as dust, trampling, and temporary vegetation removal, can also occur under the No Action Alternative when special-status plants occur in the vicinity of the activity.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA, and further protections would be afforded those species listed under FESA or CESA as threatened or endangered. Losses of any fresh emergent wetland that falls under USACE jurisdiction under the CWA would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters.

Effects on Special-status Vernal Pool Invertebrates

Three special-status vernal pool invertebrates are known to occur within the Plan Area; conservancy fairy shrimp, which is listed as endangered under the FESA; vernal pool fairy shrimp, which is listed as threatened under the FESA; and vernal pool tadpole shrimp, which is listed as endangered under the FESA and for which critical habitat has been designated within the Plan Area. These three species are associated almost exclusively with vernal pool habitats. A further description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. There is approximately 299 acres of vernal pool complex habitat within the Plan Area.

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative are not anticipated to result in the temporary or permanent loss of vernal pool complex habitat nor is it anticipated that any take of these species would occur. It should be

noted however, that not all urban development and other land use changes that may occur in the Plan Area are part of the No Action Alternative, such as the reasonably foreseeable projects identified previously in Section 3.6.3. Should it be found that any project or activity may result in the take of any of these vernal pool invertebrate species or adverse effects on critical habitat for vernal pool tadpole shrimp, then consultation with the USFWS under Section 7 or Section 10 of FESA would be required, and losses of any aquatic habitats that fall under USACE jurisdiction under the CWA would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters.

Effects on Special-status Amphibians Not Covered by the Yolo HCP/NCCP

Two CDFW species of special concern amphibians are known to occur within the Plan Area that are not covered species under the Yolo HCP/NCCP. These species are western spadefoot toad and foothill yellow-legged frog. A description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Habitat for these species have not been specifically modeled for this analysis, but land covers in the Plan Area likely to include suitable habitat for one or both of these species consist of; lacustrine and riverine, fresh emergent wetland, vernal pool complex, valley foothill riparian, chamise chaparral, mixed chaparral, blue oak woodland, valley oak woodland, and grassland. Of these habitat types only grassland (1,734 acres), fresh emergent wetland (88 acres), valley foothill riparian (588 acres) and lacustrine and riverine (236 acres) are anticipated to be subject to permanent loss due to construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. These acreages reflect the maximum potential habitat loss for these species and do not take into account factors that limit suitability of habitats for these species within the broader land cover categories. The acreages for upland habitat types likely include areas that are not suitable due to distance from water being greater than the species would travel for estivation.

Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed for California tiger salamander above. Temporary habitat loss for amphibians not covered by the HCP/NCCP is anticipated to be 28 acres of grassland and 31 acres of lacustrine and riverine.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA. Losses of any aquatic habitats that fall under USACE jurisdiction under the CWA would likely be replaced at no net loss because of USACE policy regarding impacts to jurisdictional wetlands and waters.

Effects on Special-status Birds not covered by Yolo HCP/NCCP

There are 17 special-status bird species that are either known to occur or have at least a moderate chance to occur in the Plan Area and that are not covered by the Yolo HCP/NCCP. Description of these species and information on legal status, habitats, and occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are categorized into a nesting raptor group which includes those species that are known or are likely to nest in the Plan Area based on potentially suitable natural land cover types and other factors. The remaining species are analyzed in the following groups based on the natural land cover types in which they are predominately found; wetland birds, riparian birds, and grassland/woodland birds. Habitat for these species has not been specifically modeled for this analysis, but is based on the overall occurrence of potentially suitable natural community types in the Plan Area.

The nesting raptor group includes; northern harrier, golden eagle, bald eagle, American peregrine falcon, and short-eared owl. Of these species, American peregrine falcon is not likely to be adversely affected by projects and activities under the No Action Alternative as there are no projects or activities anticipated to occur within suitable habitat for the species in the Upper Putah Creek Planning Unit where the single recorded nest of the species was located.

There is limited nesting habitat for bald eagle in the western portion of the Plan Area and project and activities are not anticipated to adversely affect this habitat under the No Action Alternative. Bald eagles forage within lacustrine and riverine habitat, however, and perch in the adjacent valley foothill riparian habitat. These habitats may be adversely affected by projects and activities. There are 26,058 acres of

potential bald eagle foraging and wintering habitat (lacustrine, riverine, and valley foothill riparian) within the Plan Area, of which 824 acres are estimated to be permanently lost under the No Action Alternative, although not all of this habitat, either existing or lost, would be suitable for bald eagle foraging and wintering habitat. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects (31 acres) from construction activities. These effects would be similar to those detailed for Swainson's hawk above.

There is also limited nesting habitat for golden eagle in the western portion of the Plan Area and the species is not documented to nest in the Plan Area. However, golden eagles may forage within 116,983 existing acres of blue oak woodland, valley oak woodland, and grassland communities within the Plan Area, of which 1,737 acres are estimated to be permanently lost under the No Action Alternative. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects (31 acres) from construction activities. These effects would be similar to those detailed for Swainson's hawk above.

Northern harrier and short-eared owl are both predominately associated with grassland, cultivated lands, and natural and agricultural wetlands and marshes for both nesting and foraging. There are 80,991 acres of grassland, 26,309 acres of freshwater emergent wetland, 299 acres of vernal pool complex, 214,939 acres of cultivated lands, and 35,724 acres of rice cultivation that may be suitable for these species in the Plan Area. Under the No Action Alternative there is estimated to be a total of 10,085 acres of permanent habitat loss across these community types, although not all of this habitat would be suitable for these species. For example, orchards within the cultivated lands category would not be suitable foraging habitat for these species. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities, estimated to total 31 acres. These effects would be similar to those detailed for Swainson's hawk above.

The special-status bird species included in this analysis that are predominately associated with wetlands are; least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird. There are 26,309 acres of freshwater emergent wetland, and 299 acres of vernal pool complex that may support habitat suitable for these species in the Plan Area. Under the No Action Alternative there is estimated to be a total of 88 acres of permanent habitat loss for these species as a result of loss of freshwater emergent wetlands. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed above for tricolored blackbird.

There are two special-status bird species included in this analysis that are primarily associated with the valley foothill riparian natural community type, purple martin and yellow-breasted chat, although purple martin are also known to utilize manmade structures such as bridges and highway overpasses for nesting. There are 12,565 acres of valley foothill riparian natural community type within the Plan Area that may be suitable for these species and 588 acres of this community type are estimated to be permanently lost under the No Action Alternative. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed for western yellow-billed cuckoo above.

The special-status grassland bird species considered in this analysis are; mountain plover, loggerhead shrike, and grasshopper sparrow. These species are often associated with open grassland, prairies, and open agricultural areas such as grain crops and pastures. Within the Plan Area there are 80,911 acres of grassland and 214,939 acres of non-rice cultivated lands that could provide suitable habitat for these species. However, the non-rice cultivated lands land cover category also includes orchards and other more specific categories of agricultural lands that are not suitable for these species. Under the No Action Alternative, 1,734 acres of grassland and 9,910 acres of non-rice cultivated lands are estimated to be permanently lost, and an additional 28 acres of grassland and 3 acres of non-rice cultivated lands are anticipated to be temporarily lost. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting behavior of loggerhead shrike and grasshopper sparrow, and foraging behavior for all special-status grassland bird species; and increases in distance between nesting and foraging habitat for loggerhead shrike and grasshopper sparrow which would reduce foraging efficiency and potentially affect reproductive success.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 2 acres of nesting/ foraging habitat for loggerhead shrike and grasshopper sparrow and foraging habitat for mountain plover (Yolo Habitat Conservancy 2017).

These acreages reflect the maximum habitat loss for these species and do not take into account factors that limit suitability of habitat for these species within portions of the land cover categories. For example, field crops within the cultivated lands land cover category do not provide suitable habitat for many species, but the available GIS data does not allow for the removal of field crops from the assessment of effects on the broader cultivated lands category. Therefore, acreage losses for cultivated lands include losses of field crops, providing a larger acreage of potential habitat removal for some species than actually would occur.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to species identified as species of special concern or Fully Protected by CDFW as part of CEQA review, and further protections would be afforded those species listed under the FESA or CESA.

Effects on Special-status Bats

There are three special-status bat species that are known to occur in the Plan Area. A description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Townsend's big-eared bat, which is a candidate species under CESA and a California species of special concern, roosts in caves, tunnels, mines, bridges and abandoned buildings and forages in nearby habitats ranging from forests to prairies, but predominately along riparian woodlands. Pallid bat and western red bat are both California species of special concern and are associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, and valley foothill riparian natural community types. In addition to crevices in trees within these natural community types, pallid bat is also known to use cracks in cliffs and structures (e.g. bridges and buildings) for roosts. Western red bat utilizes the foliage of trees within the above mentioned natural community types for roosts and is also known to utilize orchards for roosts within the foliage of fruit trees. Suitable habitat for these species has not been specifically modeled for this analysis, but includes the natural community types listed above.

As mentioned previously, Townsend's big-eared bat roosts in mines, tunnels, bridges, and abandoned buildings (Pierson and Rainey 1998). While projects and activities under the No Action Alternative would not affect mine shafts and tunnels abandoned mines or tunnels suitable for Townsend's big-eared bat, abandoned buildings may be demolished as part of projects and activities, and bridges are anticipated for reconstruction. These activities can result in loss of day and maternity roosts for the species. The valley foothill riparian natural community type that is associated with foraging for Townsend's big-eared bats is estimated to be subject to 588 acres of permanent loss under the No Action Alternative

Of the natural community types that are potentially suitable habitat for pallid bat and western red bat, only blue oak woodland (3 acres), and valley foothill riparian (588 acres) are anticipated to be subject to permanent loss due to construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. As noted above, western red bat is also known to utilize orchards for roosts within the foliage of trees; however, the available land cover data does not support a calculation of the loss of the specific orchard habitat type within the broader Other Agriculture land cover type. Under the No Action Alternative there is estimated to be a permanent loss of 1,628 acres, and temporary loss of 2 acres, of the Other Agriculture land cover type, but only the portion of this acreage that supports orchards could provide potential habitat for western red bat.

Projects and activities under the No Action Alternative can also result in permanent indirect effects on special-status bat species, including habitat fragmentation, human disturbance, and pesticide use limiting prey availability. A specific acreage of temporary habitat loss due to construction is not anticipated within the natural community types that are potentially suitable for these special-status bat species. Temporary adverse effects could include, however, noise, vibration, lighting, and dust.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA.

Effects on American Badger

American Badger is a California species of special concern and there are four historical records of the species occurring in Yolo County. The most recent documented observation of the species was recorded west of Davis in 1997. American badgers occur in a wide variety of open, arid habitats but are most commonly associated with grassland, savannas, mountain meadows, and open areas of desert scrub; the principal habitat requirements for the species appear to be sufficient food (burrowing rodents), friable soils for construction of burrows, and relatively open, uncultivated ground. Within the Plan Area, suitable habitat for American badgers could be associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, grassland, and alkali prairie where suitable soils for burrows are available.

Of the natural community types that could potentially provide suitable habitat for American badger, only blue oak woodland (3 acres), grassland (1,525 acres) and alkali prairie (4 acres) are anticipated to be subject to permanent loss because of construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. These acreages reflect the maximum habitat loss for these species and do not take into account factors that limit suitability of habitats within the larger land cover categories, such as soil composition.

Projects and activities under the No Action Alternative can also result in permanent indirect effects on American badger which can include; habitat fragmentation, human disturbance, pesticide use limiting prey availability, and domestic pets which can disturb American badger burrows and prey on rodents that are primary food source for American badgers. Temporary habitat loss due to construction is anticipated within the grassland and alkali prairie natural community types that are potentially suitable for American badger and would include; noise, ground vibrations, and lighting.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to American badger for projects subject to CEQA.

Effects on Special-status Fish Species

There are 10 special-status fish species, Distinct Population Segments (DPS), and Evolutionarily Significant Units (ESU) that are either known to occur or have at least a moderate likelihood of occurring in the Plan Area; North American green sturgeon, southern DPS; delta smelt; longfin smelt; steelhead – Central Valley DPS; chinook salmon – Sacramento River winter-run ESU; chinook salmon – Central Valley spring-run ESU; chinook salmon – Central Valley fall/late-run ESU; eulachon; Sacramento splittail; and river lamprey. Critical habitat for delta smelt, North American green sturgeon, steelhead, Sacramento River winter-run ESU; chinook salmon, and Central Valley spring-run ESU; chinook salmon also has been designated within the Plan Area. Further information on these species' legal status, habitats, and occurrences in the Plan Area can be found in Appendix D.

The natural communities that may contain suitable habitat or designated critical habitat for these special-status fish species within the Plan Area are freshwater emergent wetland (26,309 acres) and lacustrine and riverine (13,493 acres). Valley foothill riparian (12,565 acres in the Plan Area) is also considered in the effects analysis for these species as the shading from riparian vegetation plays an important role in the quality of lacustrine and riverine habitats for these species.

The No Action Alternative is estimated to result in the permanent loss of 88 acres of freshwater emergent wetland, 236 acres of lacustrine and riverine, and 588 acres of valley foothill riparian native communities. However, only a portion of these acreages would act as potential habitat for special-status fish species; for example, not all freshwater emergent wetland is connected to larger waterways that support these special-status fish species, and valley foothill riparian habitat that is more distant from waterways has no influence on habitat conditions for these species. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects (31 acres) from construction activities. These effects would include degradation of water quality such as increased water temperatures due to removal of riparian vegetation and reduced shading, runoff and associated increases in siltation, and introduction of contaminants (e.g. pesticides, petroleum products) which can have adverse effects on prey availability and reproductive success for these species.

Projects and activities under the No Action Alternative would be required to mitigate any potential impacts to these special-status fish species under the applicable laws and regulations including the FESA, CESA, and CEQA.

Effects on Sensitive Habitat Types Including Wetlands and Other Waters of the United States

Seven of the natural communities identified in the Plan Area are considered sensitive habitats for the purpose of this analysis due to either their limited distribution, unique plant communities, their relative importance to wildlife species, and/or legal protections provided by regulatory agencies; these are, alkali prairie, blue oak woodland, freshwater emergent wetland, lacustrine and riverine, serpentine, valley foothill riparian, and valley oak woodland. Of these seven sensitive habitat types, serpentine and valley oak woodland are not expected to be subject to loss as a result of implementation of projects under the No Action Alternative. The No Action Alternative is estimated to result in the permanent loss of alkali prairie (4 acres), blue oak woodland (3 acres), freshwater emergent wetland (88 acres), lacustrine and riverine (236 acres), and valley foothill riparian (588 acres).

Projects and activities under the No Action Alternative would likely be required to mitigate for any substantial adverse effects on sensitive communities through CEQA. Potential impacts to oak woodlands are required to be addressed under Section 21083.4 of the California Public Resources Code. Furthermore, riparian and wetland habitats are subject to CFGC Section 1600 to 1607 and local General Plan policies. Should any affected wetland or other water be considered a jurisdictional water of the United States, then any discharge or fill would be subject to CWA Section 404. In addition, the USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Effects on Wildlife Movement Corridors

As identified above in Section 4.2.1, the California Essential Habitat Connectivity Project has identified, at a coarse spatial scale, several linkages between large blocks of intact habitat or natural landscapes that could provide wildlife movement corridors in the Plan Area (Exhibit 4-2); these consist of the following ECAs, the English Hills - Blue Ridge/ Rocky Ridge ECA; Blue Ridge/ Rocky Ridge - Capay Hills ECA; Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA; Stone Lake - Yolo Bypass ECA; Yolo Bypass - Sacramento Bypass ECA; and the Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA.

Although most of the urban and rural development under the No Action Alternative is expected to occur in the vicinity of existing developed areas, the following categories of projects and activities under this alternative are anticipated to occur within small portions of the ECAs listed above; urban public services, infrastructure, and utilities; rural public services, infrastructure, and utilities; agricultural economic development and open space; and public and private operations and maintenance. However, no ECA would be blocked and the ability of wildlife to move through these ECAs would not be substantially affected.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland, Knights Landing, Dunnigan, Esparto) over the past century has resulted in an increase in the amount of agricultural land and natural communities converted to residential, commercial and other uses across the

Plan Area. This past and current conversion to development has reduced suitable habitat for many common and special-status species and increased the effects of habitat fragmentation, which can limit movement between suitable habitats for foraging, juvenile dispersal, and other ecological processes. These development effects would continue with implementation of projects and activities under the No Action Alternative. However, the current County General Plan and County zoning code precludes most urban development in agricultural areas, focusing development in existing urban areas. Individual city general plans contain similar protections.

In contrast to the adverse effects of past and existing development on biological resources, the Plan Area also contains an existing network of conservation lands that include those with predominately natural habitats preserved in perpetuity, those with the purpose of conservation but without a permanent conservation easement that provide habitat for covered species, and those without a permanent conservation easement where the primary goal is not conservation, but that provide habitat for covered species. In total, there are approximately 90,967 acres of conservation lands of varying types within the Plan Area. These conservation lands provide habitat for many common and special-status species. Mitigation required for biological resources impacts resulting from implementation of projects and activities under the No Action Alternative would include creation of protected mitigation lands that would add to these conservation lands.

Additional foreseeable future development in the county beyond those activities included under the No Action Alternative would include activities such as Caltrans infrastructure projects and additional flood control activities, which would have similar impacts to biological resources as projects under the No Action Alternative. The development of solar and wind energy facilities would result in effects on biological resources associated with land conversion, but would also have effects unique to these facilities, such as direct mortality to common and special-status birds and bats.

Although future development under the No Action alternative would be subject to federal and State regulations as well as policies in the applicable city and County General Plans which protect agricultural and natural communities, when combined with past present and other foreseeable future actions, the cumulative outcome would be a continued loss of habitat and adverse effects on biological resources.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

The Proposed Action (Alternative B) provides incidental take authorization for the same development related activities identified for the No Action Alternative (urban projects and activities; rural projects and activities; rural public services, infrastructure, and utilities; agriculture economic development and open space; and public and private operations and maintenance). For this alternative, the Yolo HCP/NCCP provides a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Biological resource impacts as a result of these activities would be the same as described under the No Action Alternative, as indicated by the maximum authorized habitat take limits shown in Table 4-2 below being the same as the habitat losses for covered species under the No Action Alternative provided in Table 4-1. A further comparison of the impacts from these covered activities under the Proposed Action Alternative to those under the No Action Alternative is not discussed further in the impact discussions below.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and Neighboring Landowner Protection Program as well as the required implementation of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species.

Except where noted in the individual effect sections below, activities under the conservation strategy, such as establishment of conservation easements would not cause adverse effects on biological resources; however, covered management activities under the conservation strategy that require ground or vegetation disturbance (e.g. habitat enhancement/restoration/creation, trail building, road decommissioning, demolition, signage, operations and maintenance) could cause adverse effects. The mechanisms for these adverse effects would be the same as described for other activities under the No Action Alternative for each resource. The maximum habitat acreage take limits for each covered species under the Yolo HCP/NCCP are shown in Table 4-2.

Table 4-2 Maximum Habitat Based Take Limits, Covered Species, Proposed Action Alternative

Species	Existing Modeled Habitat in Plan Area (acres)	Take Limit, Permanent	Take Limit, Temporary	% Remaining ^a
Valley elderberry longhorn beetle				
Riparian habitat	9,447	523	0	94.5%
Non-riparian habitat	3,932	61	1	98.4%
Total	13,379	584	1	95.6%
California tiger salamander				
Aquatic breeding habitat	1,004	12	1	98.8%
Upland habitat	86,505	398	1	99.5%
Total	87,509	410	2	99.5%
Western pond turtle				
Aquatic habitat	53,907	369	31	99.3%
Nesting and overwintering habitat	137,185	3,133	112	97.7%
Total	191,092	3,502	143	98.2%
Giant garter snake				
Rice habitat	31,168	87	0	99.7%
Aquatic habitat	6,596	109	1	98.3%
Freshwater emergent habitat	25,897	76	0	99.7%
Active season upland movement	6,612	441	3	93.3%
Overwintering habitat	6,783	1,235	5	81.8%
Total	77,056	1,966	9	97.4%
Swainson's hawk				
Nesting habitat	15,673	651	0	95.8%
Natural foraging habitat	79,336	1,407	22	98.2%
Agricultural foraging habitat	214,078	9,399	2	95.6%
Total	309,087	11,757	24	96.2%
Nest trees	534	20 ^c	0	96.3%
White-tailed kite				
Nesting habitat	31,732	987	0	96.9%
Primary foraging habitat	101,758	2,609	29	97.4%
Secondary foraging habitat	134,740	7,969	5	94.1%
Total	268,230	11,565	34	95.7%
Western yellow-billed cuckoo				
Nesting/foraging habitat	3,868	59	0	98.5%
Western burrowing owl				
Primary habitat	37,694	861	1	97.7%
Other habitat	66,160	2,311	18	96.5%
Total	103,854	3,172	19	96.9%

Table 4-2 Maximum Habitat Based Take Limits, Covered Species, Proposed Action Alternative

Species	Existing Modeled Habitat in Plan Area (acres)	Take Limit, Permanent	Take Limit, Temporary	% Remaining ^a
Least Bell's vireo				
Nesting/foraging habitat	4,719	39	0	99.2%
Bank swallow				
Nesting habitat ^b	962	37	0	96.2% ^b
Tricolored blackbird				
Nesting habitat	4,680	86	0	98.2%
Foraging habitat	261,133	8,942	30	96.6%
Total	265,813	9,028	30	96.6%
Palmate-bracted bird's beak				
Habitat	312	4	0	98.7%
^a Rounded to nearest 0.1 percent ^b Actual nest sites will be avoided. Up to 37 acres of barren floodplain may be permanently affected by bank stabilization activities along Cache Creek undertaken through the CCRMP as needed to protect property or valuable resources. Additional barren floodplain is expected to be created during the 50-year permit term, however, as a result of the natural, dynamic fluvial processes along Cache Creek. ^c The effects analysis based on the covered activities footprint and operations and maintenance assumptions predicts 37 nest trees may be removed. However, the Swainson's hawk nest tree take limit is set at 20 to account for the implementation of avoidance and minimization measures. The number of nest trees per planning unit will not exceed those provided in Table 5-5 of the HCP/NCCP, and the total will not exceed 20 nest trees. Source: Yolo Habitat Conservancy 2017, data source shared by Table 5-2(a)				

The primary result of the Neighboring Landowner Protection Program, from a biological resources perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary Neighboring Landowner Protection Program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. The program would not change conditions related to most biological resources (e.g., species not covered under the program, sensitive habitats), however there may be additional considerations for the individual species covered under the program that will be discussed in the individual effects discussions below.

All covered activities implemented under the Proposed Action, including both development and conservation actions would be subject to applicable AMMs required by the HCP/NCCP, which would reduce impacts to biological resources. The AMMs that would reduce the likelihood of biological resource impacts are shown in Table 2-7 and discussed in detail in Appendix C. These AMMs include project design and construction AMMs that would reduce impacts from covered activities to biological resources in general including; establishing buffers between projects and sensitive natural communities during project design; designing projects to minimize indirect effects to non-agricultural natural communities, including noise, light, pets, and accidental dispersal of non-native plants; confining and delineating work areas during construction; covering trenches and holes during construction and maintenance to avoid trapping covered species; controlling fugitive dust; conducting worker training on the protection of sensitive natural communities and covered species; directing nighttime lighting in construction areas into the construction site and away from natural habitats and; locate construction and staging areas to avoid and minimize temporary effects on covered species and sensitive habitats. In addition to these general project and construction AMMs there are specific AMMs for cache Creek projects, sensitive natural communities, and individual covered species. These AMMs are discussed in the relevant effect sections below. All AMMs minimize effects on one or more covered species; therefore, a listing of relevant AMMs is not provided here as it would simply repeat information provided in Table 2-7 and Appendix C.

Environmental Consequences/Environmental Effects

Effect Bio-1: Palmate-bracted bird's-beak.

Palmate-bracted bird's-beak is a covered species under the Yolo HCP/NCCP and is listed as endangered under both the FESA and CESA. A detailed description of the species and known occurrences south east of Woodland, along with identification of modeled suitable habitat can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in palmate-bracted bird's-beak habitat loss and/or mortality would be required to implement general project and construction AMMs as discussed above, to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take of palmate-bracted bird's-beak. These species-specific AMMs are detailed in Appendix C and include identification of suitable habitat, surveys, and avoidance of activity within 250 feet of occupied habitat unless a shorter distance is determined to avoid effects and approved by the Conservancy, USFWS, and CDFW.

The conservation strategy includes a monitoring and adaptive management component, incorporation of pre-permit reserve lands, and a specific biological objective to manage and enhance habitat for the conservation of palmate-bracted bird's-beak. In addition to this species-specific objective, the conservation strategy also has three objectives related to the protection and management of the alkali prairie natural community as a whole. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands that will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As a result of the conservation strategy, 174 acres of palmate-bracted bird's-beak habitat would be protected, monitored and adaptively managed, including 141 acres of pre-permit reserve lands and 33 newly protected acres. In addition, 3 acres of habitat for the species is anticipated to be restored assuming maximum allowable loss (Yolo Habitat Conservancy 2017).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that is incorporated and connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on palmate-bracted bird's-beak.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-2: Valley elderberry longhorn beetle.

Valley elderberry longhorn beetle is proposed for coverage under the Yolo HCP/NCCP and is listed as threatened under the FESA. The species account for valley elderberry longhorn beetle habitat and occurrences in the Plan Area can be found in Appendix D. Valley elderberry longhorn beetle modeled habitat within the Plan Area includes 9,447 acres of riparian habitat and 3,932 acres of non-riparian habitat for a total of 13,379 acres of habitat for the species.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the

Neighboring Land Owner Program provides take coverage for valley elderberry longhorn beetle on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in valley elderberry longhorn beetle habitat loss and/or mortality would be required to implement general project and construction AMMs (Table 2-7) as discussed above to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on valley elderberry longhorn beetle. These species-specific AMMs are shown in Table 2-7 and detailed in Appendix C and include surveys and designing projects to avoid mapped elderberry shrubs as well as protective measures consistent with USFWS guidelines (USFWS 1999).

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and two specific biological objectives for the conservation of valley elderberry longhorn beetle. The first objective is to prioritize protection of populations of valley elderberry longhorn beetle along Lower Cache Creek and Lower Putah Creek and Sacramento River, and adjacent lands within the 1,600 acres of valley foothill riparian habitat in the reserve system to provide for valley elderberry longhorn beetle population expansion. The second objective is to establish elderberry shrubs and associated riparian plant species within valley foothill riparian habitats on reserve system lands and prioritize lands adjacent to existing populations to provide for population expansion. In addition to species specific objectives, the conservation strategy prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands; these lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, 2,306 acres of valley elderberry longhorn beetle habitat would be protected, monitored and adaptively managed. In addition, riparian habitat for valley elderberry longhorn beetle restored is estimated to exceed the acres lost by 53 acres (Yolo Habitat Conservancy 2017). Although there is a net loss of the less valuable non-riparian habitat of 61 acres, the incorporation of specific elderberry planting rations (Yolo Habitat Conservancy 2017), as well as monitoring and adaptive management into the conservation strategy would ensure successful restoration of riparian habitat.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in a net gain in high quality restored riparian habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on valley elderberry longhorn beetle. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-3: California tiger salamander.

California tiger salamander (Central Distinct Population Segment) is proposed for coverage under the Yolo HCP/NCCP and is listed as a threatened species under FESA and critical habitat has also been designated for the species. The species is also listed as threatened under CESA. The description of modeled valley

California tiger salamander habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 1,004 acres of modeled aquatic breeding habitat and 86,505 acres of modeled upland habitat for the species in the Plan Area. The majority of this habitat loss will occur in the Dunnigan Hills and Colusa Basin Plains Planning Units.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for California tiger salamander on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in California tiger salamander habitat loss and/or mortality would be required to implement general project and construction AMMs as discussed above to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on California tiger salamander. These species-specific AMMs are shown in Table 2-7, and detailed in Appendix C and include surveys for suitable habitat and occurrences in accordance with CDFW protocols (California Department of Fish and Game 2003). Examples of species specific AMMs include: a 500-foot setback from suitable habitat for projects other than habitat management and enhancement; a requirement that projects that affect occupied or assumed to be occupied habitat will not be implemented until four new occurrences are documented and protected in the Plan Area; and a requirement that habitat will not be removed if the Wildlife Agencies determine that the covered activity would remove a significant occurrence of this species that could be necessary for maintaining the genetic diversity or regional distribution of the species.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and specific biological objectives for the conservation of California tiger salamander. The first objective is to prioritize protection of at least 2,000 acres of modeled upland habitat (within 1.3 miles of aquatic habitat) with the Dunnigan Hills Planning Unit and to prioritize protection of designated critical habitat. The second objective is to protect at least 36 acres of aquatic habitat and to restore or create an additional 36 acres that includes at least five breeding pools that support all life stages through all water years. In addition to species-specific objectives, the conservation strategy includes objectives related to the natural grassland community that would protect 3,000 acres of grassland within the Dunnigan Hills Planning Unit and enhance habitat quality through the increase in abundance of rodent burrows and reducing invasive plant occurrences. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 2,438 acres of California tiger salamander habitat would be protected, monitored and adaptively managed. In addition, aquatic habitat for California tiger salamander restored is estimated to exceed that lost by 24 acres.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in a net gain in restored aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species-specific AMMs that would further reduce adverse effects on California tiger salamander. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-4: Western pond turtle.

Western pond turtle is proposed for coverage under the Yolo HCP/NCCP, and is a California species of special concern. The description of modeled western pond turtle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. Within the Plan Area, western pond turtles have been observed in the Sacramento River, Putah Creek Riparian Reserve, Putah Creek Sinks, Lower Willow Slough, West Sacramento, and in storm water detention basins in the City of Davis. There are 53,907 acres of modeled aquatic habitat and 137,158 acres of modeled upland habitat, including 1,152 perennial ponds in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. The restoration of western pond turtle aquatic habitat is estimated to result in the permanent loss of up to 1,118 acres of upland habitat for the species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for western pond turtle on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western pond turtle habitat loss and/or mortality would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on western pond turtle. These species specific AMMs are detailed in Appendix C and are the same as those for the valley foothill riparian and lacustrine and riverine natural communities that require 100 foot setbacks for construction.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and a specific biological objective for the conservation of western pond turtle to include habitat features within restored and enhanced lacustrine and riverine habitats that benefit western pond turtle. In addition to the species-specific objective, the conservation strategy includes objectives to protect 2,800 acres of rice fields and 500 acres of emergent wetland as well as 600 acres of lacustrine and riverine habitat suitable for western pond turtle. Under the Proposed Action, western pond turtle would also benefit from objectives for giant garter snake that would provide suitable habitat in the form of at least 3,475 acres of upland giant garter snake habitat. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

As the result of the conservation strategy, a total of 9,320 acres of western pond turtle habitat would be protected, monitored and adaptively managed. In addition, implementation of the conservation strategy includes restoration of 369 acres of aquatic habitat for western pond turtle which is expected to result in a no net loss of aquatic habitat.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further

reduce adverse effects on western pond turtle. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-5: Giant garter snake.

Giant garter snake is proposed for coverage under the Yolo HCP/ NCCP and is listed as threatened under both FESA and CESA. This species is associated with permanent or seasonal marshes and rice fields in the Plan Area, and is absent from areas with dense vegetation that lack basking sites. Giant garter snakes also require upland habitat above the high water mark as winter refuge during dormancy. The species is known to occur northwest of Knights Landing and near Sycamore Slough and the Colusa Basin Drainage Canal in the northeastern portion of the Plan Area. The species is also known to occur east of Davis in the vicinity of the Yolo Bypass including the rice fields to the east of the Yolo Bypass Wildlife Area, as well as recent surveys within the Yolo Bypass. The description of modeled giant garter snake habitat and list of occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 31,168 acres of rice field habitat, 25,897 acres of freshwater emergent habitat, and 6,596 acres of other aquatic habitat for giant garter snake in the Plan Area. There also 6,612 acres of upland movement habitat and 6,783 acres of overwintering habitat.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for giant garter snake on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in giant garter snake habitat loss and/or mortality, would be required to implement general project and construction AMMs as discussed above to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement an AMM specific to the avoidance and minimization of take of giant garter snake. This species specific AMM is shown in Table 2-7 and detailed in Appendix C. This AMM requires avoidance of development in or within 200 feet of aquatic habitat, and if habitat cannot be avoided survey using the USFWS protocol (USFWS 1997), as well as additional measures to encourage giant garter snakes to leave the site on their own accord, and measures to avoid injury or mortality if giant garter snakes are encountered during construction.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 2,910 acres of giant garter snake habitat on pre-permit reserve lands, and specific biological objectives for the conservation of giant garter snake including; protecting 2,800 acres of rice fields, 1,160 acres of upland habitat, 500 acres of emergent wetland, and 420 acres of lacustrine and riverine suitable habitat for giant garter snake. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

As the result of the conservation strategy, a total of 10,290 acres of giant garter snake would be protected, monitored and adaptively managed. In addition, the connectivity of habitat, as well as monitoring and adaptive management under the conservation strategy would provide additional value beyond the project by project mitigation that would occur under the No Action Alternative.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on giant garter snake. However, take granted through the neighboring landowner protection program could reduce the beneficial effects of the conservation strategy.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-6: Swainson's hawk.

Swainson's hawk is proposed for coverage under the Yolo HCP/NCCP and is listed as a Bird of Conservation Concern by the USFWS and as threatened under CESA. Swainson's hawk is a seasonal resident of the Plan Area and is generally present from early March, to occupy previous nesting territories or establish new territories, until October, when young have fledged and fall migration is complete. Nesting habitat is predominately within natural riparian woodlands, though trees may be used in other natural and developed habitat types. Foraging habitat consists of natural grassland and agricultural land types that provide similar low open vegetation and high rodent densities (e.g., alfalfa, dry grain and row crops). A complete description of modeled Swainson's hawk habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 15,673 acres of nesting habitat, 534 nesting sites, 79,336 acres of natural foraging habitat, and 214,078 acres of agricultural foraging habitat in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in Swainson's hawk habitat loss and/or mortality, would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement an AMM specific to the avoidance and minimization of take on Swainson's hawk and white-tailed kite. This species specific AMM is detailed in Appendix C and requires avoidance of nest trees, or implementation of surveys for active nests as outlined by Swainson's Hawk Technical Advisory Committee (2000) and buffers around active nests. This AMM does allow for the removal of up to 20 nest trees (documented nesting within last 5 years) over the permit term, but not while occupied during the nesting season.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 4,795 acres of Swainson's hawk habitat on pre-permit reserve lands, and biological objectives for the conservation of Swainson's hawk including; maintaining crop types that support Swainson's hawk habitat within the 14,362 acres of protected agricultural lands, provide 4,430 acres of natural foraging habitat, protect and maintain at least 40 protected nest trees, and maintain a density of one suitable nest tree per 10 acres of agricultural lands in the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 26,031 acres of Swainson's hawk habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on Swainson's hawk.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-7: White-tailed kite.

White-tailed kite is proposed for coverage under the Yolo HCP/NCCP and is a California fully protected species and protected under the MBTA. White-tailed kite is a year-round resident of the Plan Area that has similar nesting habitat to that described for Swainson's hawk though the species exhibits less of a preference for a specific vegetation type. Foraging habitat is also similar to that of Swainson's hawk, though defined for the purpose of this analysis as more frequently used primary and less frequently used secondary foraging habitat. A complete description of modeled white-tailed kite habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 31,732 acres of nesting habitat, 531 nesting sites, 101,758 acres of primary foraging habitat, and 134,740 acres of secondary foraging habitat in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in white-tailed kite habitat loss and/or mortality would be required to implement general project and construction AMMs and the same species specific AMMs as discussed above for Swainson's hawk.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 2,545 acres of white-tailed kite habitat on pre-permit reserve lands. There are no specific biological objectives for the conservation of white-tailed kite, though the natural community objectives related to its habitat provide conservation for the species. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 24,795 acres of white-tailed kite habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on white-tailed kite.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-8: Western burrowing owl.

Western burrowing owl is proposed for coverage under the Yolo HCP/NCCP. The species is also a USFWS Bird of Conservation Concern, protected under the MBTA, and a California species of special concern. The species is a year-round resident of the Plan Area that is associated with grassland, agricultural lands, and is also found in developed areas where patches of habitat exist. Western burrowing owls utilize abandoned ground squirrel burrows for nesting and are often found in locations with a high density of burrows. Within the Plan Area, there are 37,694 acres of primary habitat (e.g., natural lands, pastures, and other open or barren areas on the lower slopes and valley floors) and 66,160 acres of other habitat (e.g. margins of agricultural fields) utilized by the species. A complete description of modeled white-tailed kite habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for western burrowing owl on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western burrowing owl habitat loss and/or mortality would be required to implement general project and construction AMMs as well as species-specific AMMs. These species-specific AMMs include; survey and avoidance of burrows and if needed passive relocation (or active relocation with Wildlife Agency approval). This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 1,100 acres of western burrowing owl habitat on pre-permit reserve lands. In addition, there are several biological objectives for the conservation of western burrowing owl that include 3,000 acres of western burrowing owl habitat within the protected grassland natural community and 2,500 acres within the protected non-rice agricultural lands. Biological objectives also include maintaining a minimum of two active nest sites for each nesting pair displaced by covered activities, prioritization of protecting occupied habitat in the Yolo Bypass and vicinity, and implementation of management and enhancement practices within the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 6,600 acres of western burrowing owl habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western burrowing owl.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-9: Least bell's vireo.

Least Bell's vireo is listed as endangered under both the FESA and CESA as well as protected under the MBTA. The species is migratory and has historically bred within riparian habitats within the Plan Area, although surveys within the Yolo Bypass Wildlife Area have not detected breeding behavior in the last several years. There is currently 4,719 acres of modeled nesting/foraging habitat for least Bell's vireo in the Plan Area. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in least Bell's vireo habitat loss and/or mortality would be required to implement general project and construction AMMs as well as a species specific AMM. This species specific AMM includes; USFWS protocol surveys and buffers from suitable nesting habitat and nests, or a limited operating period if activities occur within the buffer. This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 110 acres of least Bell's vireo habitat on pre-permit reserve lands. There is also a biological objective for the conservation of least Bell's vireo that includes at least 600 acres of least Bell's vireo habitat within the protected valley foothill riparian natural community. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, a total of 1,278 acres of western burrowing owl habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on least Bell's vireo.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-10: Bank swallow.

Bank swallow is proposed for coverage under the Yolo HCP/NCCP and is listed under CESA as threatened and is protected under the MBTA. This species migrates to the Plan Area to breed in colonies in vertical cliffs and cut banks along rivers, streams, quarries, and road-cuts. Colonies have been documented in the past along the Sacramento River and Cache Creek. A complete description of modeled habitat, which includes the entire erodible open floodplain, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy such as implementation of conservation easements would not cause adverse effects on bank swallow, nor would covered management activities under the conservation strategy that require construction or other similar activities as none of these activities are anticipated to occur with bank swallow habitat.

Mining and bank stabilization activities under the Proposed Action Alternative that have the potential to result in bank swallow habitat loss and/or mortality would be required to implement general project and construction AMMs, and the Cache Creek Resources Management Plan. In addition, a species-specific AMM would also be required that includes; USFWS protocol surveys and buffers of suitable nesting habitat and colonies, or a limited operating period if activities occur within the buffer. This species-specific AMM is detailed Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the implementation of biological objectives for the conservation of bank swallow that includes at least 50 acres of nesting habitat within occupied habitat within the Lower Cache Creek Planning Unit or along the Sacramento River and managing of this habitat to enhance habitat value. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on bank swallow.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact *is less than significant* as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-11: Tricolored blackbird.

Tricolored blackbird is proposed for coverage under the Yolo HCP/NCCP and is a candidate for listing as endangered under CESA and is protected under the MBTA. Tricolored blackbird is a year-round resident of the Plan Area and breeding colonies have been documented in several locations including the Yolo Bypass. The species is associated with a variety of habitats for nesting including wetlands, and agricultural areas. The species is known to forage in natural and agricultural areas that contain high densities of insects. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in tricolored blackbird habitat loss and/or mortality, would be required to implement general project and construction AMMs as well as a species-specific AMM. This species specific AMM includes; surveys for habitat and nesting colonies, buffers, and limited operating periods. This species-specific AMM is detailed in Appendix D.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 4,150 acres of tricolored blackbird habitat on pre-permit reserve lands. There are also

biological objectives for the conservation of tricolored blackbird that include; at least 200 acres of modeled tricolor blackbird habitat within the protected emergent wetland natural community, and maintenance of at least one tricolored blackbird colony within the reserve system and prioritization protection of additional colonies as they are found. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 21,046 acres of tricolored blackbird habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on tricolored blackbird.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-12: Western yellow-billed cuckoo.

Western yellow-billed cuckoo is proposed for coverage under the Yolo HCP/NCCP and is listed as threatened under the FESA and CESA. The species is migratory and arrives in the Central Valley of California in July and breeds and forages within riparian habitat. There are no current records of nesting individuals within the Plan Area, although nesting has been observed in nearby Sutter County. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western yellow-billed cuckoo habitat loss and/or mortality would be required to implement general project and construction AMMs as well as a species specific AMM. This species specific AMM includes; surveys for habitat and nests, buffers, and limited operating periods. This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 135 acres of western yellow-billed cuckoo habitat on pre-permit reserve lands. There is also a biological objective for the conservation of western yellow-billed cuckoo to conserve at least 500 acres of modeled western yellow-billed cuckoo habitat within the protected valley foothill riparian natural community, and restore at least 60 acres of habitat for the species within the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 695 acres of western yellow-billed cuckoo habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that

incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western yellow-billed cuckoo.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-13 Special-status plants not covered by Yolo HCP/NCCP.

There are 27 special-status plant species that are either known to occur or have at least a moderate chance to occur in the Plan Area, and potentially be subject to impacts from covered activities. Complete description of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are further categorized by the natural land cover types in which they are predominately found. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for special-status species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above. These AMMs could reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP from covered activities by requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats. Other AMMs require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. When covered and non-covered species habitat overlap, these AMMs could prevent adverse effects on special-status plant species not covered by the Yolo HCP/NCCP that are associated with these sensitive natural communities and aquatic habitats. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status plant species.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status plant species not covered by the Yolo HCP/NCCP. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for these species including; Alkali prairie and vernal complex, valley foothill riparian, and freshwater emergent wetlands. For those species associated with alkali prairie (i.e. alkali milk-vetch, brittlescale, San Joaquin spearscale, Heckard's pepper-grass), the species specific AMM, goal and objective for palmate-bracted bird's-beak would also provide additional habitat benefits. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for these plant species overlap with Covered Species habitat located within the reserve system, these species could also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one

cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, future projects compliance with CEQA further reduces effects on these species, and there is compensation for effects that cannot be fully avoided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

No mitigation is required.

Effect Bio-14: Special-status vernal pool invertebrates.

Three special-status vernal pool invertebrates are known to occur within the Plan Area; Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Critical habitat has been designated within the Plan Area for these species. These three species are associated almost exclusively with vernal pool habitats with associated seasonal wetlands. A more complete description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D.

There are no projects and activities under the Proposed Action Alternative, including conservation strategy activities, that have the potential to result in vernal pool invertebrate habitat loss and/or mortality. Adverse effects on vernal pools and vernal pool invertebrates is not a covered activity. However, there is also an AMM, AMM9, that requires establishment of a 250-foot buffer around vernal pool habitat. Land cover mapping required as part of the process for obtaining HCP/NCCP coverage for a project (see Section 4.2.2 of the HCP/NCCP) would identify whether any vernal pool habitats are in a project site. In addition, any covered activities would be required to implement general project and construction AMMs as discussed above. Those AMMs that have water quality benefits (Table 9-1) could also further benefit vernal pool invertebrate species when habitats for these species are near the edge of the buffer required by AMM9. The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect vernal pool complex habitat; however, 96 percent of this habitat type is currently located on baseline public and easement lands (Yolo Habitat Conservancy 2017).

Conservation activities under the Proposed Action Alternative and other covered activities will not receive take coverage for adverse effects to vernal pool invertebrates, including loss of vernal pool species habitat. Therefore, there are no potential adverse effects on vernal pool habitat, vernal pool invertebrate species, or critical habitat for vernal pool tadpole shrimp that would result from the conservation strategy or implementation of the covered activities under the Proposed Action Alternative. If an individual project or activity may affect federally listed vernal pool species or their designated critical habitats those projects would not qualify for coverage under the Plan and would be required to seek individual incidental take authorization (through Section 7 or 10) from the USFWS. As part of authorization, a qualified biologist will conduct protocol surveys for vernal pool species. Surveys will follow the most current USFWS protocols. In addition, implementation of any required minimization and mitigation measures.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**, although there is a potential for small benefits to these species.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as there are no covered activities under the Proposed Action Alternative that would result in vernal pool invertebrate habitat loss and/or mortality.

No mitigation is required.

Effect Bio-15: Special-status amphibians not covered by Yolo HCP/NCCP.

Two CDFW species of special concern amphibians that are not covered species under the Yolo HCP/NCCP are known to occur within the Plan Area; western spadefoot, and foothill yellow-legged frog. A description of these species' habitats and known occurrences in the Plan Area can be found in Appendix D. Habitat for these species have not been specifically modeled for this EIS/EIR analysis, but includes the following aquatic and upland habitat types within the Plan Area; lacustrine and riverine, fresh emergent wetland, vernal pool complex, valley foothill riparian, chamise chaparral, mixed chaparral, blue oak woodland, valley oak woodland, and grassland. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for special-status amphibian species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to avoid adverse effects on California tiger salamander, to establish buffers around sensitive natural communities, and to avoid and minimize effects on wetlands and waters. These AMMs could reduce adverse effects on western spadefoot and foothill yellow-legged frog from covered activities by requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats. Other AMMs require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. When covered species habitat overlaps with habitat for western spadefoot toad and foothill yellow-legged frog, these AMMs could prevent adverse effects on these two amphibian species. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status plant species.

Specific to vernal pool habitats, there are no projects and activities under the Proposed Action Alternative, including conservation strategy activities, that have the potential to result in vernal pool habitat loss. Adverse effects on vernal pools is not a covered activity. However, there is also an AMM, AMM9, that requires establishment of a 250-foot buffer around vernal pool habitat. Land cover mapping required as part of the process for obtaining HCP/NCCP coverage for a project (see Section 4.2.2 of the HCP/NCCP) would identify whether any vernal pool habitats are in a project site. In addition, any covered activities would be required to implement general project and construction AMMs as discussed above. Those AMMs that have water quality benefits (Table 9-1) could also further benefit special-status amphibian species not covered by the HCP/NCCP when habitats for these species are near the edge of the buffer required by AMM9.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect western spadefoot or foothill yellow-legged frog. There are specific goals and objectives for natural community types that provide potentially suitable habitat for these species, however, including; lacustrine and riverine, fresh emergent wetland, grassland, and valley foothill riparian. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for western spadefoot toad and foothill yellow-legged frog are located within the reserve system, these species would benefit from reserve connectivity that limits the effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. Restoration activities under the conservation strategy may impact suitable upland grassland habitat (210 acres) for western spadefoot and foothill yellow-legged frog, although some of these restoration activities would result in the creation of suitable aquatic habitat in the form of 956 acres of wetlands and riparian natural communities (Yolo Habitat Conservancy 2017).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one

cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western spadefoot and foothill yellow-legged frog.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, future projects compliance with CEQA further reduces effects on these species, and there is compensation for effects that cannot be fully avoided through protection of over 24,000 acres of various natural communities, some of which are suitable for western spadefoot toad and foothill yellow-legged frog, in newly protected conservation lands.

No mitigation is required.

Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.

There are 17 special-status bird species that are either known to occur or have at least a moderate chance to occur in the Plan Area and may be adversely affected by covered activities. Complete descriptions of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are categorized into a nesting raptor group which includes those species that are known or are likely to nest in the Plan Area based on potentially suitable natural land cover types and other factors. The remaining species are analyzed in the following groups based on the natural land cover types in which they are predominately found; wetland birds, riparian birds and grassland/woodland birds. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for special-status species bird species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. These AMMs could reduce any adverse effects on special-status bird species not covered by the Yolo HCP/NCCP. Project specific compliance with CEQA and the MBTA would also be required and measures to identify and avoid active bird nests.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status bird species not covered by the Yolo HCP/NCCP. There are specific goals and objectives for natural community types that provide potentially suitable habitat for these species, however, including; cultivated lands, grassland, valley foothill riparian, lacustrine and riverine, and freshwater emergent wetlands. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where suitable habitats for these species are located within the reserve system, these species would also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. In addition, there is a specific objective for maintaining or enhancing cultivated lands for raptors that would benefit non-covered raptor species. Biological objectives for covered bird species may also provide benefits for non-covered bird species; for example, maintaining crops that support Swainson's hawk habitat will also benefit species that utilize these types of crops as habitat (e.g. northern harrier, short-eared owl, and loggerhead shrike).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one

cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status bird species not covered by the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, compliance with CEQA and the MBTA further reduces effects on these species, and there is and compensation for effects that cannot be fully avoided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

No mitigation is required.

Effect Bio-17: Special-status bats.

There are three special-status bat species that are known to occur in the Plan Area. A description of these species' habitats and known occurrences in the Plan Area can be found in Appendix D and discussed for the No Action Alternative above. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential permanent habitat loss due to covered activities would be the same for Townsend's big-eared bat, pallid bat and western red bat as discussed under the No Action Alternative above, including the demolition of abandoned buildings as part of development and conservation projects and activities, as well as reconstruction of bridges that can result in loss of roosts for Pallid and Townsend's big-eared bat.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities, including valley foothill riparian. By requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats, these AMMs could reduce adverse effects on special-status bat species from covered activities, including roosts of western red bat that utilizes the foliage of riparian trees for day and maternity roosts. Additional AMMs would minimize the potential for destruction of some pallid bat or Townsend's big-eared bat maternity roosts through minimizing disturbance to adjacent properties (Townsend's big-eared bat is highly sensitive to disturbance) and protecting oak woodland habitats. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status bat species, and in particular, bat roosts.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status bat species not covered by the Yolo HCP/NCCP. However, there are specific goals and objectives for natural community types that provide potentially suitable foraging habitat for these species including; cultivated lands, grassland, and valley foothill riparian. These goals and objectives would also increase the number of potential roosts for pallid bat and western red bat; however, these goals and objectives would not increase potential roosts for Townsend's big-eared bat. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for these special-status bat species overlap with Covered Species habitat located within the reserve system, these bat species could also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant** because the potential to adversely affect maternity roosts for the red bat and Townsend's big-eared bat would be similar for the Proposed Action Alternative and the No Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these special-status bat species, future projects compliance with CEQA further reduces effects on these species, and there is further benefits to the species provided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

No mitigation is required.

Effect Bio-18 American badger.

American Badger is a California species of special concern and there are four historical records of the species occurring in Yolo County. The most recent documented occurrence of the species was recorded west of Davis in 1997. American badgers occur in a wide variety of open, arid habitats but are most commonly associated with grassland, savannas, mountain meadows, and open areas of desert scrub; the principal habitat requirements for the species appear to be sufficient food (burrowing rodents), friable soils for construction of burrows, and relatively open, uncultivated ground. Within the Plan Area, American badgers are likely to be associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, grassland, and alkali prairie where suitable soils for burrows are available. Suitable habitat for these species has not been specifically modeled for this analysis, but includes the natural community types listed above. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for American badger as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), along with AMMs to require buffers alkali prairie. These AMMs could reduce any adverse effects on American badger. Project specific compliance with CEQA would also be required for many projects and activities and would result in implementation of measures to identify, minimize, and/or compensate for effects on American badger.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect American badger. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for the species including; grassland, and alkali prairie. American badger will benefit from over 4,400 acres of suitable habitats included in the reserve system as new conservation lands. American badger could also benefit from the reserve connectivity that limits the effects of habitat fragmentation as well as the monitoring and adaptive management strategies applied to the reserve system.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to American badger above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on American badger.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on American

badger, future projects compliance with CEQA further reduces effects on this species, this species, and there is compensation for effects that cannot be fully avoided through protection of over 4,400 acres of suitable habitat types in newly protected conservation lands.

No mitigation is required.

Effect Bio-19: Special-status fish species.

There are 10 special-status fish species, Distinct Population Segments (DPS), and Evolutionarily Significant Units (ESU) that are either known to occur or have at least a moderate chance to occur in the Plan Area; North American green sturgeon, southern DPS, delta smelt, longfin smelt, steelhead – Central Valley DPS, chinook salmon – Sacramento River winter-run ESU, chinook salmon – Central Valley spring-run ESU, chinook salmon – Central Valley fall/late-run ESU, eulachon, Sacramento splittail, and river lamprey. Critical habitat for delta smelt, North American green sturgeon, steelhead, chinook salmon Sacramento River winter-run ESU, chinook salmon – Central Valley spring-run ESU, chinook salmon also has been designated within the Plan Area. Complete descriptions of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Suitable habitat for these species has not been specifically modeled for this analysis, but rather the analysis is based on the potentially suitable natural community types in the Plan Area.

The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for special-status fish species and critical habitat as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. These AMMs would likely reduce any adverse effects on special-status fishes and designated critical habitat from covered activities.

If an individual project or activity may result in take of federal or state listed fish species or adversely affects their designated critical habitats, those projects would not qualify for coverage under the Plan and would be required to seek individual incidental take authorization (through Section 7 or 10) from the NMFS and/or USFWS for federally listed species and take authorization from CDFW for state listed species. In addition, implementation of any minimization and mitigation measures would be required.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status fish species or designated critical habitat. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for these species including; valley foothill riparian, lacustrine and riverine, and freshwater emergent wetlands. Biological objectives for covered wetland species may also provide benefits for non-covered fish species (e.g. western pond turtle and giant garter snake).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status fish species and designated critical habitat.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as individual projects or activities that may result in take of a federally listed fish species or adversely affect

their designated critical habitats would not qualify for coverage under the Plan. Therefore, covered activities would not result in take of federally listed fish species or adversely affect their designated critical habitats.

No mitigation is required.

Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.

Seven of the natural communities identified in the Plan Area are considered sensitive habitats for the purpose of this analysis due to their limited distribution, unique plant communities that exist within these types and/or their relative importance to wildlife species; alkali prairie, blue oak woodland, freshwater emergent wetland, lacustrine and riverine, serpentine, valley foothill riparian and valley oak woodland. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent loss due to covered activities would be the same for sensitive habitats including wetlands and other waters of the U.S. as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters by meeting the requirements of the applicable State and federal regulations discussed under the No Action Alternative. These AMMs would likely reduce adverse effects on sensitive habitat types from covered activities, though loss of sensitive habitats and wetlands would occur.

The conservation strategy under the Proposed Action Alternative includes commitments and objectives to protect natural communities including those considered sensitive that would be adversely affected by the proposed action. These objectives would protect manage, enhance and restore sensitive habitats within the reserve system that are subject to loss under the Proposed Action Alternative including; protection of 33 acres of alkali prairie; protection of 1,600 acres and restoration of 608 acres of valley foothill riparian; protect 500 acres and restore 88 acres of freshwater emergent wetland; and protect 600 acres and restore 236 acres of lacustrine and riverine. This restoration of freshwater emergent wetland; and protect 600 acres and restore 236 acres of lacustrine and riverine freshwater emergent wetland and lacustrine and riverine achieves no net loss of these types, while protecting additional acres.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to sensitive habitats and wetlands and waters of the United States over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a reserve system that is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and sensitive habitat AMMs that would further reduce adverse effects sensitive habitats and wetlands and waters of the United States.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on sensitive habitats species and compensation for effects that cannot be fully avoided.

No mitigation is required.

Effect Bio-21: Wildlife movement corridors.

The California Essential Habitat Connectivity Project is a recently-completed, peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife ECAs (Exhibit 4-2. The English Hills - Blue Ridge/ Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA all pass through or are wholly within the Plan Area.

The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential for projects to adversely affect wildlife movement corridors as defined by ECAs would be the same for both alternatives. However, under the Proposed Action covered activities would be required to implement AMMs, as discussed in the description of this alternative above, that would avoid and mitigate adverse effects on the natural communities that function to provide movement within ECAs. In addition, one of the landscape level goals of the conservation strategy is to provide large interconnected landscapes through the conservation of natural community types (Yolo Habitat Conservancy 2017). This goal would limit the effects of habitat fragmentation on wildlife movement corridors in the Plan Area.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to wildlife movement corridors over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a connected reserve system. In addition, all covered activities would be subject to AMMs that would further reduce adverse effects on wildlife movement corridors.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** as wildlife movement corridors would be retained, and in some cases, may be enhanced relative to existing conditions.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and current projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative. For all of the biological resources considered in this analysis, the Proposed Action Alternative would result in a beneficial impact or less than significant impact relative to the No Action Alternative. Relative to Existing Conditions, all impacts would be less than significant either before or after mitigation. Given the regional benefits to biological resources provided by the Conservation Strategy, no impact under the Proposed Action would not result in a cumulatively considerable contribution to a significant adverse cumulative effect.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative there are eight areas designated for development under the Proposed Action where activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. Under the Reduced Take Alternative, Effect Bio-1, Bio-10, and Bio-14 would not be appreciably different from what is described for the Proposed Action Alternative because habitat for these species does not occur in the eight areas where take would not occur. Therefore, Effect Bio-1, Bio-10, and Bio-14 are not discussed further in this section.

If activities are restricted to those that do not result in take in the eight designated areas, development currently planned for these locations could be diverted to other portions of the Plan Area. Biological resources at these new locations could then be adversely affected; although, under this alternative, it is assumed that the take prohibitions in the eight designated areas transfer to any locations where development might be displaced. Because it would require significant speculation to project how much development would actually be diverted, and where it might be located, the evaluation below only addresses the limitations on take in the eight designated areas.

Other than assuming that no take of covered species would occur in the eight identified areas, and that development could be displaced to another location under the same take restriction, all other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, AMMs, monitoring, funding) remain the same under this alternative.

Environmental Consequences/Environmental Effects

Effect Bio-2: Valley elderberry longhorn beetle.

Under Reduced Take Alternative, there would be approximately 91 fewer acres of valley elderberry longhorn beetle habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in the same acres protected in a connected reserve system as the Proposed Action Alternative. More high quality riparian habitat would be restored than would likely be required under the No Action Alternative. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on valley elderberry longhorn beetle.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-3: California tiger salamander.

Under the Reduced Take Alternative, there would be approximately 87 fewer acres of California tiger salamander upland habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Dunnigan Specific Plan Area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on California tiger salamander.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is reduced and **less than significant**.

No mitigation is required

Effect Bio-4: Western pond turtle.

Under the Reduced Take Alternative, there would be approximately 19 fewer acres of western pond turtle aquatic habitat and 199 fewer acres of western pond turtle upland habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, the Dunnigan Specific Plan Area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy

is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western pond turtle.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-5: Giant garter snake.

Under the Reduced Take Alternative, there would be approximately 56 fewer acres of active season upland habitat, 17 fewer acres of aquatic habitat, and 103 fewer acres of upland giant garter snake habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, the Dunnigan Specific Plan Area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on giant garter snake.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-6: Swainson's hawk.

Under the Reduced Take Alternative, there would be approximately 96 fewer acres of Swainson's hawk nesting habitat and 1,053 acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, the Dunnigan Specific Plan Area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on Swainson's hawk.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-7: White-tailed kite.

Under the Reduced Take Alternative, there would be approximately 96 fewer acres of white-tailed kite nesting habitat and 1,256 acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in Clarksburg, Davis, the Dunnigan Specific Plan Area, Elkhorn, and West Sacramento. (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on white-tailed kite.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and **less than significant**.

No mitigation is required

Effect Bio-8: Western burrowing owl.

Under the Reduced Take Alternative, there would be approximately 270 fewer acres of western burrowing owl habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, and the Dunnigan Specific Plan Areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western burrowing owl.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-9: Least bell's vireo.

Under the Reduced Take Alternative, there would be approximately 21 fewer acres of least Bell's vireo habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the North Yolo Bypass area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on least Bell's vireo.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-11: Tricolored blackbird.

Under the Reduced Take Alternative, there would be approximately one fewer acre of tricolored blackbird nesting habitat and 1,070 fewer acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, the Dunnigan Specific Plan Area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat restored which may include tricolored blackbird habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on tricolored blackbird.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-12: Western yellow-billed cuckoo.

Under the Reduced Take Alternative, there would be approximately 14 fewer acres of western yellow-billed cuckoo habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Elkhorn area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western yellow-billed cuckoo.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-13: Special-status plants not covered by Yolo HCP/NCCP.

Under the Reduced Take Alternative, there would be fewer acres of potentially suitable habitat for special-status plant species not covered by the Yolo HCP/NCCP lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. There would be approximately 155 fewer acres of development that would occur in potentially suitable grassland habitat for bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon; approximately four fewer acres in potentially suitable freshwater emergent wetland habitat for Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass,

bearded popcorn flower, Suisun Marsh aster, saline clover, and Solano grass; and approximately 51 acres in valley foothill riparian habitat for Northern California Black walnut. As previously noted, suitable habitat is not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-15: Special-status Amphibians Not Covered by Yolo HCP/NCCP

Under the Reduced Take Alternative, there would be approximately 55 fewer acres of potentially suitable aquatic and riparian habitat and approximately 155 acres of potentially grassland habitat for western spadefoot and foothill yellow-legged frog lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on western spadefoot and foothill yellow-legged frog.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.

Under the Reduced Take Alternative, there would be fewer acres of potentially suitable habitat for special-status bird species not covered by the HCP/NCCP lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. There would be approximately 69 fewer acres lost in potentially suitable habitat for bald eagle; approximately 1,273 fewer acres of potentially suitable habitat lost for northern harrier and short-eared owl; approximately fewer 6 acres of potentially suitable habitat for least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird; approximately 51 fewer acres of potentially suitable habitat for purple martin and yellow-breasted chat; and approximately 1,256 acres of potentially suitable habitat for mountain plover, loggerhead shrike, and grasshopper sparrow. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve

system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on special-status bird species.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-17: Special-status bats.

Under the Reduced Take Alternative, there would be 51 fewer acres of potentially suitable valley riparian habitat for special-status bats lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system than would likely be required under the No Action Alternative. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status bat species.

NEPA Level of Significance: As compared to the No Action Alternative, and with implementation of Mitigation Measure Bio-17, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less, and with implementation of Mitigation Measure Bio-17, this impact is **less than significant**.

Effect Bio-18 American Badger

Under the Reduced Take Alternative, there would be approximately 155 fewer acres of potentially suitable habitat for American badger lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on American badger.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-19: Special-status fish species.

Under the Reduced Take Alternative, there would be approximately 73 fewer acres of potentially suitable habitat for special-status fish species lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. The majority of potentially suitable habitat retained under the Reduced Take Alternative is located within designated critical habitat for delta smelt, North American green sturgeon, steelhead and chinook salmon in the North Yolo Basin, South Yolo Basin, and West Sacramento Planning Areas. As previously noted, suitable habitat was not modeled for these species

and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

If habitat for federally listed fish species or designated critical habitat is located within the project footprint of covered activities, a qualified biologist will conduct an evaluation to determine if any federally listed species or designated critical habitat would be affected. If an individual covered activity may result in take of a federally listed fish species or adversely affect their designated critical habitats those projects would not be qualified for coverage under the Plan but would be required to seek individual incidental take authorization (through Section 7 or 10) from the USFWS and/or NMFS including implementation of any required minimization and mitigation measures.

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on special-status fish species.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.

Under the Reduced Take Alternative, there would be 55 fewer acres of sensitive habitat types including wetlands and waters of the United States lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be various AMMs that would further reduce adverse effects on sensitive habitat types including wetlands and waters of the United States.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required

Effect Bio 21: Wildlife movement corridors.

The California Essential Habitat Connectivity Project is a recently-completed, peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife ECAs (Exhibit 4-3). The English Hills - Blue Ridge/ Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA all pass through or are wholly within the Plan Area.

Under the Reduced Take Alternative, there would be less development and less habitat loss within ECAs in the vicinity of Clarksburg and West Sacramento as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss within ECAs under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is also expected to result in additional benefits to wildlife movement corridors over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a connected reserve system. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on wildlife movement corridors.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on biological resources in the Plan Area from the Reduced Take Alternative would be similar to those under the Proposed Action Alternative, however due to the potential for an overall reduction in development under the Reduced Take Alternative, the potential effects could be reduced on the biological resources analyzed with the exception of palmate-bracted bird's-beak, bank swallow, and special-status vernal pool invertebrates which would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

ALTERNATIVE D- REDUCED DEVELOPMENT ALTERNATIVE

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development that resulted in take of listed species in these locations would be required to obtain FESA and CESA authorization on a project by project basis (see Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Effects related to biological resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action; however, given that less development could occur within the two designated areas, there is the potential for less adverse effects from development related to biological resources. However, if these areas were developed some time in the future, effects on biological resources would be the same as those for the Proposed Action, although the HCP/NCCP would not be available as a mechanism to address losses of these resources. Mitigation in these two designated areas would be more similar to what would occur under the No Action Alternative.

Effects on biological resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, as AMMs would be implemented for some, but not all activities under this alternative, the resulting impacts would be less than those for the No Action Alternative, but potentially greater than the Proposed Action Alternative. Under the Reduced Development Alternative, Effect Bio-1, Bio-10, and Bio -14 would not be appreciably different from what is described for the Proposed Action Alternative because habitat for these species does not occur in the two areas included in this alternative. Therefore, Effect Bio-1, Bio-10, and Bio -14 are not discussed further in this section.

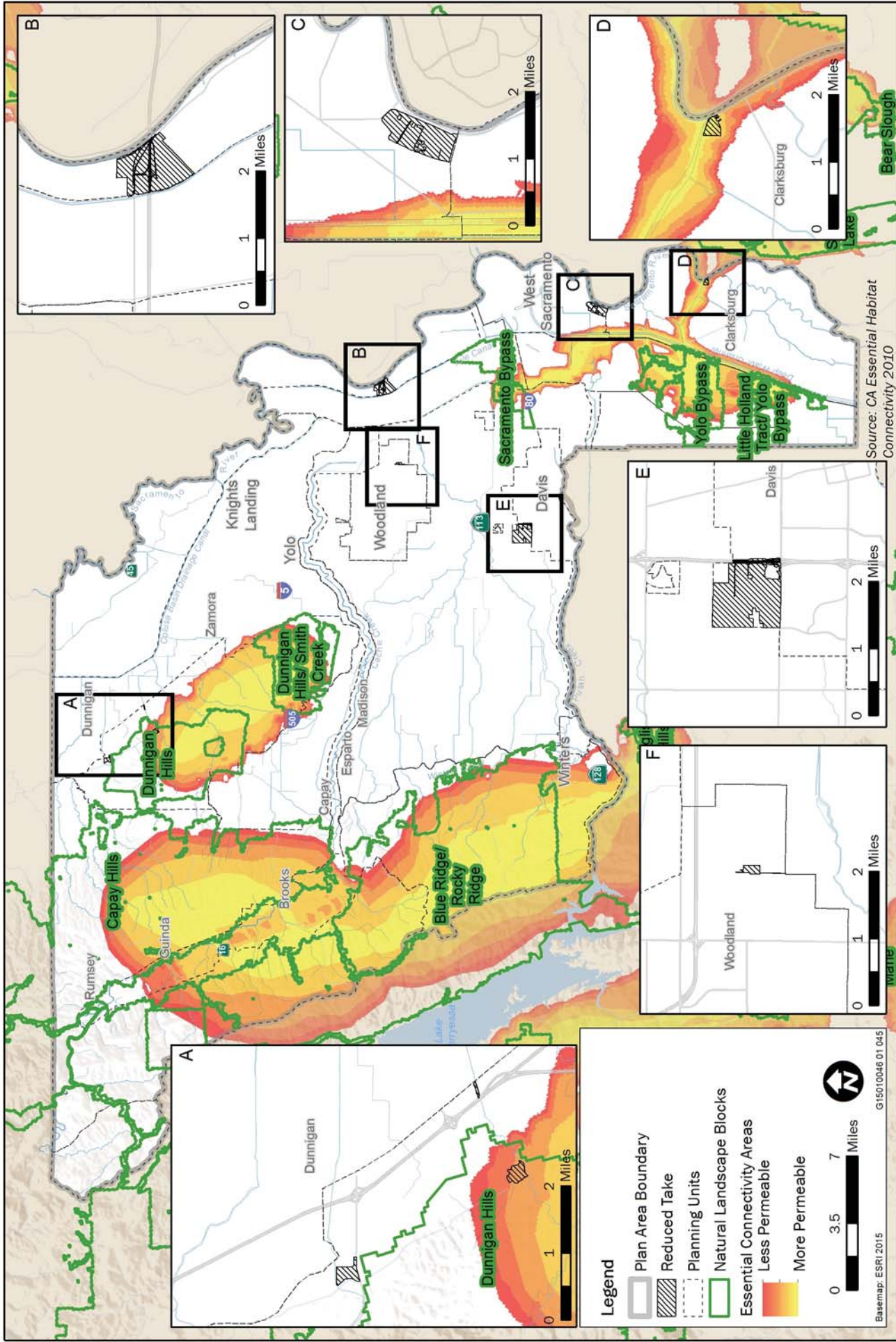


Exhibit 4-3

Reduced Take Alternative

Effect Bio-2: Valley elderberry longhorn beetle.

As described above, the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 21 acres of development in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for take of valley elderberry longhorn beetle and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-3: California tiger salamander.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 93 acres of development in the west side of the Dunnigan Specific Plan Area that would not be covered under the Yolo HCP/NCCP that is within California Tiger Salamander suitable habitat (1 acre of aquatic habitat and 92 acres of upland habitat). While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for take of California tiger salamander and its habitat and designated critical habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-4: Western pond turtle.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under The Reduced Development Alternative there would be approximately 111 acres of development in the Dunnigan Specific Plan Area and Elkhorn Specific Plan Area that is expected to result in permanent loss of modeled western pond turtle habitat that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western pond turtle and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-5: Giant garter snake.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 91 acres of development in the Dunnigan Specific Plan Area and the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP, but would result in permanent loss of modeled giant garter snake habitat (10 acres of aquatic habitat and 81 acres of upland habitat). While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for giant garter snake and its habitat as under the No Action Alternative. These activities could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-6: Swainson's hawk.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 1,056 acres of development in the Dunnigan Specific Plan Area and Elkhorn Specific Plan Area that would result in permanent loss of Swainson's hawk habitat (approximately 891 acres of agricultural foraging, 94 acres of natural foraging and 70 acres of nesting habitat). This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for Swainson's hawk and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-7: White-tailed kite.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 956 acres of development in the Dunnigan Specific Plan Area and Elkhorn Specific Plan Area that would result in permanent loss of white-tailed kite habitat (70 acres of nesting, 92 acres of primary foraging and 792 acres of secondary foraging habitat). This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for white-tailed kite and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for

the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-8: Western burrowing owl.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 94 acres of development in the Dunnigan Specific Plan Area that would result in permanent loss of western burrowing owl habitat. This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western burrowing owl and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-9: Least bell's vireo.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 21 acres of development in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP, but would result in permanent loss of modeled least Bell's vireo habitat. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for least Bell's vireo and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-11: Tricolored blackbird.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 870 acres of development in the Dunnigan Specific Plan Area and Elkhorn Specific Plan Area that would permanently remove tricolored blackbird foraging habitat. This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for

tricolored black bird and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-12: Western yellow-billed cuckoo.

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under The Reduced Development Alternative there would be 14 acres of development within western yellow-billed cuckoo modeled habitat in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western yellow-billed cuckoo and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-13: Special-status plants not covered by Yolo HCP/NCCP.

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. There would be approximately 92 acres of development that would occur in potentially suitable grassland habitat for bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon; approximately 6 acres in potentially suitable freshwater emergent wetland habitat for Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass, bearded popcorn flower, Suisun Marsh aster, saline clover, and Solano grass; and approximately 23 acres in valley foothill riparian habitat for Northern California Black walnut.

While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-15: Special-status amphibians not covered by Yolo HCP/NCCP.

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 131 acres of development that would occur in potentially suitable habitat for western spadefoot and foothill yellow-legged frog and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. This development would occur in; approximately 33 acres of potentially suitable habitat for bald eagle; approximately 867 acres of potentially suitable habitat for northern harrier and short-eared owl; approximately 6 acres of potentially suitable habitat for least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird; approximately 23 acres of potentially suitable habitat for purple martin and yellow-breasted chat; and approximately 870 acres of potentially suitable habitat for mountain plover, loggerhead shrike, and grasshopper sparrow. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-17 Special-status bats.

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 23 acres of development that could occur in potentially suitable valley and foothill riparian habitat for special-status bats and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation of habitat types in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on special-

status bats as they would not be subject to the same general AMMs as required under the Yolo HCP/NCCP, though adverse effects to roosts would be the same as under the No Project Alternative. Implementation of Mitigation Measure Bio-17 (described above for Effect Bio-17 under the Proposed Action Alternative) would reduce this impact to a less than significant level for the Reduced Development Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, and with implementation of Mitigation Measure Bio-17, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar, and with implementation of Mitigation Measure Bio-17 is **less than significant**.

Effect Bio-18 American badger.

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 92 acres of development in the Dunnigan Specific Plan Area that would occur in potentially suitable habitat for American badger and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-19: Special-status fish species.

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 33 acres of development that would occur in potentially suitable habitat for special-status fish species and designated critical habitat for North American green sturgeon, steelhead and chinook salmon and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. This development would occur in freshwater emergent wetland (6 acres), lacustrine and riverine (2 acres), and valley foothill riparian (23

acres). While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required

Effect Bio 21: Wildlife movement corridors.

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development in the Dunnigan Specific Plan Area that would occur in Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA (Exhibit 4-4) that would occur and would not be covered under the Yolo/HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on wildlife movement corridors because they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

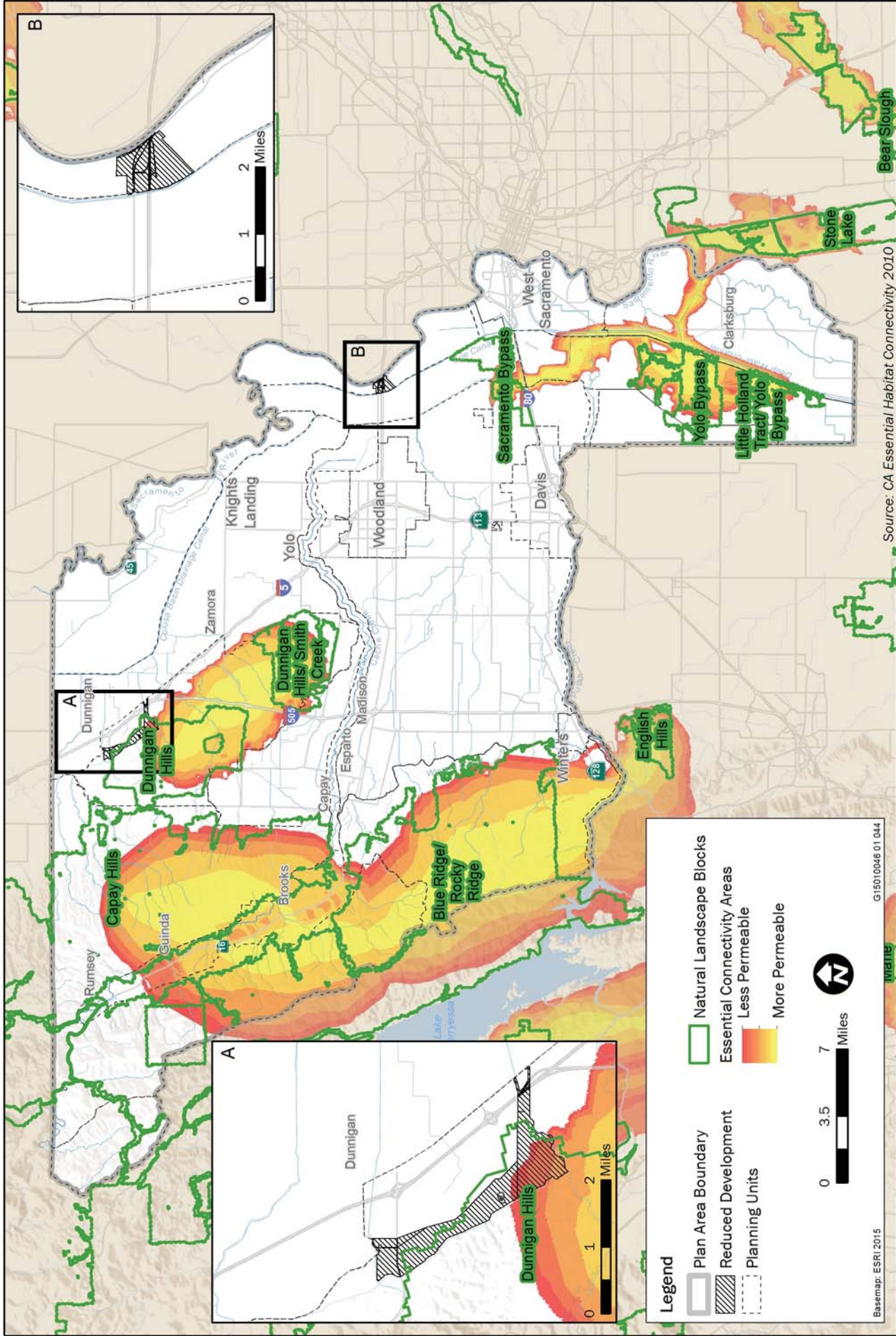
No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The contribution of the Reduced Development Alternative to the cumulative condition of biological resources in the Plan Area would be similar to that from the Proposed Action Alternative, in the type, scope and location of activities implemented, as well as the implementation of AMMs that would further reduce negative effects on water quality. However, unlike the Proposed Action Alternative, under the Reduced Development Alternative, some activities that could potentially be implemented in the future would not be covered under the Yolo HCP/NCCP and would not be subject to the same AMMs. Still, like the Proposed Action Alternative, the Reduced Development Alternative would result in less of a cumulatively considerable contribution to a significant cumulative effect than the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.



Reduced Development Alternative

Exhibit 4-4

5 LAND USE

5.1 INTRODUCTION

This chapter provides information relevant to land use impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes an introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

5.1.1 Data Sources

The following sources of information were reviewed to prepare the land use chapter.

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County General Plan) (Yolo County 2009a),
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County General Plan EIR) (Yolo County 2009b),
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of Davis Draft Environmental Impact Report for the City of Davis General Plan Update and the Establishment of a New Junior High School Site* (Davis General Plan EIR) (Davis 2000),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016a),
- ▲ *City of West Sacramento General Plan Update EIR* (City of West Sacramento 2016b),
- ▲ *City of Winters General Plan* (City of Winters 1992a),
- ▲ *City of Winters General Plan EIR* (City of Winters 1992b),
- ▲ *City of Woodland General Plan* (City of Woodland 2002), and
- ▲ *City of Woodland General Plan EIR* (City of Woodland 1996).

5.1.2 Definitions

Common land use categories typically found in one form or another across municipalities consist of open space, agriculture, parks and recreation, residential, commercial, industrial, public and quasi-public, and specific plan designations. Land use categories are a method to organize similar land use designations into groups. These categories are generally the same from municipality to municipality. In this chapter, the term “category” is used to describe groups of land use designations of similar uses.

Existing land uses may also be described using the same land use categories. However, data on existing land use is harder to find than for planned land uses. The Yolo HCP/NCCP team did extensive work on examining and assigning land cover types to parcels throughout the Plan Area. Land covers do not directly relate to typical land use categories. In many instances, they are more detailed regarding agricultural or open space categories and less detailed regarding “developed” categories, such as residential, commercial, or industrial.

5.2 AFFECTED ENVIRONMENT

5.2.1 Environmental Setting

This section examines existing land use conditions and land use plans in the Plan Area. It provides an overview of the primary land use agencies within the Plan Area and a brief description of each agency's mission and jurisdiction. The Plan Area includes all of Yolo County. Land use plans and policies have been established by the County and by the cities of Davis, West Sacramento, Winters, and Woodland. Broad land use designations within the Plan Area include parks and open space, agriculture, and urban uses (Exhibit 5-1). While land uses vary throughout the county, the majority of the Plan Area consists primarily of agricultural fields and open space lands (including grasslands), with urban development concentrated in a limited number of locations.

EXISTING LAND USES

Yolo County has a total land area of approximately 653,549 acres. Four incorporated cities are located in the County: Davis, West Sacramento, Winters, and Woodland. The unincorporated County contains 15 named unincorporated communities/places: Capay, Clarksburg, Dunnigan, Elkhorn, El Rio Villa, Esparto, Guinda, Knights Landing, Madison, Monument Hills, North Davis Meadows, Rumsey, Willow Oak, Yolo, and Zamora (see Exhibit 2-3). The Plan Area also includes a 1,130-acre expanded Plan Area for riparian conservation in Solano County, on the south side of Putah Creek (see Exhibit 1-1).

For the purposes of this analysis, existing land uses are described in terms of the "land cover types" consistent with the units of analysis used in the HCP/NCCP (see Table 2-1 of the HCP/NCCP). The land cover types are summarized below in Table 5-1 in three ways:

- ▲ Farmlands within the Plan Area include cultivated lands, other agriculture (citrus/subtropical, deciduous fruits/nuts, vineyards, pasture, truck/nursery/berry crops), and semiagricultural/incidental to agriculture land cover types.
- ▲ Undeveloped lands within the Plan Area include the following land cover types: grasslands, shrubland and scrub, woodland and forest, wetland and riparian, and eucalyptus.
- ▲ Developed and barren lands within the Plan Area include barren and developed land cover types.

The majority of land in Yolo County is used for farmland (accounting for 343,336 acres, or 53% of the total land area). Undeveloped lands make up another 40% of the land (261,743 acres). Developed and barren lands account for approximately 7% of total land in Yolo County (47,805 acres).

Table 5-1 shows the percentage of land in different land use categories within the Plan area. Exhibit 5-2 shows where these existing land covers fall within the Plan Area.

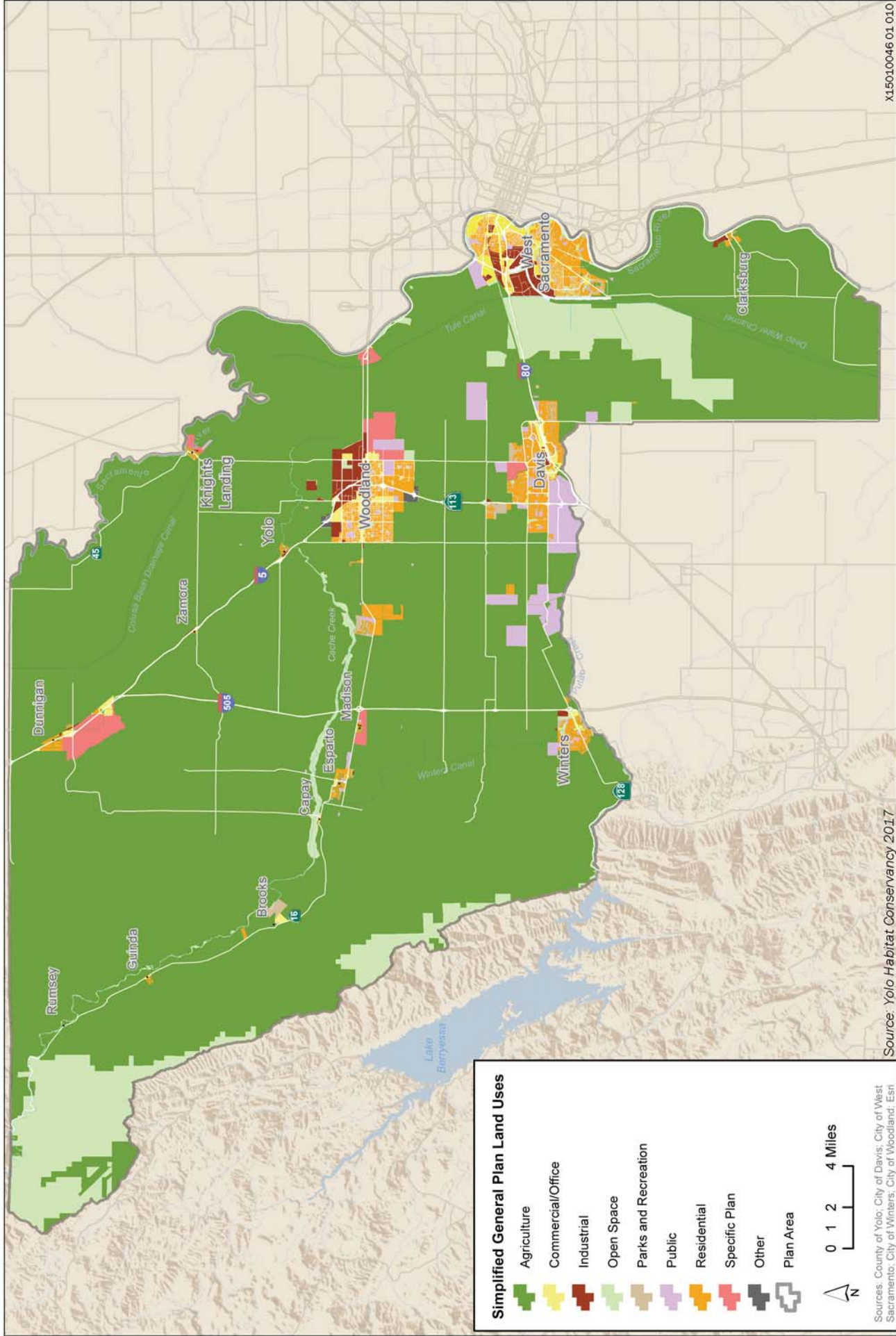


Table 5-1 Existing Land Cover Types in the Plan Area

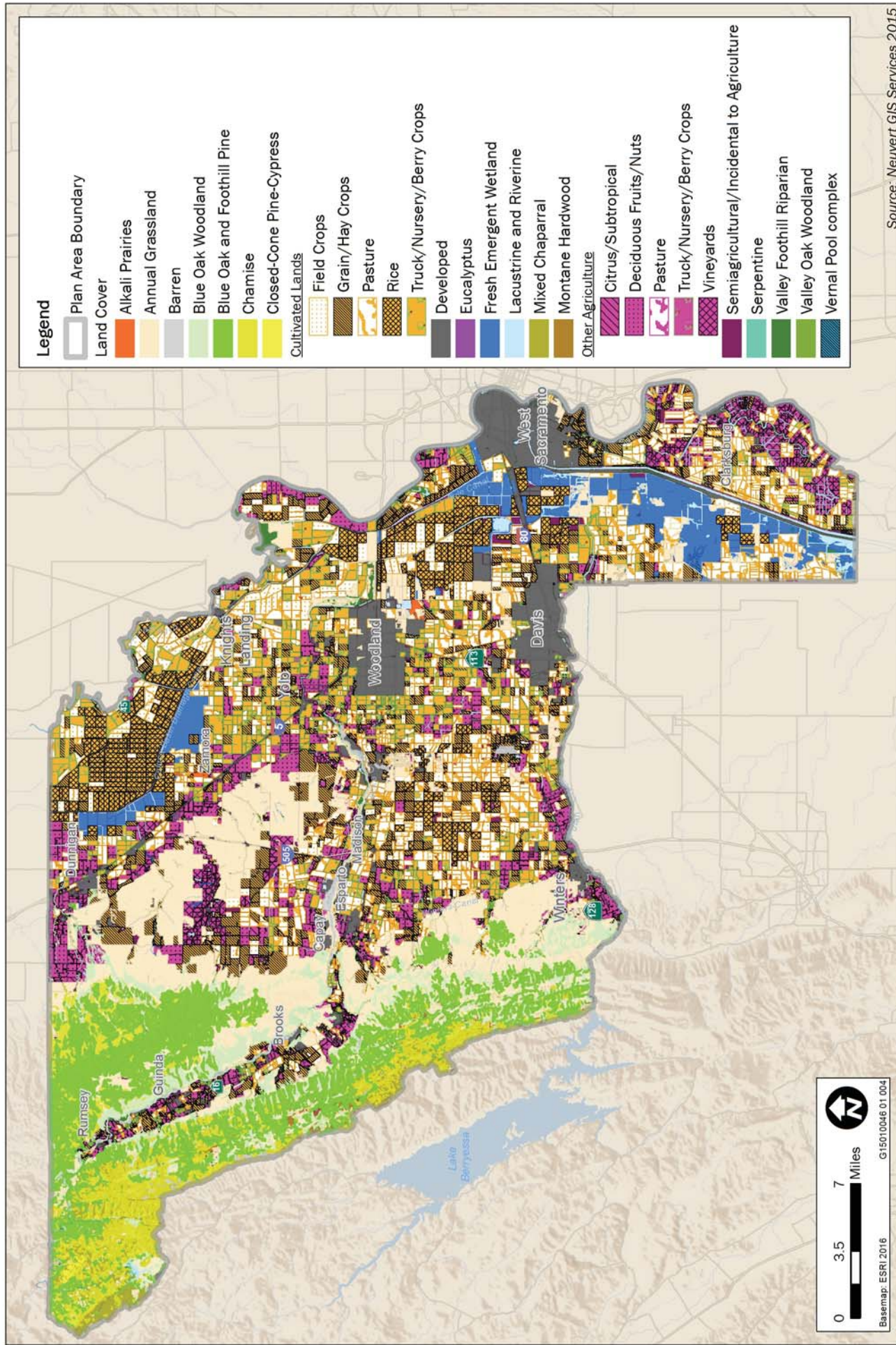
Existing Land Use	Acres	Percent of Plan Area
Farmlands		
Cultivated lands	250,662	38%
Other agriculture	62,164	10%
Semiagricultural/incidental to agriculture	30,510	5%
Total Farmlands	343,336	53%
Undeveloped Lands		
Grassland (including Grazing Land)	81,158	12%
Shrubland and scrub	44,705	7%
Woodland and forest	83,143	13%
Riparian and wetland	52,368	8%
Eucalyptus	369	0%
Total Undeveloped Lands	261,743	40%
Developed and Barren Lands		
Barren	2,122	0%
Developed	45,683	7%
Total Developed and Barren Lands	47,805	7%
Total	653,494^a	100%

Source: Yolo Habitat Conservancy 2017, Adapted from Table 2-1

LAND USE DESIGNATIONS

General plan land uses within the Plan Area are shown on Exhibit 5-1. For HCP/NCCP planning purposes, and for the purposes of this environmental review, land use categories were derived from over 94 designations set forth by Yolo County and the Cities of Davis, Winters, Woodland, and West Sacramento, and were aggregated into the following eight categories:

- ▲ **Agriculture** in the Plan Area includes row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities and equestrian facilities, agricultural industrial uses, and agricultural commercial uses.
- ▲ **Commercial/Office** includes retail centers, grocery stores, restaurants, stores and shops, and offices.
- ▲ **Industrial** includes manufacturing, production, and warehouse and distribution centers.
- ▲ **Open Space** includes public open space lands, major natural water bodies, agricultural buffer areas, and habitat.
- ▲ **Parks and Recreation** includes park facilities, such as regional, community and neighborhood parks; tot lots, sports fields and public pools.
- ▲ **Public** includes governmental offices, schools, and places of worship.



Source: Neuvort GIS Services 2015

Exhibit 5-2

Land Cover

- ▲ **Residential** includes single-family homes and multi-family homes (e.g., duplexes, triplexes, apartment buildings, condominiums).
- ▲ **Specific Plan** indicates the areas included in an area plan, such as Cache Creek Area Plan, the Capay Valley Area Plan, and the Clarksburg General Plan.

These categories are distinct from the existing land use (i.e., land cover) categories in that they correspond to local designations for allowable land uses rather than existing uses that have been mapped within the Plan Area. Exhibit 5-2 shows the existing land uses within the County.

5.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Cache Creek Coordinated Resource Management Plan

The Cache Creek Coordinated Resource Management Plan was adopted by the BLM in 2004 and provides the framework for the future management direction of BLM lands included within the Cache Creek Natural Area.

STATE LAWS AND REGULATIONS

Delta Protection Act of 1992

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any local government's general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta." The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Exhibit 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

DPC is charged with preparing a regional plan for the Primary Zone to address land uses and resources management, with particular emphasis on agriculture, which was designated by the Delta Protection Act as the primary use of this zone. This plan, the Land Use & Resource Management Plan (LURMP) provides guidance to local governments. Specifically, Land Use Policy P-2 and Agriculture Policies P-1 through P-10 address the role of local governments in preserving and protecting long-term agricultural viability and open space values in the Primary Zone through implementation of general plan policies and zoning codes.

California WaterFix/EcoRestore

The California WaterFix project consists of a water conveyance facility with three new intakes on the Sacramento River and dual tunnels to convey water to existing state and federal pumping plants. This system would include construction of two 30-mile long tunnels, each 40 feet in diameter and 150 feet underground. The tunnels would pump as much as 9,000 cubic feet of water per second from the three new intakes on the Sacramento River near Courtland to the Clifton Court Forebay. This project and California EcoRestore replace the Bay Delta Conservation Plan (BDGP), which previously proposed the same project as an HCP/NCCP. The state is no longer pursuing mitigation through an HCP/NCCP. Instead, construction and operation impacts are proposed to be mitigated through about 2,300 acres of habitat restoration and up to 13,300 acres of habitat protection (e.g., conservation easements). California EcoRestore would restore at

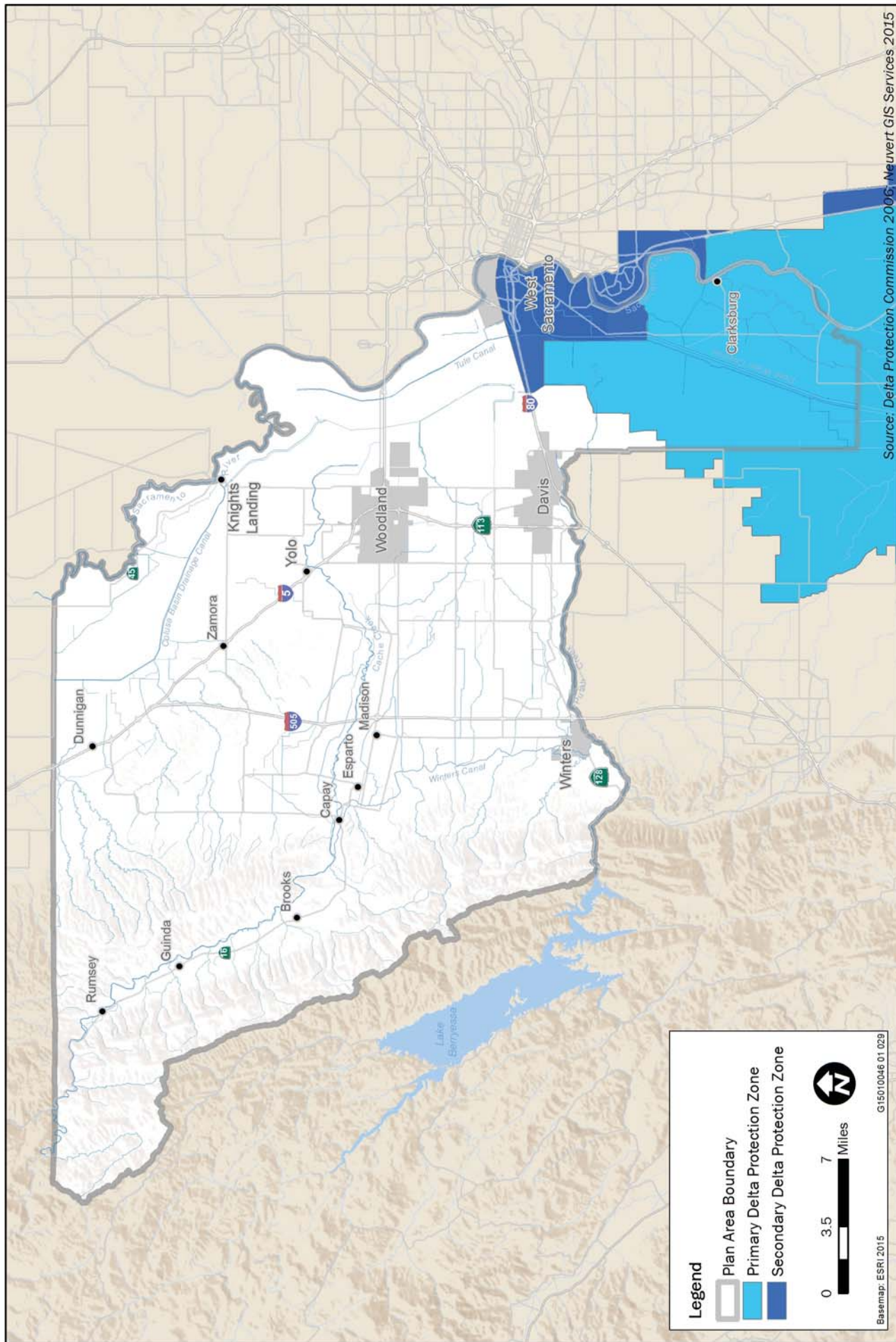


Exhibit 5-3

Delta Protection Zones

least 30,000 acres of habitat in the Sacramento – San Joaquin Delta completely independent of habitat restored as mitigation under California WaterFix, including the lower Yolo Bypass and the Clarksburg region. The WaterFix/EcoRestore are still in the planning phases and have not yet started construction of projects.

Yolo Bypass Wildlife Area Land Management Plan

The Land Management Plan (LMP) for the Yolo Bypass Wildlife Area (Wildlife Area) covers approximately 16,770 acres within the Yolo Bypass in Yolo County. The purpose of the Wildlife Area (which is managed by the California Department of Fish and Wildlife) is to protect and enhance habitat for wildlife species, and to provide the public with compatible, wildlife-related recreational uses. The Wildlife Area has existed since the first land acquisition in 1991 and the LMP proposes continuation of an ecosystem-based approach to management of the diverse mosaic of natural communities. The Wildlife Area provides habitat for special-status species, game species, and other native and nonnative species. This LMP provides a description of the Wildlife Area and its environment and also includes an evaluation of public uses that are compatible with the purpose of the Wildlife Area. This LMP is a general policy guide to the management of the Wildlife Area. It does not specifically authorize or make a precommitment to any substantive physical changes to the Wildlife Area. With the exception of ongoing restoration and enhancement, and operations and maintenance activities, any substantive physical changes that are not currently approved will require subsequent authorizations and approvals.

LOCAL LAWS AND REGULATIONS

Yolo County General Plan

The 2030 Countywide General Plan (Yolo County 2009a) contains land use, agriculture, open space, and resource conservation goals, objectives, and policies that are reflective of local public needs and wishes for a better physical and natural community environment throughout the county. It also incorporates the community area plans for the Capay Valley, Clarksburg and Clarksburg Area, Dunnigan, East Yolo, Esparto, Knights Landing, Madison, and Southport areas, and urban area plans for Woodland, Davis, and Winters.

The following policies related to land use are potentially relevant to the Plan:

- ▲ **Policy LU-2.4** Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city SOIs.
- ▲ **Policy LU-3.7** Prohibit the designation of new urban development in places with one or more of the following characteristics:

 - Areas without adequate emergency services and utility capacity and where there are no capital improvement plans to pay for and construct new facilities that can accommodate the proposed development.
 - Areas where there are significant hazards and where there are no plans to adequately mitigate the risk (e.g. floodplains, high fire hazard areas, unstable soils, known seismic faults, etc.).
 - Areas where there are significant natural resources (e.g. groundwater recharge, wildlife habitat, mineral or timber resources, scenic areas, etc.).
 - Areas not contiguous to existing urban development.
- ▲ **Policy LU-4.2** Continue active involvement with State and regional efforts to establish policy, regulation and management for the Delta, to promote the economic and social sustainability of the town of Clarksburg, the viability of the Agricultural District, the habitat needs of the Yolo Natural Heritage Program and the water resources needed for the success of each of these efforts.

- ▲ **Policy LU-7.2** Support and participate in countywide, regional and other multi-agency planning efforts related to housing, tourism, air quality, open space, green infrastructure, recreation, agriculture, habitat conservation, energy, emergency preparedness and flood protection.
- ▲ **Policy CO-1.1** Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.
- ▲ **Policy CO-1.14** Support the preservation of open space consistent with this General Plan, via acquisition of fee title or easement interest by land trusts, government agencies, and conservancies from willing landowners.
- ▲ **Policy CO-1.15** Support efforts to acquire either fee title or easements on additional open space areas adjoining existing protected natural resource areas to increase the size, connectivity, and buffering of existing habitat.
- ▲ **Policy CO-1.16** Coordinate open space acquisition with habitat acquisition that occurs pursuant to the Yolo Natural Heritage Program.
- ▲ **Policy CO-1.24** Allow for specified areas of resource parks to be preserved, enhanced and/or restored as mitigation sites for public agencies only, consistent with the requirements of appropriate regulatory and funding agencies, provided that adequate compensation, including funding for operations and maintenance of the mitigation, is provided.
- ▲ **Policy CO-1.29** Balance the needs of agriculture with recreation, flood management, and habitat, within the Yolo Bypass.
- ▲ **Policy CO-2.1** Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.
- ▲ **Policy CO-2.4** Coordinate with other regional efforts (e.g., Yolo County HCP/NCCP) to sustain or recover special-status species populations by preserving and enhancing habitats for special-status species.
- ▲ **Policy CO-2.11** Ensure that open space buffers are provided between sensitive habitat and planned development.
- ▲ **Policy CO-3.1** Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.
- ▲ **Policy CC-2.15** Develop all services, parks, buffers and infrastructure within identified community growth boundaries. Mitigation lands for the loss of agricultural land and wildlife habitat are the only component of community development that are allowed to be located outside of the growth boundaries.
- ▲ **Policy CC-3.10F.** Avoid biological impacts to sensitive species and habitats, to the greatest feasible extent and fully mitigated where they occur, particularly inside designated critical habitat for the California tiger salamander.
- ▲ **Policy AG-2.10** Encourage habitat protection and management that does not preclude or unreasonably restrict on-site agricultural production.

Yolo County Specific/Community/Area Plans

The County has 8 community and area plans which serve to implement the General Plan for the particular geographical area. These plans are: the Cache Creek Area Plan (1996); the Capay Valley Area Plan (2010); the Clarksburg General Plan (2001); the Dunnigan General Plan (2001); the Esparto General Plan (2007);

the Knights Landing General Plan and County Airport Master Plan (1999); the Madison Community Plan (1974); and the Monument Hills Specific Plan (1984).

Yolo County Parks and Open Space Master Plan

The purpose of the Parks and Open Space Master Plan (Master Plan) is to provide information and guidance for the management, use, and future development of Yolo County parks and open space facilities, both individually and system-wide. The Master Plan provides baseline inventories and assessments of recreational uses, as well as system-wide classifications and design elements to reinforce an identity and management consistency for county park property. Relevant policies and actions are described on pages VI-1 to VI-4 and VI-8 to VI-22 of the Master Plan (Yolo County 2006a).

Yolo County Oak Woodland Conservation and Enhancement Plan

The *Yolo County Oak Woodland Conservation and Enhancement Plan* (Yolo County 2007) promotes voluntary efforts to conserve and enhance the county's existing oak woodlands to help minimize the effects of land conversion and other factors that disturb the health and longevity of existing oak woodlands.

Yolo County Zoning Code

Title 8 of the Yolo County Code, Land Development and Zoning, contains the zoning code (Article 2) and describes the permitted land uses and development standards within each zoning district. As the primary regulatory tool for implementing the Yolo County General Plan, the Zoning Ordinance provides specific requirements for each district, consistent with the land use designations within the Yolo County General Plan. Development standards include height, setback, and parking requirements.

City of Davis General Plan

Chapter 1, Land Use and Growth Management, of the City of Davis General Plan contain the following goals and policies potentially relevant to this Plan.

Goal LU 1. Maintain Davis as a small, University-oriented city surrounded by and containing farmland, greenbelt, and natural habitats and reserves.

- ▲ **Policy LU 1.4** Establish a distinct permanent urban edge which shall be defined by an open space, hedgerows, tree rows, similar landscape
- ▲ **Policy LU 1.5** Aggressively work to prevent urban sprawl on the periphery of Davis and in the region utilizing a variety of legislative / legal methods and strategic land acquisitions.
- ▲ **Policy LU 1.6** For developments that are on the edge of City, a minimum of a 150-foot wide urban agricultural transition area is required.

City of Davis Zoning Code

Chapter 40 of Davis Municipal Code contains the City's zoning code. The code zones property within the incorporated City limits. Specific zoning ordinances are provided for different land uses (e.g., residential, commercial, etc.) and special circumstances (e.g., accessory structures, parking requirements, etc.).

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goals and policies that relate to land use and that may be applicable to the analysis of the HCP/NCCP:

Land Use

Goal LU-1. To provide for sustainable, orderly, well-planned, and balanced growth that meets the needs of residents and businesses, uses land efficiently, and is supported by adequate infrastructure.

- ▲ **Policy LU-1.1 Sustainable Development.** The City shall encourage compact development patterns and higher-development intensities that use land efficiently; preserve open space; support transit, bicycle, and pedestrian mobility; increase housing diversity; and provide for strong neighborhood commercial retail viability.
- ▲ **Policy LU-1.11 Annexations within the Planning Area.** For proposed projects outside the city limits, the City shall work with project proponents to ensure high-quality development, adequate infrastructure improvements, adequate flood protection, and provision of City services. All future urban development within the Planning Area should occur under the jurisdiction of the City. To this end, the City shall require that vacant unincorporated properties be annexed into the City prior to the provision of any City services, or that a conditional service agreement be executed agreeing to annex when deemed appropriate by the City. In order to minimize the disruption and protect agricultural land, development that is adjacent to the city boundaries or has convenient freeway access shall be preferred. Proposals for development of land not adjacent to the city or without convenient freeway access shall be discouraged.
- ▲ **Policy LU-1.12 Yolo County Development Approvals.** The City shall encourage Yolo County to honor the City's growth policies and not approve development adjacent to the city limits.

City of West Sacramento Zoning Ordinance

The zoning ordinance is used by the City of West Sacramento to regulate the size, type, structure, and use of land or buildings in designated areas of the City. The zoning ordinance is Chapter 17 of the West Sacramento Municipal Code.

City of Winters General Plan

The following land use related goal and policies of the 1992 City of Winters General Plan are potentially relevant to the Plan.

Goal I.A: To provide for orderly, well-planned, and balanced growth consistent with the limits imposed by the city's infrastructure and service capabilities and by the city's ability to assimilate new growth.

- ▲ **Policy I.A.2.** The City shall designate an Urban Limit Line delineating the area to be urbanized within the time frame of the General Plan and designed to accommodate a population of 12,500 by the year 2010.
- ▲ **Policy I.A.10.** The City shall designate land adjacent to the Urban Limit Line in the northwest part of Winters as Urban Study Area for future consideration of incorporated development. (See Exhibit D-2.)
- ▲ **Policy I.A.11.** The City will strenuously oppose any new unincorporated highway-related commercial or urban development in Yolo or Solano County, with the exception of agricultural industrial uses, within one mile of the City's Urban Limit Line.

City of Winters Zoning Code

Title 17 of the City of Winters Municipal Code contains the zoning ordinance. As stated in Section 17.04.040 *Purpose*, the zoning ordinance is intended to:

- A. Provide specific guidance for the physical development of the city in order to preserve the safety, character and quality of residential neighborhoods, achieve harmonious working relationships between land uses and to achieve the arrangement of land uses prescribed in the general plan;
- B. Achieve consistency with the city's adopted redevelopment area plan;
- C. Promote economic stability of land uses which are consistent with the general plan, including within the central business district;
- D. Ensure the adequate provision of open space for light, air and fire safety;

- E. Conserve and enhance the city's architectural and cultural resources;
- F. Promote safe and effective traffic circulation systems including adequate off-street parking and loading zones for new development; and
- G. Minimize environmental degradation by ensuring orderly development of lands consistent with the general plan.

City of Woodland General Plan

Chapter 1, Land Use and Community Design, of the 2002 Woodland General Plan contains the following land use related goal and policies potentially relevant to the Plan.

Goal 1.A. To grow in an orderly pattern consistent with economic, social and environmental needs, providing for continued small-town character and preservation of surrounding agricultural lands.

- ▲ **Policy 1.A.2.** The City shall contain its urban growth within the Urban Limit Line as designated on the Planning Area Land Use Diagram (Exhibit 1-4).
- ▲ **Policy 1.A.12.** The City shall establish a permanent urban limit line around Woodland to permanently circumscribe urban development and preserve surrounding agricultural lands. The western and northern boundaries are the Urban Limit Line boundaries depicted on Exhibit 1-4. The boundaries to the south and east will be determined after further study.

The City is in process of updating their general plan but has not yet released the final updated general plan. A public draft was released on July 11, 2016; however, the 2002 Woodland General Plan is still in effect until an update is adopted.

City of Woodland Zoning Ordinance

The zoning ordinance is Chapter 25 of the Code of the City of Woodland and provides a precise and detailed plan for the use of land based on the General Plan of the City. It consists of zoning maps designating certain districts and a set of regulations controlling the uses of land, the density of population, the uses and locations of structures, the height and bulk of structures, the open space about structures, the external appearance of certain uses and structures, the areas and dimensions of sites, and requiring the provision of off-street parking, off-street loading facilities of landscaping.

SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy

The Sacramento Area Council of Governments (SACOG) is an association that includes the Counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba, as well as 22 cities, including the cities of Davis, West Sacramento, Winters, and Woodland. As a metropolitan transportation organization, SACOG is required to prepare a long-range transportation plan for all modes of transportation—including public transit, automobile, bicycles, and pedestrians—every 4 years for the six-county area. In response to this requirement, SACOG has completed the *Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2035*. The purpose of the MTP/SCS 2035 is to establish regional access and identify mobility goals; identify present and future transportation needs, deficiencies, and constraints within the transportation system; analyze potential solutions; estimate available funding; and propose investments. The MTP/SCS 2035 does not present requirements for development within the Planning Area; rather, it forms the foundation for regional transportation investments, the Regional Housing Needs Plan, and compliance with federal air quality and state greenhouse gas emissions requirements. On February 18, 2016, the SACOG Board of Directors adopted the 2016 update to the MTP/SCS.

The MTP/SCS is guided by six principles adopted in 2005 by the SACOG Board of Directors (SACOG 2016):

- ▲ Smart Land Use,
- ▲ Environmental Quality and Sustainability,

- ▲ Financial Stewardship,
- ▲ Economic Vitality,
- ▲ Access and Mobility, and
- ▲ Equity and Choice.

SACOG Preferred Blueprint Scenario for 2050 and Preferred Rural-Urban Connections Strategy

The SACOG Preferred Blueprint Scenario serves as a framework to guide local government decisions related to growth and transportation planning through 2050 and the Blueprint is part of SACOG's MTP/SCS 2035.

Building on the Blueprint, the Rural-Urban Connections Strategy looks at the region's growth and sustainability objectives from a rural perspective. In the same way that the Blueprint is an economic development strategy for urban areas, the Rural-Urban Connections Strategy is intended to be an economic and environmental sustainability strategy for rural areas.

Airport Plans

SACOG is the designated Airport Land Use Commission for the counties of Yolo, Sacramento, Sutter, and Yuba. There are four general aviation airports in Yolo County. Three of these airports – Yolo County Airport, Watts-Woodland Airport, and Borges-Clarksburg Airport – are subject to the respective Airport comprehensive land use plans prepared by the Airport Land Use Commission. A fourth airport, University Airport, is subject to an Airport Layout Plan prepared by UC Davis.

5.3 ENVIRONMENTAL CONSEQUENCES

5.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

This analysis assumes that the local general plans and specific plans will be built out as described in Chapter 2, *Proposed Action and Alternatives*. It is assumed that all activities and projects approved by the County and cities would be consistent with the policies of their respective general plans and would be subject to any mitigation measures identified in the general plan EIRs.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on land use in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ physically divide an established community;
- ▲ conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- ▲ conflict with any applicable HCP or natural community conservation plan.

5.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the U.S. Fish and Wildlife Service (USFWS) or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Since development would occur as planned for and allowed under the county and city general plans, land use impacts would be the same as those identified for the general plans. In regard to the physical division of established communities, the environmental reviews performed for all the adopted general plans found no significant land use impacts relating to the physical division of existing communities. Since the No Action Alternative would not change development activity already allowed by these general plans, there would be no new or additional activity that would serve to directly divide established communities. Although this EIS/EIR covers a longer study period than the local general plans, it is anticipated that the nature of longer-term future development activity would not change (i.e., most development consisting as growth or expansion of existing communities), and would therefore also not divide established communities.

Under the No Action Alternative, development and other activities in rural and urban areas within the Plan Area would occur as planned by the plan participants through their general plans, various area plans, and other applicable planning documents. The general plans, area plans, and other applicable planning documents provide the basis for ensuring that future development is consistent with the communities' vision and intention. Under the No Action Alternative, the activities (including conservation and operations and maintenance) would be required to be implemented consistent with policies and regulations of the applicable jurisdiction. If general plans and other applicable policies and regulations are updated within the 50-year study period, activities would need to be implemented consistent with the most updated versions. Since activities would need to be consistent with the applicable plans, there is no impact related to plan consistency.

There are currently no existing regional HCPs or NCCPs initiated by Yolo County municipalities in effect in the Plan Area. Under the No Action Alternative, there would be no adopted Yolo HCP/NCCP for the Plan Area and therefore the existing condition relative to HCPs and NCCPs would not change. However, the Solano Multi-

Species HCP (Solano HCP) covers approximately 8,000 acres of south Yolo County. While not yet adopted, the Solano HCP is considered in this analysis as the areas covered under the Yolo HCP/NCCP and Solano HCP overlap. Under the No Action Alternative, there would be no changes to the current agreements and practices which would allow for covered activities of Solano HCP plan participants whose projects extend into that portion of Yolo County. However, as stated in the Solano HCP, “Covered Activities in Yolo County are limited to activities undertaken by or under the permitting authority and control of ... three [Solano HCP] Plan Participants and do not include any future urban development in Yolo County. The three Solano HCP plan participants with covered activities within Yolo County are Reclamation District 2068, Dixon Resource Conservation District, and Dixon Regional Watershed Joint Powers Authority. In addition, Solano HCP covered activities proposed in the area of Yolo County within the [Solano HCP] Plan Area ... fall outside of Yolo County’s proposed urban expansion areas” (Solano County 2012). Under the No Action Alternative, this area would continue to be covered under the Solano HCP and would not conflict with planned activities in Yolo County, and visa-versa. Therefore, activities would not conflict with an adopted HCP or NCCP.

Cumulative Effects

Land use policy is set at the local level. General plans and other policies and regulations guide local land use decisions for each jurisdiction separately. In determining whether an action would divide an existing community, typically this is reviewed at a local level. As stated above, under the No Action Alternative, the development and activities would not physically divide an existing community. While there could potentially be activities within the region which could divide existing communities, the No Action Alternative would not contribute to that potential impact.

Local policies and regulations are encouraged to be consistent with regional plans, such as the SACOG MTP/SCS. The MTP/SCS is updated every four years. Local general plans are not updated as often. As local general plans are updated, they would be reviewed for consistency with the regional plan. In addition, if a city, county, or public agency in the jurisdiction of SACOG wants to use federal transportation funding for projects or programs, those projects must be included in the MTP/SCS project list. This ensures that the County and cities review the regional plan as needed and not just when updating their plans and policies. The MTP/SCS provides guidance to the jurisdictions on a preferred land use scenario which may be used to guide land use decisions.

As described in Section 5.2.2, *Regulatory Setting*, DPC has prepared a LURMP which provides guidance for the Delta Primary Zone. A portion of unincorporated county land falls within the Delta Primary Zone. That area is identified with a Delta Protection Overlay land use designation in the Yolo County General Plan. Land uses within the Delta Protection Overlay must be consistent with the County’s base designation and with the DPC LURMP.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Land use impacts as a result of these development-related activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures during implementation of covered activities. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance;

and monitoring; and control of invasive nonnative species. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. However, the primary result of the neighboring landowner protection program, from a land use perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Since the program would not change land uses, and in effect provides a mechanism to assist in preserving existing land uses, it would not have an effect on land use, and is not evaluated further in the impact discussions below.

Effect LAND-1: Physically divide an established community.

Under the Proposed Action Alternative, the Yolo HCP/NCCP would be adopted and implemented, including the conservation strategy which creates a reserve system and includes biological goals and objectives for the covered species. Lands in the reserve system would either be retained in their existing condition (generally including agriculture and open space uses) through conservation easements or other mechanisms, or would be used for habitat enhancement, restoration, or creation.

Activities that result in continuing an existing agricultural use would not physically divide an established community. Purchasing, or obtaining an easement on currently private lands to enhance, restore, or create habitat, even if this were to occur between two portions of a community, would not further restrict access or the ability for individual to move between areas. Existing roads and existing travel corridors would be retained.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. Impacts associated with the potential for the reserve system to physically divide an established community are not appreciably different from those associated with implementing habitat mitigation under the No Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**. Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in dividing an established community.

No mitigation is required.

Effect LAND-2: Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

As stated previously, implementation of the HCP/NCCP as described for the Proposed Action Alternative includes a conservation strategy. Implementation of the conservation strategy is consistent with the County and city general plans. Within the various general plans, there are policies which encourage habitat restoration, land conservation, and species preservation including the policies listed above in Section 5.2.2 *Regulatory Setting*. In addition, several of the general plans include specific goals, policies, and implementing actions which direct the jurisdictions to conserve habitat and, in some cases, adopt and/or implement a habitat conservation plan.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. Impacts associated with the potential for the reserve system to conflict with applicable plans, policies, and regulations are not appreciably different from those associated with implementing habitat mitigation under the No Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**. Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in conflicts with applicable plans, policies, and regulations. *No mitigation is required.*

Effect LAND-3: Conflict with any applicable habitat conservation plan or natural community conservation plan.

Currently, no HCPs or NCCPs initiated by Yolo County municipalities or entities cover the Plan Area. The Yolo HCP/NCCP would serve as the HCP and NCCP for the Plan Area. As stated previously under the No Action Alternative, the Solano HCP overlaps with a portion of the Plan Area. The Solano HCP covers the expanded Plan Area along the south bank of Putah Creek as well as 8,000 acres in southern Yolo County. The Yolo HCP/NCCP expanded Plan Area overlaps with an area that is planned for conservation in the Solano HCP. In a February 12, 2015 action by the Solano County Water Agency (SCWA 2015), SCWA agreed to act in partnership with the Yolo Habitat Conservancy for habitat projects along the south bank of Putah Creek. Both plans look to this area for habitat preservation and conservation; therefore, this agreement ensures that the Yolo HCP/NCCP is consistent with the Solano HCP for this area.

As stated previously, the Solano HCP provides coverage for three Solano HCP plan participants (Reclamation District 2068, Dixon Resource Conservation District, and Dixon Regional Watershed Joint Powers Authority) whose activities¹ extend into Yolo County. These three plan participants are not participants in the Yolo HCP/NCCP and their activities are not covered under the Yolo HCP/NCCP. The area for which the Solano HCP provides take coverage to their plan participants contains some of the higher priority land acquisition areas identified for the Yolo HCP/NCCP. There is a potential conflict between these two plans where the Yolo HCP/NCCP may direct the Conservancy to acquire land for habitat conservation where the Solano HCP is providing take coverage for covered activities.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **potentially significant**. Under the No Action Alternative there would be no Yolo HCP/NCCP, and therefore no potential conflict between the Yolo HCP/NCCP and Solano HCP. The potential for conflicts between the two Plans occurs with implementation of the Proposed Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **potentially significant**. Under existing conditions there is no Yolo HCP/NCCP, and therefore no potential conflict between the Yolo HCP/NCCP and Solano HCP. The potential for conflicts between the two Plans occurs with implementation of the Proposed Action Alternative.

Mitigation Measure LAND-1: Agreement with SCWA

Before adopting the HCP/NCCP, the Conservancy must enter into an agreement with SCWA recognizing that the Conservancy's acquisition areas must not conflict with the covered activities of the Solano HCP. The agreement should ensure that implementing the Yolo HCP/NCCP would not preclude the implementation of the Solano HCP.

The implementation of Mitigation Measure LAND-1 prevent circumstances where the Conservancy's acquisition areas would conflict with the covered activities of the Solano HCP. With implementation of this mitigation measure, the impact is reduced to a **less than significant** level.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the Proposed Action Alternative to the cumulative condition for land use would essentially be the same as the No Action Alternative. Implementation of urban projects and activities, rural projects and activities, rural public services (infrastructure and utilities, agriculture economic development, and open space), and public and private operations and maintenance receiving incidental take authorization under the Proposed Action Alternative would occur at generally the same intensity as the same categories of activities under the No Action Alternative. As described under "Cumulative Effects" for the No Action Alternative, the Proposed Action Alternative also would not contribute to potential divisions in existing

¹ Solano HCP covered activities within Yolo County include routine operations and maintenance activities, such as culvert repair and replacement; weed control; silt and trash removal; ditch gate repair and replacement; and drainage pipe repair and replacement.

communities. In addition, the Proposed Action Alternative would have the same effects regarding consistency with regional plans as the No Action Alternative. Implementation of Mitigation Measure LAND-1 prevents any contribution to potential conflicts between the Yolo HCP/NCCP and the Solano HCP. Adopting an HCP/NCCP as described for the Proposed Action Alternative would not change whether there would be a substantial contribution to a significant cumulative land use effect.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative in which no activities that would result in take of covered species would be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. With the limitation on take within these areas, it is expected that the general categories of current land uses would not change in these eight locations. Therefore, impacts to land use as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area.

However, the location of take would not change the potential impact on division of an established community or consistency with applicable plans and policies. Overall, under the Reduced Take Alternative, Effects LAND-1, LAND-2, and LAND-3 would not be appreciably different from what is described for the Proposed Action Alternative. Under the Reduced Take Alternative, Mitigation Measure LAND-1 would still need to be implemented.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative.

The contribution of the Reduced Take Alternative to the cumulative condition for land use would essentially be the same as the No Action Alternative. As described under “Cumulative Effects” for the No Action Alternative, the Reduced Take Alternative also would not contribute to potential divisions in existing communities on a regional scale. In addition, the Reduced Take Alternative would have the same effects regarding consistency with regional plans as the No Action Alternative. Similar to the Proposed Action Alternative, adopting an HCP/NCCP as described for the Reduced Take Alternative would not change whether there would be a substantial contribution to a significant cumulative land use effect.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities. There are no plans to develop these areas in the near term, but some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the HCP/NCCP. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Under the Reduced Development Alternative, the two identified areas are assumed to remain in their existing use, or develop in the future consistent with the applicable planning documents in effect at that time. Neither of these outcomes would result in land use impacts. Overall, under the Reduced Development Alternative, Effects LAND-1, LAND-2, and LAND-3 would not be appreciably different from what is described for the Proposed Action Alternative. In addition, under the Reduced Development Alternative, Mitigation Measure LAND-1 would still need to be implemented.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative.

The contribution of the Reduced Development Alternative to the cumulative condition for land use would essentially be the same as the No Action Alternative. As described under “Cumulative Effects” for the No Action Alternative, the Reduced Development Alternative also would not contribute to potential divisions in existing communities on a regional scale. In addition, the Reduced Development Alternative would have the same effects regarding consistency with regional plans as the No Action Alternative. Similar to the Proposed Action Alternative, adopting an HCP/NCCP as described for the Reduced Development Alternative would not change whether there would be a substantial contribution to a significant cumulative land use effect.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

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6 AGRICULTURAL AND FORESTRY RESOURCES

6.1 INTRODUCTION

This chapter provides information relevant to agricultural and forestry resources impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

6.1.1 Data Sources

The following sources of data and information were reviewed to prepare the agricultural and forestry resources chapter.

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County General Plan) (Yolo County 2009);
- ▲ *Yolo County Agricultural Crop Report* (Yolo County 2015);
- ▲ *Yolo Habitat Conservation Plan/Natural Community Conservation Plan* (Yolo HCP/NCCP) (Yolo Habitat Conservancy 2017);
- ▲ California Department of Conservation, Division of Land Resource Protection for Williamson Act parcel data for Yolo County; and
- ▲ California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation [DOC] 2012).

6.1.2 Definitions

AGRICULTURAL RESOURCES

DOC classifies farmlands based on a system that combines technical soil ratings and current land use, as part of the Farmland Mapping and Monitoring Program (FMMP). Descriptions of the FMMP farmland mapping categories are presented in Table 6-1. Note that Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. Local jurisdictions also define farmland or agricultural land through land use designations. These are described below in the description of *Local Laws and Regulations*.

Table 6-1 FMMP Mapping Category Definitions

Mapping Category	Definition
Agricultural Lands	
Prime Farmland	Prime Farmland is land that has the best combination of physical and chemical characteristics able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Table 6-1 FMMP Mapping Category Definitions

Mapping Category	Definition
Farmland of Statewide Importance	This land is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Farmland of Statewide Importance must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.
Unique Farmland	This is land of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
Farmland of Local Importance	This is land of importance to the local agricultural economy and is determined by each county's Board of Supervisors and local advisory committee.
Grazing Land	Grazing land is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.
Non-Agricultural Lands	
Urban and Built-up Land	This is used for residential, industrial, commercial, construction, institutional, and public administrative purposes; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures; and other development purposes.
Other Land	Other land is that which is not included in any of the other mapping categories. The following types of land are generally included low-density rural development; brush, timber, and other lands not suitable for livestock grazing; government lands not available for agricultural use; roads systems for freeway interchanges; vacant and nonagricultural land larger than 40 acres in size and surrounded on all sides by urban development; confined livestock facilities of 10 or more acres; strip mines and borrow and gravel pits; a variety of other rural land uses.
Water	Perennial water bodies with an extent of at least 40 acres.
Source: DOC 2007	

FORESTRY RESOURCES

Forestry resources include forest land, timberland, and timberland production zones. Definitions used for these categories are those found in the California Public Resources Code (PRC) and California Government Code. Forest land is defined as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forestry resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits (PRC Section 12220(g)). Timberland is land, other than land owned by the federal government or land that is designated as experimental forest, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products (PRC Section 4526). Timberland production zones are areas that have been devoted to and used for growing and harvesting timber and compatible uses (Government Code Section 51104(g)).

6.2 AFFECTED ENVIRONMENT

6.2.1 Environmental Setting

AGRICULTURAL RESOURCES

A defining characteristic of Yolo County is its agricultural resources. The Yolo County General Plan designates approximately 544,909 acres of land in Yolo County for agricultural use (Yolo County 2009a; page LU-9), which is approximately 83 percent of the Plan Area. Agriculture in Yolo County is varied and includes farms

of all sizes, as well as equestrian, ranching, and other related uses. Additional detail on the extent and type of agricultural resources in the County is provided below.

Soils

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) classifies farmland according to soil type and the availability of irrigation. The NRCS Land Capability Classification System (LCC) is based on the limitations of soils for irrigated field crops, the risk of damage if soils are used for crops, and the way soils respond to management. The LCC system places soils into eight classes (I–VIII), depending on the limitations to agricultural use imposed by 13 specific soil and climatic criteria. The higher the class, the more restrictive the limitation. Classes I through IV are generally considered lands suitable for cultivation. The classes are defined as follows.

- ▲ Class I soils have slight limitations that restrict their use.
- ▲ Class II soils have moderate limitations that restrict the crop selection or that require moderate conservation practices.
- ▲ Class III soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- ▲ Class IV soils have very severe limitation that restrict the choice of plants or that require very careful management, or both.
- ▲ Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, and/or wildlife habitat. There are no Class V soils in Yolo County.
- ▲ Class VI soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- ▲ Class VII soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, and/or wildlife habitat.

Acreages of each NRCS land LCC classification in Yolo County are presented in Table 6-2. Class I, II, and selected Class III soils comprise over 63 percent of farmland in Yolo County (Yolo County 2009) and over 50 percent of the total land in the County. Other Class III and Class IV soils comprise 11 percent, and Class VI and VII soils comprise 26 percent of County farmland (Yolo County 2009) and roughly 40 percent of the total land in the County. The majority of soils in the unincorporated County are considered of higher quality, with poorer quality soils in the Dunnigan Hills, along the Colusa Basin Drain and the Yolo Bypass, and in the western foothills (Yolo County 2009).

Table 6-2 Yolo County Agricultural Soils (NRCS Land Capability Classification System)

Soil Class	Acres	Percent of Total County Lands
Class I	107,835	16.5
Class II	182,994	28.0
Class III	67,316	10.3
Class IV	109,143	16.7
Class V	0	0
Class VI	73,197	11.2

Table 6-2 Yolo County Agricultural Soils (NRCS Land Capability Classification System)

Soil Class	Acres	Percent of Total County Lands
Class VII	66,662	10.2
Class VIII	37,906	5.8
Water	8,496	1.3
Total	653,549^a	100

Notes: Assumes irrigation where irrigation data was not available, the non-irrigated classification was included.

^a Adjusted slightly to match current County GIS data

Source: Yolo County 2009

Important Farmland

FMMP farmland categories are described above in Table 6-1. The categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are collectively considered "Important Farmland." The majority of the County's farmland is in the broad category of Important Farmland (approximately 365,626 acres). Prime Farmland alone (250,435 acres) makes up approximately 38 percent of total County lands (Table 6-3 and Exhibit 6-1). The majority of the County's cities and unincorporated communities are surrounded by Prime Farmland. Combined, Farmlands of Statewide and Local Importance, and Unique Farmland comprise less than 20 percent of the County's land area. FMMP designated Grazing Land makes up approximately 25 percent of total County lands, and the western foothills of the County are characterized predominantly by Grazing Land.

Table 6-3 Important Farmland Acreages in Yolo County (2014)

Farmland Type	Acres	Percent of Total County Lands*
Prime Farmland	250,435	38.3
Farmland of Statewide Importance	18,861	2.9
Unique Farmland	44,604	6.8
Farmland of Local Importance	51,726	7.9
IMPORTANT FARMLAND SUBTOTAL	365,626	55.9
Grazing Land	166,367	25.5
Urban and Built-Up Land	31,051	4.8
Other Land	82,693	12.7
Water	7,805	1.2
TOTAL	653,450	100.0

Source: DOC 2012

* Percent is based on 653,451 total acres as calculated by California Department of Conservation 2012. This number differs slightly than the Yolo HCP/NCCP total Plan Area acreage. The acre difference in the area of the County is attributable to the use of different datasets.

Crops

Fertile soils, a long growing season, and the reliable availability of irrigation water in the project area provide a favorable combination of conditions that support a wide variety of crops. Chapter 4, *Biological Resources*, describes the three agricultural land cover types (Cultivated Lands Seminatural Community, Other Agriculture, and Semiagricultural/Incidental to Agriculture) in the County as described in the HCP/NCCP. Acreages of these land cover types are listed below in Table 6-4. The values in Table 6-4 are based on the land cover GIS dataset developed for the HCP/NCCP. Actual acres of crop types will vary from year to year as different crops are planted or fields are left fallow. Also, other data sources, such as information that may be collected by the Agricultural Commissioner, may provide different acreage totals. The HCP/NCCP land cover dataset was selected for use because it provides a single consolidated data source that covers both the unincorporated County and the incorporated cities. The methods used to develop this data source are described in Section 2.3 of the HCP/NCCP titled *Land Cover Mapping* (Yolo Habitat Conservancy 2017). Cultivated Semi-natural Community crops (e.g., corn, alfalfa, grain, pasture, wheat and rice) have been, and continue to be, the predominant crop in Yolo County in terms of total acreage (Table 6-4) occupying 38 percent of the Plan Area. As shown in Table 6-4, of all agricultural crop types, alfalfa and grain/hay crops occupy the largest total acreage in the County (Yolo Habitat Conservancy 2017). Deciduous fruits/nuts are another dominant crop type by acreage in the county. Additional information on crop types cultivated in the County and their value, based on the Yolo County Agricultural Crop Report (Yolo County 2015), is provided in Tables 6-5 and 6-6.

Table 6-4 Agricultural Crops and Acreages in the Plan Area

Crop Category/Land Cover	Acres	Percent Plan Area ¹
Cultivated Lands (non-rice)		
Alfalfa	48,879	7.48
Field Crops	42,131	6.43
Truck/Berry Crops	43,464	6.65
Grain/Hay Crops	65,303	9.98
Cultivated Lands (rice)	35,724	5.46
Pasture	15,197	2.32
Cultivated Lands Seminatural Community	250,698	38.32
Citrus/Subtropical	1,159	0.18
Deciduous Fruits/Nuts	43,591	6.67
Vineyard	17,151	2.62
Pasture - Turf Farm	141	0.02
Truck/Nursery/Berry Crops – Flowers/Nursery/Tree Farms	122	0.02
Other Agriculture	62,164	9.51
Semiagricultural/ Incidental to Agriculture²	30,510	4.66
Total	343,372	52.49

Source: Yolo Habitat Conservancy 2017 (data source shared by Yolo HCP/NCCP Table 2-1). See Chapter 4 of this EIS/EIR for a description of each land cover type.

¹ Yolo HCP/NCCP Plan Area acreage = 653,549 acres.

² Semiagricultural areas include livestock feedlots, farmsteads, and miscellaneous semiagricultural features such as small roads, ditches and unplanted areas of cropped fields (e.g., field edges).

Table 6-5 Yolo County Crop Types and Value (2013 and 2014)

Harvested Acreage/ Value (\$)	Crop Type								
	Field	Seed	Vegetable	Fruit and Nut	Wine Grapes	Organic Production	Nursery Products	Livestock and Poultry	Apiary, Livestock and Poultry Products
2014									
Harvested Acreage	175,960	24,205	45,544	64,436	12,578	14,928	422	N/A	N/A
Total Value	185,081,000	48,119,000	174,400,000	219,158,000	68,960,000	52,383,000	13,053,000	23,268,000	8,365,000
2013									
Harvested Acreage	372,336	33,011	40,530	56,426	13,030	35,456	347	N/A	N/A
Total Value	191,477,000	51,291,000	129,126,000	160,103,000	69,493,000	60,112,000	15,102,000	20,891,000	7,701,000
Source: Yolo County 2015									

The top ten commodities, by dollar value, produced in Yolo County in 2014 were tomatoes, hay (alfalfa), rice, wine grapes, seed crops, almonds, organic produce, wheat, walnuts, and cattle and calves (Table 6-6 [Yolo County 2015]). These top ten commodities accounted for approximately 81 percent of the County's total gross valuation (\$801,205,000) for all agricultural commodities produced in 2014 (Yolo County 2015). Processing tomatoes is Yolo County's leading commodity with a gross value of \$151,714,000. The remainder of the top five commodities includes crops of almonds, walnuts, rice, and wine grapes. The County also produces many other agricultural products including, but not limited to sunflowers, hay (grain), nursery stock, milk, apiary products, safflower, field corn, prunes, and lambs.

Table 6-6 Yolo County's Top Ten Commodities (2014)

Commodity	Value (dollars)
Tomatoes, Processing	151,714,000
Almonds (Meats)	107,409,000
Walnuts (All)	76,399,000
Rice	69,202,000
Grapes, Wine (All)	68,960,000
Hay, alfalfa	55,246,000
Organic Production (All)	52,383,000
Sunflower Seed	28,921,000
Cattle and calves	20,327,000
Wheat	14,771,000
Total	645,332,000

Source: Yolo County 2015

FORESTRY RESOURCES

Forest Land

As described above, for the purposes of this analysis, forest land is defined as land that can support 10 percent native tree cover of any species that allows for management of timber, aesthetics, fish and wildlife, recreation, and other public benefits (PRC Section 12220(g)). The Yolo County General Plan does not designate any forest resources within the County (Yolo County 2009a; page LU-9). The County General Plan

addresses forests and forestland only as related to woodland habitats because the County has no commercial forestland or timber resources (Yolo County 2009a; page CO-5). HCP/NCCP land cover types in the Plan Area that may be considered forest lands include oak-foothill pine, blue oak woodland, closed-cone pine-cypress, montane hardwood, valley oak woodland, and valley foothill riparian. Table 6-7 indicates the acreage of each of these land cover types within the Plan Area.

Table 6-7 Potential Forestry Resources in the Plan Area

Land Cover Type	Acreage	Percentage of Plan Area
Oak-foothill pine	43,772	7%
Blue oak woodland	35,891	5%
Closed-cone pine-cypress	212	<1%
Montane hardwood	3,087	<1%
Valley oak woodland	181	<1%
Valley foothill riparian	12,565	2%
Total	95,708	15%

Source: Yolo Habitat Conservancy 2017

To promote the fullest consideration of potential forestry resource effects, for the purposes of this analysis it is assumed that these lands have 10 percent or more native tree cover and would be defined as forest land; however, the exact acreage of lands meeting this criterion within the Plan Area is not known and actual acreages may less.

Timberland

Timberland, a subset of forest land, is defined by PRC Section 4526 and consists of non-federal land that is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products. Although forest types in Yolo County may support smaller scale uses, such as firewood, the type, size, and density of trees is not suitable for supporting lumber production or other commercial timber uses. As noted above, the County has no commercial forestland or timber resources. Based on this definition and the species composition of forest land within the Plan Area, the Plan Area is not considered to support timberlands.

Timberland Production Zone

Timberland Production Zone is defined as an area which has been zoned as such and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, which include construction and maintenance of electric transmission facilities (Government Code Section 51104(g)). The County Zoning Code does not establish a Timberland Production Zone or any related zone. As stated in the Yolo County General Plan, the only forests and forest lands within the county are woodland habitats as the County has no commercial forestland or timber resources (Yolo County 2009). Therefore, no Timberland Production Zones exist within the Plan Area.

6.2.2 Regulatory Setting

This section describes the federal, state, and local policies and regulations relevant to agricultural and forestry resources in the Plan Area.

FEDERAL LAWS AND REGULATIONS

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) of 1984 requires federal agencies to consider how their activities or responsibilities that involve financing or assisting construction of improvement projects, or acquiring, managing, or disposing of federal land and facilities may affect farmland. This act does not apply to projects related to federal permits or licensing (7 CFR Section 658.2[a][1][i]); therefore, it is not applicable to the Yolo HCP/NCCP.

STATE LAWS AND REGULATIONS

Farmland Mapping and Monitoring Program

The DOC has the primary responsibility for reporting statewide farmland data and trends. As described previously, the DOC's FMMP categorizes and maps Important Farmlands every two years based on information from local agencies. Types of Important Farmlands are defined in Table 6-1. Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are often referred to collectively as "Important Farmland". In addition, counties may, at their discretion, establish criteria for the designation of Farmland of Local Importance, and consider other lands within their jurisdiction as important agricultural lands.

California Land Conservation Act of 1965

The California Land Conservation Act of 1965, or Williamson Act, established the state's primary program for the retention of private land in agriculture and open space use. The Act creates an arrangement whereby private landowners enter into a 10-year contract with counties and cities to maintain their land in agricultural and compatible open-space uses in exchange for a reduction in property taxes. The contract is automatically renewed for an additional year unless it is cancelled. The contract may be cancelled if the land is being converted to an incompatible use. Local governments receive an annual subvention of forgone property tax revenues from the state via the Open Space Subvention Act of 1971.

In August 1998, the California State Legislature expanded the Williamson Act by amending it to provide for the establishment of "Farmland Security Zones." The Farmland Security Zone legislation authorizes landowners to petition the County board of supervisors (Board) to rescind their existing Williamson Act contract in favor of a new Farmland Security Zone Contract (FSZ Contract). The landowner must have an existing Williamson Act contract before the Board can approve a FSZ Contract. For land not currently in a Williamson Act contract, the Board may allow enrollment of the land into a Williamson Act contract, then authorize the immediate rescission of those contracts in favor of FSZ Contracts.

In 2008, Assembly Bill 2921 was enacted, providing for a mechanism to rescind Williamson Act agricultural contracts in order to enter into either an open space contract under the Williamson Act, or an open space easement. Under the new provisions, the resulting agreement must be at least as restrictive as the contract it replaced, and the affected parcel large enough to provide open space benefits.

The Williamson Act was further amended by AB 1265 in July 2011. This legislation reduced the term of Williamson Act contracts from 10 years to nine years, accompanied by an addition to the assessed value of affected properties. The amendment also allowed landowners to retain at least 90 percent of the tax savings created by participation in the Williamson Act.

In 2013 there were 312,984 acres of land tied to Williamson Act contracts in Yolo County (California Department of Conservation 2015).

1992 Delta Protection Act

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The

Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any local government's general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta." The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Figure 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

The Delta Protection Commission is charged with preparing a regional plan for the Primary Zone to address land uses and resources management, with particular emphasis on agriculture, which was designated by the Delta Protection Act as the primary use of this zone. This plan, the Land Use & Resource Management Plan provides guidance to local governments. Specifically, Land Use Policy P-2 and Agriculture Policies P-1 through P-10 address the role of local governments in preserving and protecting long-term agricultural viability and open space values in the Primary Zone through implementation of general plan policies and zoning codes.

Z'Berg-Nejedly Forest Practice Act of 1973

The Z'Berg-Nejedly Forest Practice Act of 1973 (Public Resources Code Section 4511-4517) established the state Board of Forestry and Fire Protection, whose mandate is to protect and enhance the state's unique forest and wildland resources. This mandate is carried out through enforcement of the California Forest Practice Rules (14 CCR Chapters 4, 4.5 and 10). The California Department of Forestry and Fire Protection enforces the laws that regulate logging on non-federal lands in California. Additional rules enacted by the State Board of Forestry and Fire Protection are also enforced to protect forest and wildland resources.

Senate Bill 1334

The California Legislature enacted Senate Bill 1334 (Chapter 732, Statutes of 2004), which added oak woodland conservation regulations to the PRC. This law requires each county to determine whether a project within its jurisdiction may result in a conversion of oak woodland resulting in a significant effect on the environment. If a county determines that there may be a significant effect to oak woodland resources, the county must consider alternative approaches to mitigate the effect. Such mitigation alternatives include conservation easements; planting and maintaining an appropriate number of replacement trees; contributing funds to the Oak Woodlands Conservation Fund to purchase oak woodlands conservation easements; and/or other mitigation measures developed by the County.

LOCAL LAWS AND REGULATIONS

Yolo County General Plan

Agriculture and Economic Development Element

The Yolo County General Plan establishes one agricultural land use designation, Agriculture (AG). Several zoning districts are associated with this land use designation. These districts are discussed below. County lands designated as AG may be used for:

"the full range of cultivated agriculture, such as row crops, orchards, vineyards, dryland farming, livestock grazing, forest products, horticulture, floriculture, apiaries, confined animal facilities and equestrian facilities. It also includes agricultural industrial uses (e.g. agricultural research, processing and storage; supply; service; crop dusting; agricultural chemical and equipment sales; surface mining; etc.) as well as agricultural commercial uses (e.g. roadside stands, "Yolo Stores," wineries, farm-based tourism (e.g., u-pick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, ancillary restaurants and/or stores) serving rural areas."

AG-designated lands may also be used for farmworker housing, surface mining, and habitat (with some limitations).

The Yolo County General Plan does not contain policies related to timberland. Any relevant policies related to woodland and riparian lands are included in Chapter 4, *Biological Resources* of this EIS/EIR. One agriculture and Economic Development Element policy related to agricultural and forestry resources and potentially relevant to the Plan is listed below:

- ▲ **Policy ED-1.3.** Encourage businesses that promote, provide services, and support farming, with an emphasis on value-added agriculture, agri-tourism, food processing and agricultural suppliers.

Land Use and Community Character Element

Land Use and Community Character Element policies related to agricultural and forestry resources and potentially relevant to the Plan are listed below:

- ▲ **Policy LU-2.1** The intent of this policy is to protect existing farm operations from impacts related to the encroachment of urban uses. Ensure that development will not have a significant adverse effect on the economic viability or constrain the lawful practices of adjoining or nearby agricultural operations, except for land within the Sphere of Influence (SOI) around a city or within the growth boundary of an unincorporated community. New urban (non-agricultural) development should be setback a minimum of 300 feet from adjoining agricultural land where possible, but special circumstances can be considered by the decision-making body. Except as noted below where no buffer is required, in no case shall the buffer be reduced to less than 100 feet. The buffer area shall generally be designated Open Space (OS), but may also be designated Public and Quasi- Public (PQ) or Parks and Recreation (PR) based on applicable circumstances. Agricultural buffers are not required for planned urban growth elsewhere within a growth boundary because the agricultural-urban will be temporary until full build-out occurs. (DEIR MM AG-4)
- ▲ **Policy LU-2.2** Allow additional agricultural commercial and agricultural industrial land uses in any designated agricultural area, where appropriate, depending on site characteristics and project specifics. Manage agricultural parcels of less than 20 acres, including antiquated subdivisions where appropriate, to create compatibility with surrounding agricultural uses to the greatest extent possible.
- ▲ **Policy LU-2.3** Prohibit the division of land in an agricultural area if the division is for non-agricultural purposes and/or if the result of the division will be parcels that are infeasible for farming. Projects related to clustering and/or transfers of development rights are considered to be compatible with agriculture.
- ▲ **Policy LU-2.4** Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city SOIs.
- ▲ **Policy LU-2.5** Where planned growth would occur on lands under Williamson Act contract, ensure that development is phased to avoid the need for contract cancellation, where feasible.
- ▲ **Policy LU-2.6** Encourage interim agricultural production on farmland designated for future development, prior to the start of construction, to reduce the potential for pest vectors, weeds, and fire hazards.
- ▲ **Policy LU-3.1** Direct all of the County's residential growth to designated areas within the cities and within the growth boundaries of existing unincorporated communities.
- ▲ **Policy LU-3.5** Avoid or minimize conflicts and/or incompatibilities between land uses.
- ▲ **Policy LU-3.8** The intent of allowing residences in the agricultural areas is to provide dwellings for those directly involved in on-site farming activity, including farm employees, the landowners and their immediate families. All such dwellings shall be encouraged to locate on lands least suited for agricultural

use and/or in “clustered” configurations to minimize the conversion of agricultural lands to any other uses.

- ▲ **Policy CC-4.27** Design highway service commercial uses at identified rural interchanges to preserve surrounding agriculture, rural character, scenic quality and the natural environment.

Yolo County Zoning Code

The Yolo County Zoning Code contains several zoning districts that are associated with the agricultural land use designation described in the Yolo County General Plan (Zoning Ordinance Table 8-2.107). The agricultural zoning districts include agricultural intensive (A-N), agricultural extensive (A-X), agricultural commercial (A-C), agricultural industrial (A-I), and agricultural residential (A-R). The purpose of the Agricultural Zones is to allow for land uses that support and enhance agriculture land uses in the unincorporated area of the County. The allowed land uses are compatible with agriculture, and may include open space, natural resource management, outdoor recreation, and enjoyment of scenic beauty.

Agricultural Land Conversion Ordinance

Yolo County requires mitigation when farmland is converted to non-agricultural uses for development purposes (Zoning Ordinance Section 8-2.404). This ordinance requires preservation of between 1-3 acres of equivalent agricultural land for each acre of agricultural land converted. The ordinance outlines the soil, irrigation and other requirements of land that can qualify as agricultural mitigation, with location and other factors influencing the applicable mitigation ratio. Yolo County does not allow for payment of a fee in-lieu of land and/or easement acquisition except for conversions totaling less than 20 acres. The ordinance also prohibits “stacked mitigation,” which would allow credit for agricultural mitigation and habitat or other mitigation on the same property (Yolo County 2009).

Cache Creek Resources Management Plan

The *Cache Creek Resources Management Plan* (CCRMP) was developed by Yolo County as part of the *Cache Creek Area Plan* and establishes goals to assist in the overall management of the resources associated with Cache Creek. The CCRMP includes an agricultural resources element that contains goals and objectives related to preserving agricultural lands along Cache Creek (Yolo County 2002).

Yolo County Local Agency Formation Commission Agricultural Conservation Policy

The Yolo County Local Agency Formation Commission (LAFCo) is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code, Section 56000 et seq.). The Yolo County LAFCo Agricultural Conservation Policy includes six considerations against which all proposals are reviewed. It emphasizes that, where feasible, non-prime land should be annexed before prime land and requires that a land’s current zoning, pre-zoning, or land use designations are considered in determining whether mitigation will be required for the loss of agricultural land. This policy allows for protection for the County’s agricultural lands and enforces preservation of agricultural lands for productive agricultural uses to the greatest extent feasible. Further, annexation for land uses in conflict with an existing agricultural preserve contract are prohibited unless specific criteria outlined in the policy are met (Yolo County 2009).

Swainson’s Hawk Interim Mitigation Fee Program

This program, established in 1993, utilizes mitigation fees to acquire conservation easements, including easements on appropriate agricultural lands, to protect Swainson’s hawk habitat. In 2005, Yolo County established a program of “mitigation receiving sites” to provide developers with a fast, market-based system of mitigation for impacts on Swainson’s hawk habitat. Changes to the program in 2006 require project applicants with projects over 40 acres in size to mitigate directly by providing land for conservation. Currently, this program has expired but is still being implemented voluntarily by all parties. The Yolo Habitat Conservancy (formerly the Yolo County HCP/NCCP Joint Powers Agency) administers this program. Once approved, the Yolo HCP/NCCP will replace the county’s Swainson’s Hawk Mitigation Fee Program.

City of Davis General Plan

The City of Davis General Plan establishes one agricultural related land use designation, Urban Agriculture Transition Area. Allowable uses in this area are passive open space recreation such as trails and bikeways, wildlife and habitat preservation, drainage ways, community gardens, plant stock portions of nurseries, and agriculture. There are no policies related to timberland, and any relevant policies related to woodland and riparian lands are included in Chapter 4, *Biological Resources* of this EIS/EIR. The City of Davis General Plan policies related to agricultural resources and potentially relevant to the Plan are listed below:

- ▲ **Policy LU N.6** Prime agricultural land should remain in agricultural production in the wider segments of the Urban Agriculture Transition Area.
- ▲ **Policy LU P.1** Give priority to development on lands designated "Urban Reserve" over development on lands designated as Urban Agricultural Transition Area, Agriculture or Habitat Areas.
- ▲ **Policy AG 1.1** Protect agricultural land from urban development except where the general plan land use map has designated the land for urban uses.
- ▲ **Policy AG 1.2** Promote and enhance local agriculture.

City of Davis Open Space Program

The City of Davis Open Space Program was established in 1990 to implement long-standing policies that called for the protection of the farmlands and wild areas that surround the community for preservation and the public's enjoyment, engaging citizens in caring for open space, and partnering with other organizations to meet the goals of the program. One of the major goals of the program is to secure long-term protection of open space lands around Davis, including maintaining the quality, quantity, and connectivity of agricultural lands and habitats. The Open Space Program has allowed for protection of approximately 5,300 acres of agricultural lands (City of Davis 2016).

City of West Sacramento General Plan

The City of West Sacramento General Plan agricultural land use designation (AG) provides for agricultural uses, single-family homes, limited commercial and industrial uses directly related to agriculture, public and quasi-public uses, and similar and compatible uses in a rural setting. Residential uses are limited to one (1) unit per parcel. The AG designation is applied in two areas within the city: the area of Southport generally south of Bevan Road and a small part of the Yolo Bypass at the western edge of the city, immediately north of West Capitol Avenue and south of the Southern Pacific tracks.

The City of West Sacramento General Plan does not contain policies related to timberland. Any relevant policies related to woodland and riparian land covers are included in Chapter 4, *Biological Resources*. The City of West Sacramento General Plan policies related to agricultural resources and potentially relevant to the Plan are listed below:

Natural Resource Goals and Policies

Goal NCR-1: To promote the economic viability of agriculture in West Sacramento and to discourage premature development of agricultural land with non-agricultural uses, while providing for urban needs.

- ▲ **Policy NCR-1.1 Continuation of Agriculture.** The City shall support the continuation of agricultural uses on lands designated for urban uses until urban development is imminent.
- ▲ **Policy NCR-1.2 Development near Agriculture.** The City shall ensure, in approving urban development near agricultural lands, that such development will minimize conflicts with adjacent agricultural uses, and not constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations, where feasible.

- ▲ **Policy NCR-1.3 Agricultural Buffer.** The City shall encourage Yolo County to retain agricultural uses on lands adjacent to the city to create a buffer around the city.
- ▲ **Policy NCR-1.4 Agricultural Incentives.** The City shall support tax and economic incentives, at both the local and State levels, to enhance the economic competitiveness of agriculture.

City of Winters General Plan

The City of Winters General Plan agricultural land use designation provides for agricultural uses, single-family homes, limited commercial and industrial uses directly related to agriculture, public and quasi-public uses, and similar and compatible uses. Residential uses are limited to one (1) unit per parcel.

The City of Winters General Plan policies related to agricultural resources and potentially relevant to the Plan are listed below. The City of Winters General Plan does not contain policies related to timberland. Policies related to woodland and riparian land covers are included in Chapter 4, *Biological Resources*.

- ▲ **Policy VI.B.7.** The City shall support tax and economic incentives at both the local and state levels to enhance the economic competitiveness of agriculture.
- ▲ **Policy VI.C.6.** The City shall undertake a feasibility study for the establishment of an Open Space Preserve between the Urban Limit Line and Grant Avenue west of I-505. Such preserve should be designed to provide for a combination of uses including agriculture, habitat protection, groundwater recharge, and educational and recreational activities. The Open Space Preserve should, to the maximum extent possible, be designed to function as part of the City's flood control and wastewater discharge system. The City should consider requiring developments that cannot mitigate wetlands or riparian habitat impacts on-site to make in-lieu contributions to the establishment, development, and maintenance of the Open Space Preserve or other mitigations consistent with the regional Habitat Management Plan.

City of Woodland General Plan

The City of Woodland General Plan agricultural land use designation provides for agricultural uses, limited agricultural support service uses (e.g., barns, animal feed facilities, silos, stables, fruit stands, and feed stores), industrial uses related directly to agriculture, public and quasi-public uses, and similar and compatible uses. Allowable residential development in areas designated Agriculture includes single family homes, secondary residential units, caretaker/employee housing, and farmworker housing.

The City of Woodland General Plan does not contain policies related to timberland. Any relevant policies related to woodland and riparian land covers are included in Chapter 4, *Biological Resources* of this EIS/EIR. Policies related to agricultural and forestry resources and potentially relevant to the Plan are listed below:

- ▲ **Policy 1.I.1.** The City shall discourage leapfrog development and development in peninsulas extending into agricultural lands to avoid adverse effects on agricultural operations.
- ▲ **Policy 1.I.2.** The City shall retain agricultural zoning and shall encourage continued agricultural production on properties within the Urban Limit Line until the land is needed for urban development.
- ▲ **Policy 1.I.3.** The City shall ensure that new development and public works projects do not encourage expansion of urban uses outside the Planning Area into areas designated for Agriculture on the Land Use Diagram.
- ▲ **Policy 1.I.4.** The City shall require development within or adjacent to designated agricultural areas to minimize conflicts with adjacent agricultural uses.
- ▲ **Policy 1.I.5.** The City shall continue to support the County's right-to-farm ordinance.

- ▲ **Policy 1.1.6.** The City shall encourage and support Yolo County in the implementation of its agricultural preserve program.
- ▲ **Policy 1.1.9.** The City shall promote good neighbor policy between residential property owners and adjacent farming operations by supporting the right of the farmers to conduct agricultural operations in compliance with state laws.

6.3 ENVIRONMENTAL CONSEQUENCES

6.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts to agricultural resources is based on three comparisons:

1. A comparison of the covered activities GIS layer and the land cover GIS datasets created as part of the HCP/NCCP process. The land covers GIS dataset represents the existing land uses in Yolo County, including agricultural use categories, while the covered activities GIS dataset represents the anticipated future land uses. These two datasets were compared to identify the total acreages of agricultural land to be affected by the anticipated future land uses. The HCP/NCCP land cover dataset was selected for use because it provides a single consolidated data source that covers both the unincorporated County and the incorporated cities. The methods used to develop this data source are described in Section 2.3 of the HCP/NCCP titled Land Cover Mapping (Yolo Habitat Conservancy 2017). Although the land cover dataset includes a category for Pasture, this category does not represent all land used for grazing land in the County. Therefore, the Grassland land cover is included in the impact analysis to represent other available grazing land. Although not all Grassland in the County is used for grazing, this approach prevents an underrepresentation of effects on grazing land in the impact analysis.
2. Additionally, GIS data from the FMMP was used to compare the agricultural land indicated as Important Farmland to the anticipated future land uses as shown in the covered activities GIS layer. This identified total acreages of Important Farmland that may be affected by the anticipated future land uses and potential conversion of, or conflicts with these lands resulting from each alternative.
3. To estimate potential impacts to Williamson Act lands, this analysis used Yolo County's assessor's data, which indicates which properties are under Williamson Act contracts. Evaluation of the potential impacts of the alternatives on forestry resources was based on comparing the covered activities GIS layer with the natural communities GIS layer created as part of the HCP/NCCP process. For both agricultural and forestry resources, laws, regulations, and policies described above in Section 6.2.2, *Regulatory Setting*, were considered.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA. All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or CDFW to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on agricultural and forestry resources in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Impacts would be significant if an alternative would result in the following:

- ▲ result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively Important Farmlands) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non- agricultural use;;
- ▲ conflict with existing zoning for agricultural use, or a Williamson Act contract;
- ▲ involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use;
- ▲ conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]); or
- ▲ involve other changes in the existing environment, which, due to their location or nature, could result in substantial conversion of forest land to non-forest use.

6.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities; agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Table 6-8 summarizes the anticipated acreages of conversion of agricultural and forest lands to other uses under the No Action Alternative based on the HCP/NCCP land cover dataset. Table 6-9 summarizes the anticipated acreages of conversion of FMMP Important Farmlands under the No Action Alternative.

Table 6-8 Agricultural and Forest Land Conversion under the No Action Alternative

Land Cover Type	Impact (acres)	Percentage of Land Cover Type within Plan Area
Cultivated Lands Seminatural Community		
Cultivated Lands (non-rice)	9,910 ¹	4%
Cultivated Lands (rice)	87	<1%
Grassland (representing Grazing Land)	1,734	2%
Other Agriculture	1,628	3%
Semiagricultural/Incidental to Agriculture	1,294	4%
Total Agricultural Land Impact	14,653	3.4%
Forest Lands		
Oak-foothill pine	0	0%
Blue oak woodland	3	<1%
Closed-cone pine-cypress	0	0%
Montane hardwood	0	0%
Valley oak woodland	0	0%
Valley foothill riparian	588	5%
Total Forest Land Impact	591	<1%

Source: Yolo Habitat Conservancy 2017 (data source shared by Yolo HCP/NCCP Table 5-3).

¹ Includes an assumed 702 acres of impact associated with converting agricultural land to habitat as part of mitigating for development allowed under the No Action Alternative.

Table 6-9 Important Farmland Conversion under the No Action Alternative

Farmland Type	Acreage	Percentage of Farmland Type within Plan Area
Prime Farmland	7,515	3.0%
Farmland of Statewide Importance	465	2.5%
Farmland of Local Importance	4,055	7.8%
Unique Farmland	944	2.1%
Total for Important Farmland	12,979	3.6%

Source: DOC 2012 overlaid with future land use data

Under the No Action Alternative over 14,500 acres of land covers identified as agricultural or incidental to agriculture would be converted to a non-agricultural use under the No Action Alternative (Table 6-8). Almost 13,000 acres of land designated by the FMMP as Important Farmland would be converted to a non-agricultural use (Table 6-9). Approximately 1,900 acres of land currently under Williamson Act contract could be converted to a use that would be in conflict with the contract. It should be noted that these numbers are not additive; rather, they present analysis results from different datasets representing difference categories of agricultural resources. These results do overlap to a certain degree, in that a parcel of land may simultaneously be designated as agricultural land in HCP/NCCP land cover GIS dataset, be considered as Important Farmland in the FMMP, and have a Williamson Act contract on the parcel.

Approximately 600 acres of land covers that could be considered forest land would be converted to another land cover under the No Action Alternative, mostly in the valley foothill riparian land cover category (Table 6-

8). Woodland land covers that are being considered as “forest lands” for this analysis are primarily located along the western boundary and in the northwestern corner of the Plan Area. No covered activities are proposed for this area. However, there are some isolated areas of forest land, primarily along waterways, that would be affected by development.

Urban projects and activities would occur within areas planned for future urban growth but would contribute to the conversion of agricultural land as the entire county, including the incorporated cities, is located on generally productive soils.

Conversion of agricultural and forest lands would also result from rural projects and activities that would occur within and around the existing communities within the unincorporated County including Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing).

Activities under the rural public services, infrastructure, and utilities category include facilities and activities outside of the incorporated cities and rural communities, such as construction of roadways and bridges; water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation and distribution facilities; landfills; flood control facilities; levees; and an airport. Similar to development proposed in rural and urban areas, these activities could contribute to the conversion of agricultural and forest land to other uses.

Although activities under the agricultural economic development category could result in relatively large structures being constructed in a rural/agricultural area (e.g., processing plants), these facilities would generally support agricultural uses and be consistent with continued agricultural uses on the affected lands. Because activities under this category would be consistent with agricultural land uses, they are expected to result in little or no conversion of agricultural to other uses.

The anticipated activities in the Plan Area would also include continued operation of, or development of new mining sites. Development, use, and reclamation of a mining site typically follows a phased plan, which entails clearing of surface vegetation, removal and stockpiling of topsoil for future use in reclamation activities, mining of material (e.g., construction aggregate), processing of mined material at the mine area, and reclamation of the mined lands to such uses as agricultural, lake, habitat, and open space uses. These activities may include reclamation to agriculture, habitat and open space, and open water lakes with habitat and/or recreational uses. Ongoing mining activities at existing facilities would be a continuation of existing conditions. However, development of new mining lands would result in a temporary conversion of lands from agricultural or forest land to mining.

Expansion of open space, parks, and recreation opportunities inside and outside of planned urban area boundaries would also occur. New open space and parks could contain facilities to support recreation-related activities (e.g., camp sites, picnic areas). Such areas could require supporting infrastructure (e.g., roads, support buildings). In some cases, recreational, park, or open space land uses may be compatible with agricultural or forest land uses, however, construction of recreational facilities could result in conversion of agricultural lands to non-agricultural uses and forest lands to non-forest uses.

Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated County and would generally have minor effects on conversion of agricultural and forest lands to other uses due to the size and nature of the activities and because they would frequently be located in already developed areas.

Under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. There is also valley foothill riparian along Putah Creek that would be considered forest land. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is anticipated that some additional landowners would also place their land under easement in the future, which would increase the amount of protected agricultural lands. It is also expected

that under the No Action Alternative, the riparian forest along Putah Creek would continue to be protected via various laws and regulations (e.g., Section 1600 of the Fish and Game Code, see Chapter 4, *Biological Resources*) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee.

Agricultural and forest land impacts associated with individual development projects would be addressed on a project-by-project basis. Various County and City policies related to agricultural and forestry resources would minimize the potential for new development to convert agricultural land to non-agricultural uses and forest land to non-forest uses. For example, the Swainson's Hawk Interim Mitigation Fee Program, (described above in "Local Laws and Regulations") to preserve agricultural and forest lands would continue to be implemented. The Yolo County Agricultural Land Conversion Ordinance requires preservation of between 2 to 3 acres of equivalent agricultural land for each acre of agricultural land converted when farmland is converted to non-agricultural uses for development purposes (Zoning Ordinance Section 8-2.404). In addition, City programs, such as the City of Davis Open Space Program, secure long-term protection of open space lands around Davis, including maintaining the quality, quantity, and connectivity of agricultural lands and habitats. These ordinances and programs would minimize development-related impacts to agricultural and forest lands, although a net decrease in the acreage of these land cover types in the Plan Area would still occur.

As necessary, under the No Action Alternative, project applicants would be required to implement mitigation measures to reduce potentially significant and significant impacts to biological resources. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat, including agricultural lands), or convert lands to a more natural state (i.e., habitat enhancement, restoration, or creation), which may have a beneficial effect (e.g., creation of wind row), neutral effect (a portion of an agricultural parcel not used for cultivation is converted to habitat) or adverse effect (e.g., conversion of land currently in agricultural production to habitat) on agricultural lands depending upon whether the habitat type and the specific location is compatible with agricultural uses. Like the Proposed Action (see impact analysis below), it is estimated that a total of 702 acres of agricultural land and 210 acres of grazing land would be converted to non-agricultural land because of habitat restoration activities. Implementation of mitigation actions may also be beneficial for forest lands if oak woodlands and/or riparian forest is preserved or enhanced.

Cumulative Effects

Historical land use activities and patterns within the County have resulted in conversion of natural habitat to agricultural lands. This has increased the amount of agricultural lands within the County and decreased the amount of forest lands. However, more recent expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland), has resulted in the conversion of agricultural and forest lands to developed uses and a cumulative decrease in agricultural and forest lands.

Projects and activities included within the categories of urban and rural development would result in future conversion of agricultural and forest lands to other uses and could combine with other projects within the County to result in a cumulative decrease in agricultural and forest lands. Consistent with the general plans of Yolo County, West Sacramento, Davis, Winters, and Woodland, further development would be required to mitigate for conversions of agricultural and forest lands.

It is assumed that future development would comply with the policies set forth in city and County General Plans. The *Yolo County General Plan* contains policies intended to preserve agricultural lands and forest lands (i.e., woodland habitats). Development in rural areas would be limited to preserve the rural landscape as established by Policy LU-2.1 of the *Yolo County General Plan*. Potential impacts would be further reduced with Policy LU-2.4, which instructs the County to vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city SOIs, and Policy LU-2.5, which states that development should be phased to avoid the need for cancellation of

Williamson Act contracts. Additional policies from the Land Use and Community Character Element (provided in the setting of this section) of the *Yolo County General Plan* require the County to minimize impacts on agricultural lands. Policies from the Conservation and Open Space Element of the *Yolo County General Plan* related to biological resources as described in Chapter 4, *Biological Resources*, are protective of woodland habitats, which are the only forest lands within the county. In addition, the general plans of the Davis, West Sacramento, Winters, and Woodland contain policies applicable to minimizing impacts on agricultural and forestry resources. Wind and solar projects (although the general plans do encourage alternative energy) that could adversely affect agricultural and forest lands would also be required to mitigate for impacts to these resources. Compliance with general plan policies, County and city ordinances, project-related mitigation, and programs such as the City of Davis Open Space Program, described above, would direct future development, on an individual project and cumulative basis, to minimize impacts on agricultural resources and would result in long-term protection of agricultural and forest lands.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Agricultural and forestry resource impacts as a result of these activities would be the same as described under the No Action Alternative.

Where the Proposed Project Alternative differs from the No Action Alternative is the implementation of the Yolo HCP/HCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures during implementation of covered activities. The following impact discussion focuses on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species.

Effect AG-1: Potential to convert farmland to non-agricultural use.

As stated above, agricultural and forestry resource impacts from take associated with lawfully undertaken covered activities for the Proposed Action Alternative would be the same as described development and related activities under the No Action Alternative (for example, see Tables 6-8 and 6-9). This impact analysis focusses on where the Proposed Project Alternative differs from the No Action Alternative, which is the implementation of the Yolo HCP/HCCP and associated conservation strategy and neighboring landowner protection program.

A primary activity of the conservation strategy is the protection of agricultural lands in the reserve system. Most of the lands protected as part of the reserve system would have conservation easements purchased on them and would be subject to a management plan. Agricultural lands would have some restrictions on the types of crops that could be grown on the land (i.e., not converting the lands to vineyards, orchards, nurseries, livestock feed lots) and grazing lands would be subject to provisions guiding appropriate grazing practices. Although restrictions may be placed on the lands acquired by easement that are to be retained as agricultural lands, these lands would remain in agricultural production under the proposed Yolo HCP/NCCP and would not be converted to non-agricultural use. Because agricultural operations would continue, there would not be a conflict with Williamson Act provisions.

In the Plan, it is identified that implementation of the conservation strategy could result in the conversion of up to 702 acres of the Cultivated Lands (non-rice) land cover to habitat as part of habitat restoration activities (Yolo Habitat Conservancy 2017, see Table 5-3). The conversion of cultivated lands to habitat is considered a conversion of existing agricultural land to a non-agricultural use. Because it is not known at this

time where the habitat restoration would occur, all, or part of this agricultural land conversion could also occur on FMMP designated Important Farmland. The Plan also identifies the conversion of up to 210 acres of grassland to another habitat type as part of habitat restoration activities. Because the location of the habitat restoration is not known at this time, all or part of the 210 acres could be located grassland that serves as grazing land, and the ongoing management of the restoration area could require exclusion of grazing activity. Although it is unlikely that all of the 210 acres of grassland land cover converted to another habitat would result in the removal of grazing lands, for the purposes of this analysis, it is assumed that this could occur for up to the entire 210 acres.

Implementation of the conservation strategy under the Yolo HCP/NCCP may also increase populations of covered species in the reserve system. As a result, some individuals may disperse to neighboring private lands where the presence of listed species could interfere with routine agricultural activities, other activities, or allowed use of the land. With certain provisions and restrictions described in the HCP/NCCP, farmlands in the vicinity of the reserve system boundary are eligible for take coverage through the neighboring landowner protection program. For neighboring landowners that do not participate in the protection program, implementation of the conservation strategy could increase the presence of endangered species on adjacent agricultural lands. The presence of listed species could interfere with (e.g., delay) routine agricultural activities if those activities would result in take of listed species. For example, if mowing would take a listed species, the activity could require a permit before being carried out. However, it is unlikely to result in conversion of agricultural lands to non-agricultural uses.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. The Proposed Action Alternative would result in conversion of up to 702 acres of cultivated lands (Yolo Habitat Conservancy 2017, Table 5-3) and up to 210 acres of grazing land. The Yolo HCP/NCCP would result in protection in perpetuity of 14,362 acres of cultivated lands (non-rice), 2,800 acres of cultivated lands (rice), and at least 4,430 acres of grassland natural community (potentially suitable for grazing) as a part of the reserve system. Although the important farmlands converted under the Proposed Action would be converted from agriculture, they would be restored to habitat which was its original historic use, the soil properties important for agricultural production would be retained, and the acreage would remain in open space in perpetuity.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **significant and unavoidable**. The Proposed Action Alternative would result in the conversion of up to 702 acres of cultivated lands and up to 210 acres of grazing lands to a non-agricultural use. This loss is considered significant at the local level. The Yolo HCP/NCCP would result in protection in perpetuity of 14,362 acres of cultivated lands (non-rice), 2,800 acres of cultivated lands (rice), and at least 4,430 acres of Grassland (potentially suitable for grazing) as part of the reserve system. The Proposed Action Alternative would result in permanent protection of more than 21,000 acres of agriculture as habitat for various species and permanent loss of approximately 700 acres of agricultural land for riparian restoration. This would result in a net increase of protected land due to the conservation strategy. While the Proposed Action Alternative would result in permanent protection of many acres of agricultural land, the loss of agricultural land is permanent. Permanently protecting some agricultural land cannot fully mitigate for the loss of other agricultural land to non-agricultural use. Therefore, impacts to agricultural lands, including Important Farmland, as a result of implementation of the Proposed Action Alternative would be significant and unavoidable compared to an existing conditions baseline.

Minimizing this significant and unavoidable impact by reducing the amount of agricultural land placed in the reserve system, as well as minimizing habitat enhancement/restoration/creation on agricultural lands would not meet the project objectives. As described in Section 2.2, *Alternatives Eliminated from Further Analysis*, a *Reduced Agricultural Impacts* alternative was considered where placement of agricultural lands into the reserve system would be minimized and purchases of conservation easements and habitat enhancement/restoration/creation would be shifted to non-agricultural habitat types. This alternative was eliminated from further analysis during the screening process primarily because of the inability to provide a sufficient reserve system for all covered species and natural communities (see Section 2.2.5 for further details). Conversely, if more agricultural land was placed in the reserve system to increase the acreage of

agricultural land protected by conservation easement, this could adversely affect the economic viability of the Yolo HCP/NCCP because fees would need to be raised to fund the additional easement acquisition. Elevated fees could adversely affect the ability to obtain local approvals and continued support of the Yolo HCP/NCCP by the development community during implementation. In addition, the impact would remain significant and unavoidable even if more agricultural land were put under conservation easements, because, as stated above, permanently protecting some agricultural land cannot fully mitigate for the loss of other agricultural land to non-agricultural use.

No further mitigation is feasible.

Effect AG-2: Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract.

Similar to what is described above for the No Action Alternative, the Proposed Action Alternative would result in the conversion of over 1,900 acres of Williamson Act land to non-agricultural uses. However, most of this would be because of urban development also anticipated under the No Action Alternative. Under the proposed conservation strategy as part of the Yolo HCP/NCCP, lands currently zoned for agriculture or under Williamson Act contract may have conservation easements purchased on them and would be subject to a management plan. On the majority of the agricultural lands brought into the HCP/NCCP reserve system, agricultural operations would continue. Yolo County does not prohibit habitat restoration on agriculturally-zoned land. Continuing agricultural operations on lands within areas zoned for agricultural use would not conflict with the permitted uses of agriculturally zoned lands, even if some restrictions are placed on the land, such as limiting certain crop rotations or not allowing planting of vineyards or orchards to protect values for covered species. In addition, in accordance with Section 51293 of the Williamson Act, acquisition of a fee interest or conservation easement for a term of at least 10 years to restrict the land to agricultural or open space uses does not conflict with the Act. Therefore, conservation easements under the HCP/NCCP would not conflict with the Williamson Act.

There is the possibility, although remote, that lands under Williamson Act contract would be planned for habitat restoration or creation, resulting in the conversion of agricultural land to habitat. However, open space is consistent with Williamson Act contracts.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant** because implementation of the conservation strategy under the Proposed Action Alternative would not cause a conflict with a Williamson Act contract or agricultural zoning. This would be similar as for mitigation actions under the No Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant** because implementation of the conservation strategy under the Proposed Action Alternative would not cause a conflict with Williamson Act contracts or agricultural zoning.

No mitigation is required.

Effect AG-3: Conflict with existing zoning/loss of forest land.

There is no zoning in Yolo County which is specifically for forest or timberland; therefore, this analysis does not discuss whether there would be a conflict with zoning. Implementation of the conservation strategy is not expected to convert forest lands to non-forest uses as there are not circumstances where forest land would be converted to a non-forest habitat type. In addition, the Proposed Action Alternative would involve natural resources conservation, and implementation of the conservation strategy, which would result in preservation and creation of woodland and riparian forest lands. The Yolo HCP/NCCP would protect at least 1,600 acres of currently unprotected valley foothill riparian natural community distributed primarily in the Cache Creek and Putah Creek planning units (planning units are shown in Figure 2-1) (Yolo Habitat Conservancy 2017; Table 6-2(a)). The HCP/NCCP would also restore sufficient acres of the valley foothill riparian natural community to yield no net loss as a result of covered activities, and would restore another 20 acres independent of habitat losses (Yolo Habitat Conservancy 2017; Objective NC-VFR1.2).

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**. The Yolo HCP/NCCP would result in the conservation of 1,600 acres of the valley foothill riparian natural community in the Plan Area within the reserve system (Yolo Habitat Conservancy 2017; Table 6-2(a)). This represents 30 percent of the total acreage within that natural community. In addition, any losses of this community would be replaced resulting in no net loss of acreage, plus an additional 20-acres of restoration would be implemented. This would not occur under the No Action Alternative where mitigation under CEQA would be required but the extra conservation that would be achieved under the HCP/NCCP would not be required.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial** because there would be a net gain of protected forest land within the Plan Area compared to existing conditions,

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the Proposed Action Alternative to cumulative conditions for agricultural and forestry resources would include an increase in the acres of preserved agricultural lands including Important Farmland and an increase in restored and preserved forest lands in the Plan Area. As described above, protection of agricultural and forest lands would be improved as a result of the implementation of the conservation strategy and neighboring landowner protection program under the Proposed Action Alternative through preservation and enhancement of large areas of agricultural lands and valley foothill riparian natural community compared to the existing conditions and the opportunity for Endangered Species Act protection for neighboring agricultural lands.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial** because Proposed Action Alternative would have the same potential contribution to adverse cumulative effects as the No Action Alternative, but would result in more preservation and creation through the reserve system.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **significant and unavoidable**. As stated previously, up to approximately 700 acres of cultivated land and 210 acres of grazing land could be permanently converted to a non-agricultural use. This would be a substantial contribution to a significant cumulative effect relative to the existing conditions baseline.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative in which no activities that would result in take of covered species would be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. Impacts to agricultural and forestry resources as a result of implementation of the Reduced Take Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative; however, given that less take would be allowed, there is also potential for less conversion of agricultural lands to non-agricultural uses and less conversion of forest land to non-forest uses in some circumstances. The combined eight areas included under the Reduced Take Alternative cover approximately 1,335 acres and contain approximately 1,100 acres of agricultural land, approximately 80 acres considered grazing land, and approximately 95 acres of riparian habitat that could be considered forest land. Depending on the activities that would ultimately be undertaken in these areas, varying amounts of these land cover types could be converted to another use without resulting in take. The most likely scenario is that less conversion would occur in these areas than under the No Action or Proposed Action Alternatives. However, development which is displaced by the Reduced Take Alternative could potentially be placed on other agricultural, grazing, or forest lands, thereby resulting in similar impacts to agricultural land as the No Action and Proposed Action Alternatives. There are

approximately 1,090 acres of FMMP designated Important Farmland on in the eight areas included in the Reduced Take Alternative. Specifically considering Important Farmland, assuming displaced development is not placed on Important Farmland, Table 6-10 summarizes the minimum anticipated acreages of conversion of Important Farmland by covered activities under the Reduced Take Alternative

Table 6-10 Minimum Important Farmland Conversion under Alternative C

Farmland Type	Acreage	Percentage of Farmland Type within Plan Area
Prime Farmland	6,901	2.4%
Farmland of Statewide Importance	454	2.4%
Farmland of Local Importance	3,592	6.9%
Unique Farmland	943	2.1%
Total	11,890	3.3%

The Reduced Take Alternative could affect between 11,890 acres and 12,979 acres of Important Farmland depending on the extent and location of displaced development. It would also affect between 1,753 acres and 1,916 acres of Williamson Act land depending on the location and extent of displaced development.

Overall, if the prohibition on take of covered species in the eight designated areas resulted in less overall development in the Plan Area, conversion of agricultural and forest lands from development related activities could be slightly less under the Reduced Take Alternative than under the No Action and Proposed Action Alternatives. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area. If development in any of the new locations removed agricultural or forest lands, impacts would become more similar to the No Action and Proposed Action Alternatives.

Overall, under the Reduced Take Alternative, Effects AG-1 through AG-3 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this alternative could result in less impact; however, the impact remains **significant and unavoidable**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area is the same as described for the Proposed Action Alternative. The individual effects on agricultural and forestry resources under Alternative C could be slightly less than those described for the No Action and Proposed Action Alternatives. Overall, implementation of the Reduced Take Alternative would make a similar contribution to cumulative impacts on agricultural and forestry resources as the No Action and Proposed Action Alternatives.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this alternative could result in less impact; however, the impact remains **significant and unavoidable**.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities and therefore could not be provided incidental take authorization through the Plan. There are no immediate plans to develop these areas, but some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the HCP/NCCP. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative). Impacts to agricultural and forestry resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternatives. If less development were to occur within the two designated areas, there is the potential for the Reduced Development Alternative to result in somewhat less conversion of agricultural lands to non-agricultural uses and less conversion of forest land to non-forest uses. However, if these areas were developed some time in the future, effects on agricultural and forest lands would be the same as those for the Proposed Action. The two areas included in the Reduced Development Alternative cover approximately 1,495 acres, with almost all the area considered either agricultural land or grazing land, or riparian habitat considered as forest land. Agricultural land and grazing land are the dominant land covers. As stated above, conversion of agricultural, grazing, and forest land could vary depending on the future use of each of the two areas. Table 6-11 summarizes the minimum acreages of conversion of Important Farmland under Alternative D if no development were to occur in the two areas.

Table 6-11 Minimum Important Farmland Conversion under Alternative D

Farmland Type	Acreage	Percentage of Farmland Type within Plan Area
Prime Farmland	6,959	2.8%
Farmland of Statewide Importance	279	1.5%
Farmland of Local Importance	3,605	7.0%
Unique Farmland	901	2.0%
Total	11,744	3.2%

Depending on future land uses on the two areas, the Reduced Development Alternative would affect between 11,744 and 12,979 acres of Important Farmland and between 1,832 and 1,916 acres of Williamson Act land.

Overall, if under the Reduced Development Alternative there was ultimately no development or other activities that resulted in the conversion of agricultural land and forest land to another use in the two areas considered, conversion of agricultural and forest lands could be less under the Reduced Development Alternative than under the No Action and Proposed Action Alternatives. However, if development or other activities that resulted in conversion of agricultural land and forest land to another use were ultimately implemented, effects on these resources would become more similar to the No Action and Proposed Action Alternatives.

Overall, under the Reduced Development Alternative, Effects AG-1 through AG-3 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this alternative would result in less impact; however, the impact remains **significant and unavoidable**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area is the same as described for the Proposed Action Alternative. The individual effects on agricultural and forestry resources under Alternative D could be slightly less than those described for the No Action and Proposed Action Alternatives. Overall, implementation of Alternative D would make a similar contribution to cumulative impacts on agricultural and forestry resources as the No Action and Proposed Action Alternatives on agricultural or forestry resources.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this alternative would result in less impact; however, the impact remains **significant and unavoidable**.

7 PUBLIC SERVICES AND UTILITIES

7.1 INTRODUCTION

This chapter provides information relevant to public services and utilities impacts under NEPA and CEQA in connection with the Proposed Action (and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. For the purposes of this chapter, the public services and utilities analyzed consist of fire protection and emergency medical services; police service; public schools; solid waste; water supply; electricity; and natural gas. Recreation resources, including parks, are addressed in Chapter 8, *Recreation and Open Space*. Stormwater drainage is addressed in Chapter 9, *Hydrology and Water Quality*.

7.1.1 Data Sources

Key sources of information used to prepare this Public Services and Utilities chapter include the following.

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County 2009a),
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County GP EIR) (Yolo County 2009b),
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016a),
- ▲ *City of Winters General Plan* (City of Winters 1992), and
- ▲ *City of Woodland General Plan Update* (City of Woodland 2002).

7.1.2 Definitions

A public service is provided by the government, directly or under contract to a service provider, to people living within its jurisdiction. Public services addressed in this discussion consist of: fire protection, emergency medical services, police services, and public schools. Utilities are defined as public or private infrastructure and facilities that are used to generate, transport, and/or process water, wastewater, solid waste, electricity, and natural gas.

7.2 AFFECTED ENVIRONMENT

7.2.1 Environmental Setting

PUBLIC SERVICES

Fire Protection

A number of state and local entities provide fire protection and emergency medical services (EMS) to Yolo County and the cities. At the state level, the California Department of Forestry and Fire Protection (CAL FIRE) is responsible for fire protection in State Responsibility Areas (SRAs), along with providing some fire protection in Local Responsibility Areas (LRAs). CAL FIRE is required by law to respond to and abate uncontrolled fires that threaten to destroy life, property, or natural resources outside of LRAs. The Yolo County SRA falls under the North Division of CAL FIRE's Sonoma-Lake-Napa Unit. CAL FIRE has staff and

equipment available in Yolo County during fire season (typically May to October). Battalion 1419 operates three single-engine fire stations near Leesville, Wilbur Springs, and Brooks.

There are 11 fire protection districts (FPDs) in Yolo County that provide fire protection, rescue, and emergency medical services within the unincorporated areas of the County: Capay Valley, Clarksburg, Elkhorn, Esparto, Knights Landing, Madison, West Plainfield, Willow Oak, Winters, Yolo, and Zamora. These FPDs rely heavily on volunteer fire fighters for staffing, but a few also have paid staff. In addition, four municipal fire departments are operated by the Cities of Davis, West Sacramento, Winters, and Woodland. There are mutual aid agreements between most districts and departments to ensure adequate coverage will be provided in the event of a fire.

The Davis Fire Department (DFD) provides emergency response and fire prevention services to the City of Davis and service to three fire protection districts (East Davis County District, Springlake, and “No Man’s Land”). The DFD has three fire stations and 37 shift personnel including nine captains and 28 firefighters (DFD 2014). The City and Davis and UC Davis have a shared management team for the fire chief, deputy chief, and three division chiefs (City of Davis 2016).

The West Sacramento Fire Department (WSFD) provides fire protection services to the City of West Sacramento and the unincorporated area south of the city boundary to Babel Slough Road and across to the old Arcade Station on Jefferson Boulevard. The WSFD has five stations with a combined staffing of 17 personnel on duty (WSFD 2016).

The Winters Fire Department covers 86 square miles that make up the City of Winters and the Winters Fire District. Six career and 50 volunteer personnel provide service from the Winters Fire Station located at 700 Main Street in Winters (Winters Fire Department 2016).

The Woodland Fire Department (WFD) provides fire protection services for the City of Woodland as well as surrounding unincorporated areas (e.g. North Woodland, East Woodland and Speckles). The WFD has a daily staffing of 13 firefighters per day deployed on three fire engines, and one ladder truck. Three engine companies operate with three fire personnel and one truck company operates with four fire personnel (City of Woodland 2015a). There are three fire stations located throughout the City.

Two additional fire departments in Yolo County are the Yocha Dehe Fire Department (YDFD) and the UC Davis Fire Department, which has a shared management team with the City of Davis. There are no HCP/NCCP activities within the jurisdictions of these departments, but they may maintain mutual aid agreements with other departments listed above and therefore are part of the overall fire protection services available in the Plan Area. The Yocha Dehe Wintun Nation maintains the YDFD and provides fire protection, rescue, and emergency medical services for the Cache Creek Casino Resort and tribal housing. The department runs one station with fourteen firefighter/paramedics, six engineers, six captains, and three battalion chiefs (Yocha Dehe 2015). The UC Davis Fire Department maintains a station that serves the campus. The department presently employs 25 full-time personnel, one part-time administrative assistant, 15 student resident firefighters, and two student administrative support staff. Two captains, two engineers, and three firefighters are working per shift (UC Davis 2015a).

Emergency Medical Services

Emergency medical services in the Plan Area are provided by the FPDs and municipal fire departments. If 911 is called, the initial assessment of whether emergency medical assistance is required (vs. other emergency services) is made by the Yolo County 911 Dispatch Center operated by the Yolo Emergency Communications Agency.

Police Services

Law enforcement in the unincorporated areas of the County is provided by the Yolo County Sheriff’s Department. The Sheriff’s Department is responsible for patrolling the County, administering the County jail and work program, providing security to the Yolo County Court system, providing animal services, and serving as the County coroner. Sheriff headquarters is located in Woodland with satellite offices throughout the County.

In addition, each incorporated city in Yolo County has its own police department.

The City of Davis Police Department is headquartered at 2600 5th Street, Davis and employs 61 sworn officers, 37 civilian support professionals, one canine, and over 60 volunteers. There are four divisions in the department; administration, patrol, investigations, and records & communications (City of Davis 2014).

The City of West Sacramento Police Department is staffed with 70 sworn officers and 23 civilian full-time employees. The Department is organizationally divided into three offices, Administration, Support Services, and Field Operations. There is one main police station on Jefferson Boulevard and one service center on Lake Washington Boulevard (City of West Sacramento 2015).

The Winters Police Department (WPD) provides police protection to the entire city with headquarters located at 702 Main Street. WPD is staffed with 11 sworn positions, consisting of a chief, a sergeant, two corporals and seven patrol officers (WPD 2015).

The City of Woodland has one station at 1000 Lincoln Avenue with 63 sworn officers and 15 support employees. The Department has four divisions, Administration, Operations, Support Services, and Special Operations. The Special Operations Division houses the Investigations and Gang Suppression Units which include: gang suppression, Yolo County Narcotics Enforcement Team, and School Resource Officers (City of Woodland 2015b).

The University of California, Davis has its own police department, the University of California Davis Police Department (UCDPD). There are no HCP/NCCP activities within the jurisdiction of the UCDPD, but they may maintain mutual aid agreements with other departments listed above and therefore are part of the overall police services available in the Plan Area. Patrol operations on the UC Davis Campus is managed by a patrol lieutenant and patrol teams (University of California 2016).

Public Schools

School services and facilities in the Plan Area include seven school districts (Table 7-1) that run a total of 79 schools, including special-education and continuation schools. In addition, the County has 17 private and parochial schools located primarily in the unincorporated cities.

Table 7-1 School District Enrollment and Facilities

District	Area Served	Schools	Approximate Enrollment	Approximate Capacity
Davis Joint Unified School District	City of Davis and surrounding area	Nine elementary schools, four junior high schools, two high schools, six alternative schools	8,626	10,000
Esparto Unified School District	Capay Valley and Madison	One elementary school, one middle school, one high school, one alternative high school	976	850
Pierce Joint Unified School District	Southern Colusa County and northern Yolo County	One K-5 elementary school, one K-6 elementary school, one junior high school, one high school, one continuation high school	1,443	1,470
River Delta Joint Unified School District	Clarksburg area and Solano and Sacramento Counties	Five elementary schools, two middle schools, three high schools, one adult school	2,404	3,040
Washington Unified School District	Eastern Yolo County	Nine elementary schools, one middle school, two high schools, two charters, one independent program	7,978	7,160
Winters Joint Unified School District	In and around the City of Winters	One elementary school, one intermediate school (grades 4-5), one middle school (grades 6-8), one high school, one continuation school.	1,521	2,545
Woodland Joint Unified School District	City of Woodland and surrounding areas	Twelve elementary schools, two middle schools, two high schools, one continuation high school, one adult school	10,055	13,520

Enrollment Source: California Department of Education 2015.

Yolo County is served by two Community College Districts. Woodland Community College is a campus of the Yuba Community College District. The Los Rios Community College District has two satellite campuses, one in Davis and one in West Sacramento. UC Davis, although not part of the Yolo HCP/NCCP and no HCP/NCCP activities would occur on the campus, is a source of bachelors, graduate, and post graduate level education opportunities in the Plan Area.

EXISTING PUBLIC UTILITIES

Water

Water demands in Yolo County and the cities are met through a variety of sources including the Sacramento River, Cache Creek, Putah Creek, and groundwater. According to the California Department of Water Resources (DWR) per person water use in unincorporated Yolo County is approximately 0.274 acre-feet of water per year (244 gallons a day). In addition, based on DWR data, the unincorporated County uses approximately 790,000 acre-feet of water annually for agriculture. Total water use in the County (cities, unincorporated areas, municipal use, agricultural use, etc.) is approximately 960,000 acre-feet annually. Water demand is associated with three major sectors in Yolo County: agricultural, urban (municipal and industrial), and environmental. Agricultural use comprises the majority of water demand, consisting of approximately 88 percent of water consumption in the county, approximately 40 percent of which is derived from groundwater. As much of water for domestic supplies comes from unmetered private groundwater wells, and groundwater is also used by farmers to irrigate crops, actual water use is assumed to be underestimated (Yolo County 2009a, WDCWA 2016).

Yolo County relies on both surface and ground water supplies. Surface water sources in Yolo County include the Sacramento River, Knights Landing Ridge Cut, Putah Creek, and Willow Slough Bypass. Until recently, urban water demand was primarily groundwater (80 percent), and the City of West Sacramento was the only urban community that obtained the majority of water supply from surface water sources (Yolo County 2005). Beginning in June 2016, groundwater supplies in Woodland and Davis were largely replaced with surface water supplies from the Sacramento River, effectively serving more than two-thirds of the urban populations of Yolo County including UC Davis. Groundwater supplies are still available when demand for water cannot be met with surface water supplies alone (WDCWA 2016). Agricultural operations rely on groundwater for approximately 40 percent of their supply in a normal year, and more heavily on groundwater during drought years (WRA 2007).

There are numerous administrative bodies responsible for delivering water to the Plan Area, including: the Cities of Davis, West Sacramento, Winters, and Woodland; community services districts for Cacheville, Esparto, Knights Landing, and Madison; county service areas of El Macero, North Davis Meadows, Wildwings, and Willowbank; and Reclamation Districts 108, 150, 787, 999, 2035, and 2068.

Wastewater

Overall, wastewater treatment in Yolo County is provided by three types of treatment systems, wastewater treatment plants (WWTP), community wastewater treatment systems, and on-site wastewater treatment systems (OWTs) (i.e., individual septic systems). West Sacramento wastewater is diverted to the Sacramento Regional Wastewater Treatment Plant via the Lower Northwest Interceptor, a regional pipeline operated by the Sacramento Regional County Sanitation District (SRCSD). The Cities of Davis, Winters, and Woodland each have municipal WWTPs that treat city-generated wastewater. While a few unincorporated areas are served by community wastewater treatment systems and WWTPs, most of the wastewater in unincorporated portions of the County is treated through the use of OWTs. OWTs generally rely on septic tanks and on-site disposal using leach fields.

Solid Waste

Solid waste and recycling services in the unincorporated County are provided by the Yolo County Division of Integrated Waste Management. The City of Davis has an exclusive franchise waste agreement with a local private hauler, Davis Waste Removal. Davis Waste Removal collects trash, recyclables, and yard materials

within the city limits (City of Davis 2016). The City of West Sacramento Public Works Department is responsible for curbside services for solid waste, recycling, and yard waste (City of West Sacramento 2016b). The City of Winters and the City of Woodland contract with Waste Management for garbage collection and recycling to residents and businesses (Waste Management 2016a, 2016b).

Most solid waste collected in the Plan Area is delivered to the County's Central Landfill, a 722-acre facility equipped to handle Class III solid waste. Maximum disposal is 1,800 tons per day. At the current waste disposal rate, the landfills closure date is estimated to be January 1, 2081, an operational life of approximately 65 years more (CalRecycle 2008). Several other waste disposal facilities in the County include: Esparto Convenience/Transfer & Recycling Center, Northern Recycling Compost in Zamora, and the Davis Waste Removal Green Material Facility.

Electricity and Natural Gas

Pacific Gas and Electric (PG&E) supplies most of Yolo County with electricity and natural gas. PG&E operates electricity and natural gas infrastructure in the County and throughout Northern California, including power lines, powerhouses, pipelines, and substations. Private companies provide service for some of the unincorporated areas of the County not covered by PG&E.

7.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

No federal regulations related to public services or utilities are applicable to the proposed Plan.

STATE LAWS AND REGULATIONS

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. The CPUC establishes service standards and safety rules, and authorizes utility rate changes as well as enforcing CEQA for utility construction. The CPUC also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E. The CPUC works with other state and federal agencies in promoting water quality, environmental protection, and safety.

LOCAL LAWS AND REGULATIONS

Yolo County 2030 Countywide General Plan

The goals and policies of the Public Facilities and Services element of the Yolo County 2030 Countywide General Plan seek to ensure that infrastructure and services will be sufficient to support existing and new development in Yolo County. Policies related to public services and utilities and potentially relevant to the Plan are:

- ▲ **Policy PF-4.1.** Ensure the provision of appropriate law enforcement service and facilities to serve existing and planned land uses.
- ▲ **Policy PF-4.2.** Strive to maintain an average response time of 12 minutes for 90 percent of priority law enforcement calls in the rural areas.

- ▲ **Policy PF-5.5.** Encourage fire districts to maintain an overall fire insurance (ISO) public protection classification (PPC) rating of Rural 7 or better for fire protection service within the unincorporated communities.
- ▲ **Policy PF-5.9.** The County shall require, and applicants must provide, a will-serve letter from the appropriate fire district/department confirming the ability to provide fire protection services to the project, prior to each phase. (DEIR MM PUB-1).
- ▲ **Policy PF-5.10.** Reduce vegetation and other wildland fuels on County-owned land within the State Responsibility Area to reduce the intensity of fires, consistent with biological, scenic, and recreational considerations.
- ▲ **Policy PF-11.1.** Encourage the development of power generating and transmission facilities in appropriate alignments and locations, sufficient to serve existing and planned land uses.
- ▲ **Policy PF-11.3.** Require utility lines to follow field edges to minimize impacts on agricultural operations.

City of Davis General Plan

The City of Davis General Plan contains the following policies related to public services and utilities that are potentially relevant to the Plan:

- ▲ **Policy POLFIRE 1.2:** Develop and maintain the capacity to reach all areas of the City with emergency police and fire service within a five-minute emergency response time, 90% of the time. Response time includes alarm processing, turnout time, and travel time.
- ▲ **Policy POLFIRE 3.1:** Provide adequate infrastructure to fight fires in Davis.
- ▲ **Policy POLFIRE 3.2:** Ensure that all new development includes adequate provision for fire safety.
- ▲ **Policy WATER 2.1:** Provide for the current and long-range water needs of the Davis Planning Area, and for protection of the quality and quantity of groundwater resources.
- ▲ **Policy WATER 2.2:** Manage groundwater resources so as to preserve both quantity and quality.
- ▲ **Policy WATER 2.3:** Maintain surface water quality.
- ▲ **Policy Y&E 9.1:** It shall be the policy of the City to take all legally permissible steps to ensure the full mitigation of impacts of new development on school facilities.
- ▲ **Policy MAT 2.1:** Plan for the long-term waste disposal needs of Davis.
- ▲ **Policy WATER 4.1:** Research, monitor and participate in issues in Yolo County and the area of origin of the City's groundwater that affect the quality and quantity of water.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goals and policies that relate to public services and utilities and that may be applicable to the analysis of the HCP/NCCP:

Public Facilities and Services Element

Goal PFS-1. To ensure the provision of adequate and efficient facilities and services that maintain service levels, are adequately funded, and strategically funded.

- ▲ **Policy PFS-1.1. Maintain Existing Levels of Services.** The City shall give priority to providing services to existing urban areas in order to prevent the deterioration of existing levels of service.

- ▲ **Policy PFS-1.6. Neighborhood Compatibility.** The City shall ensure that public facilities, such as utility substations, water storage and treatment plants, and pumping stations are located, designed, and maintained so that noise, light, glare, or odors associated with these facilities will not adversely affect nearby land uses. The City shall require these facilities to use building and landscaping materials that are compatible with or screen them from neighboring properties.
- ▲ **Policy PFS-1.7. Clustering.** The City shall promote the clustering of public and quasi-public facilities (e.g., schools, parks, libraries, child care facilities, community activity centers), the joint-use of these facilities, and agreements for sharing costs and operational responsibilities among public service providers.
- ▲ **Policy PFS-1.8. Adaptive Infrastructure.** The City shall monitor expected impacts of climate change on the city's infrastructure and services and make appropriate adaptive facility and service modifications and upgrades.

Goal PFS-2. To maintain an adequate level of service in the City's water system to meet the needs of existing and future development while improving water system efficiency.

- ▲ **Policy PFS-2.1. Surface Water Priority.** The City shall continue to use treated surface water from the Sacramento River as the principal source of domestic water for the city, relying on treated groundwater only to supply the port pressure zone and as an emergency backup to the surface water source. The City shall pursue as expeditiously as possible, acquisition of additional surface water rights necessary to accommodate projected water demand.
- ▲ **Policy PFS-2.2. Expand to Meet Needs.** The City shall continue to expand and develop water treatment, distribution, and storage facilities to accommodate the needs of existing and planned development.

Goal PFS-3. To maintain an adequate level of service in the City's wastewater collection and conveyance system to meet the needs of existing and future development.

- ▲ **Policy PFS-3.3. Service New and Existing Development.** The City shall ensure the provision of adequate wastewater service to all new development and support the extension of wastewater service to existing developed areas where this service is lacking.
- ▲ **Policy PFS-3.4 New Treatment Facilities.** The City shall work as a member of the Sacramento County Regional Sanitation District (SRCSD) to expand and develop new wastewater treatment and disposal facilities to accommodate the needs of existing and planned development.

Goal PFS-5. To minimize the generation of waste, increase recycling, and provide for the collection and disposal of solid waste.

- ▲ **Policy PFS-5.3.** The City shall continue to coordinate with Yolo County concerning the City's continuing use of the Yolo County Central Landfill and its capacity projections.

Goal PFS-6. To ensure the provision of adequate utilities including gas, electric, and broadband communication services to West Sacramento residents and businesses, and ensure utilities are constructed in a fashion that minimizes their impacts on surrounding development and maximizes energy efficiency.

- ▲ **Policy PFS-6.1 Adequate Utility Facilities and Services.** The City shall work with utility providers to ensure the provision of adequate gas, electric, and broadband communications services and facilities to serve the needs of existing and future residents and businesses.

Goal PFS-7. To provide for the educational and literacy needs of West Sacramento residents.

- ▲ **Policy PFS-7-1. New School Sites.** The City shall assist the Washington Unified School District and others in locating and reserving appropriate sites for new schools.

- ▲ **Policy PFS-7-2. School Location and Size Standards.** The City shall use standards established by the Washington Unified School District in determining the number and location of new school sites.
- ▲ **Policy PFS-7-3. New Elementary/K-8 School Locations.** The City shall encourage new elementary/K-8 schools to be located on collector streets *within* residential areas. Elementary schools should be sited to avoid barriers such as railroad tracks and arterial streets that would separate them from the surrounding neighborhoods.
- ▲ **Policy PFS-7-4. Schools in Urban Areas.** The City shall explore the use of existing smaller sites in urban areas to accommodate lower enrollments, and/ or higher intensity facilities (e.g., multi-story buildings, underground parking, and playgrounds on roofs).
- ▲ **Policy PFS-7.13 Library Locations.** The City shall encourage the location of new libraries in areas easily accessible by walking, bicycling, and public transit.

Goal PFS-8. To maintain an adequate level of police service as new development occurs to protect residents, visitors, and property.

- ▲ **Policy PFS-8-2. Adequate Facilities.** The City shall strive to provide new and expanded law enforcement facilities and services to adequately meet the needs of existing and future development.
- ▲ **Policy PFS-8.3. Police Response Standards.** The City shall, through adequate staffing and patrol arrangements, endeavor to maintain the minimum feasible response times for police calls. The goal for average response time for Priority 1 (emergency) calls shall be five minutes.

Goal PFS-9. To prevent loss of life, injury, and property damage due to wildland and structural fires, while ensuring an adequate level of fire protection service is maintained for all.

- ▲ **Policy PFS-9.1. Adequate Facilities.** The City shall provide new and expanded fire department facilities to adequately serve the needs of existing and future development.
- ▲ **Policy PFS-9.2. Fire Response Standards.** The City shall strive to achieve and maintain a fire insurance (ISO) rating of 3 or better in the developed areas of the City. The goal for average response time for Priority 1 (emergency) calls shall be five minutes for 90 percent of the calls.
- ▲ **Policy PFS-9.3. Optimal Siting.** The City shall require that fire stations are strategically located to ensure optimal response time and physical barriers are considered in the siting of new stations.
- ▲ **Policy PFS-9.10 New Development.** The City shall require that new development provides all necessary water service, fire hydrants, and roads consistent with Fire Department standards.

City of Winters General Plan

The following policies of the City of Winters General Plan related to public services and utilities are potentially applicable to the Plan.

- ▲ **Policy IV.A.1.** The City shall ensure, insofar as possible, that public facilities and services are developed and operational as they are needed to serve new development.
- ▲ **Policy IV.A.2.** The City shall regularly monitor current levels of service in Winters' public facilities and services.
- ▲ **Policy IV.B.1.** The City shall continue to use groundwater as the principal source of domestic water for the foreseeable future. The City shall also pursue acquisition of surface water rights in order to decrease the city's dependence on groundwater.

- ▲ **Policy IV.B.7.** The City shall make preservation of groundwater recharge areas a high priority.
- ▲ **Policy IV.F.1.** The City shall, through adequate staffing and patrol arrangements, endeavor to maintain the minimum feasible response times for police calls. The goal for average response time for Priority 1 (emergency) calls shall be three minutes.
- ▲ **Policy IV.G.1.** The City shall encourage the Fire Protection District to maintain an overall fire insurance (ISO) rating of five or better for the city of Winters, but in no event should the ISO rating be allowed to fall below 6. The goal for average response time for Priority 1 (emergency) calls should be five minutes.
- ▲ **Policy IV.H.1.** The City shall assist the School District in locating and reserving appropriate sites for new schools.
- ▲ **Policy IV.H.2.** The City shall work cooperatively with the School District in monitoring housing, population, and school enrollment trends to plan for future school facility needs.
- ▲ **Policy IV.H.4.** The City shall cooperate with the School District in an effort to ensure adequate financing for new school facilities. To this end, the City shall cooperate with the School District in the collection of school facility development fees from new residential and non-residential development.

City of Woodland General Plan

The City of Woodland General Plan contains the following policies related to public services and utilities potentially applicable to the Plan.

- ▲ **Policy 4.C.1.** The City shall protect the groundwater basin from overdraft due to City pumpage. The City shall study the groundwater basin and the feasibility of using surface water supplies (e.g., obtaining water rights, transfers, or exchanges) for domestic and/or agricultural use within the Woodland area. Water management programs such as conjunctive use and recharge programs will also be considered. The City shall use this information to determine the most appropriate long-term water supply to serve Woodland.
- ▲ **Policy 4.G.2.** The City shall promote maximum use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes.
- ▲ **Policy 4.G.4.** The City shall encourage the development of regional and community-based recycling facilities and secondary resource businesses in heavy commercial and industrial areas.
- ▲ **Policy 4.G.6.** The City shall work with Yolo County to employ methods to lengthen the life of the County landfill.
- ▲ **Policy 4.H.1.** The City shall, through adequate staffing arrangements, endeavor to maintain a high level of police service to the community. Determination of adequate staffing levels shall consider the number of calls for service per patrol officer (nonsupervisory), response time to calls for service based on priority, the amount of unobligated patrol time available to further community policing activities, and the average number of Part I crimes per investigator. The following goals are established to measure the adequacy of police staffing:
 - The average number of calls for service per day per patrol officer should not exceed seven per day.
 - The average response times for calls for service:

Priority	Class of Crime	Dispatch/Response Standard
Priority 1	Major Crimes	Dispatch time: 1 minute Police response time: 4 minutes
Priority 2	Major Crimes	Dispatch time: 1 minutes Police response time: 5 minutes

Priority	Class of Crime	Dispatch/Response Standard
Priority 3	Major Crimes Cold	Dispatch time: 15 minutes Police response time: 10 minutes
Priority 4	Minor Crimes Cold	Dispatch time: 30 minutes Police response time: 10 minutes
Priority 5	Service Calls	Dispatch time: 35 minutes Police response time: 10 minutes

- Patrol officers should average a minimum of 50 percent unobligated patrol time per shift to focus on community policing activities.
- ▲ **Policy 4.I.1** Within the City's overall budgetary constraints, the City shall strive to maintain a fire operations staffing ratio of 1.0 per 1,000 residents.
- ▲ **Policy 4.I.2.** The City shall attempt to maintain an ISO (Insurance Service Organization) rating of 3.
- ▲ **Policy 4.I.3.** The City shall establish and maintain a performance standard of four (4) minutes response time for the first arriving unit capable of providing service and eight (8) minutes for arrival of the complete first alarm assignment. The benchmark for both response times in this process should be 90 percent (response time is measured from the time the unit leaves the station to the time the unit arrives at the scene).
- ▲ **Policy 4.J.1.** The City shall communicate its major development plans with utility companies and coordinate planning of extension of these facilities.
- ▲ **Policy 5.E.1.** The City shall continue to assist the Woodland Joint Unified School District in providing quality education facilities that will accommodate projected student growth by requiring that impacts created by developments are mitigated in a manner acceptable to the School District, to the extent legally feasible.
- ▲ **Policy 5.F.1.** The City shall work cooperatively with the Woodland Joint Unified School District in monitoring housing, population, and school enrollment trends and in planning for future school facility needs, and shall assist the District in locating appropriate sites for new schools.

7.3 ENVIRONMENTAL CONSEQUENCES

7.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts to public services and utilities is based on a review of existing facilities, anticipated future facilities, and plans and policies pertaining to the Plan Area described above in Section 7.2.2, *Regulatory Setting*. The impact analysis considers the potential for increases in demand for public services and utilities and potential effects to existing public services and utilities within the Plan Area. The analysis below does not address the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. Therefore, there would be no additional demand for public services or utilities and, as such, this area is not addressed further.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or the California Department of Fish and Wildlife (CDFW) to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on public services and utilities in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for:
 - fire protection
 - police protection,
 - schools,
 - parks, or
 - other public facilities.
- ▲ exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- ▲ require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▲ require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▲ have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;
- ▲ result in the determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- ▲ be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- ▲ comply with federal, state, and local statutes and regulations related to solid waste.

ISSUES NOT EVALUATED FURTHER

As stated above in Section 7.2.1, *Environmental Setting*, the County's Central Landfill has an estimated operational life of 65 more years under current disposal rates. There is sufficient permitted capacity to meet

the County's existing and future solid waste disposal needs well beyond the permit term, therefore this issue is not evaluated further in this chapter.

7.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. Environmental effects from the development of new public services and utility facilities associated with each development category under the No Action Alternative are addressed in each chapter within this EIS/EIR. For example, the analysis of effects on biological resources resulting from the No Action Alternative provided in Chapter 4, *Biological Resources*, encompasses the effects of public services and utilities infrastructure included in each development category. Therefore, descriptions of the physical impacts associated with the development of new public services and utility infrastructure are not repeated in detail here.

Under the No Action Alternative, development in rural and urban areas within the Plan Area would occur as planned by the plan participants, and would result in the need for expanded and additional public services and utilities infrastructure. However, provision of public services and utilities, and the infrastructure needed to provide service is included in general plans, area plans, and other applicable planning documents. Environmental effects associated with providing additional public services and facilities are assumed to be encapsulated within the overall environmental effects of the proposed development. For example, development that generates the need for a new fire station is assumed to include the needed fire station within the overall development footprint. Where facilities are needed outside a project footprint, additional environmental effects could occur, depending on the location and type of public service or utility infrastructure needed. Environmental impacts associated with the construction of public services and utility facilities would be addressed on a project-by-project basis. Mitigation measures would be proposed to reduce environmental impacts to the degree feasible. The development of new or expanded public services and utilities capacity would be consistent with the requirements of current local plans and policies regarding the provision of these services and are assumed to be sufficient to meet any growing demand as required by these plans and policies.

Activities under the rural public services, infrastructure, and utilities category include construction and/or expansion of facilities to provide increased water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation and distribution facilities; municipal services and facilities; landfills, collection facilities, and transfer stations; and other services, infrastructure, and utilities that serve planned land uses that are consistent with local general plans. These new facilities would respond to the demand for public services capabilities and utilities supplies generated by other development categories. Other activities under this development category, such as public and private roadways and bridges; bikeways, bike lanes, and multi-use trails would generally not increase demand on public services and utilities or involve construction of new infrastructure or facilities.

Activities under the agricultural economic development category could result in relatively large structures being constructed in a rural/agricultural area (e.g., processing plants). These projects would include infrastructure needed to support these facilities, including water, wastewater, and energy requirements. Activities under the open space category could result in campsites, picnic areas, swimming facilities, and barbeque areas. Any needed expansions of infrastructure for these projects would be minimal and limited to pipelines and other minor modifications. Substantial infrastructure projects, such as construction of new water and wastewater facilities, are not anticipated. Generally, the demand for public services would not increase substantially through implementation of these types of projects because these facilities would include project-level infrastructure to serve project-level needs (e.g. on-site septic and water systems, and populations would not substantially increase (i.e., no related increase in residential uses).

The impact descriptions provided above primarily relate to permanent changes in demand for, and provision of public services and utilities. Construction of new facilities and public and private operations and maintenance activities have the potential to result in temporary disruptions in utilities to accommodate activities such as pipeline replacement. These types of disruptions would occur for limited periods of time, and would not result in long-term effects on utilities or public services.

As the development and other activities described above are implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would not increase the demand for public services and utilities.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in demand for public services and utilities to accommodate increased populations. The capacity to provide public services and utilities has typically increased as needed to meet demand.

Projects and activities included within the categories of urban and rural development would continue the trend of increasing the demand for public services and utilities and could combine other projects within the county to result in a larger cumulative increase in demand for the associated resources. Consistent with the general plans of Yolo County and the Cities of Davis, West Sacramento, Winters, and Woodland, further development of public services and utility infrastructure and facilities would occur as planned development proceeds under the No Action Alternative. Individual projects would be required to determine the increase in demand and need for new and expanded facilities, as necessary, and either provide these facilities directly, or work with service providers to fund or otherwise support provision of needed facilities.

In addition, it is anticipated that future development implemented under the No Action Alternative, as well as any other projects in the Plan Area, would comply with the policies set forth in city and county general plans. Development in unincorporated portions of the county would be subject to policies under the Yolo County 2030 Countywide General Plan that provide guidelines for law enforcement response time (Policy PF-4.2) and fire and emergency support to enhance the protection of life and property (Policy PF-5.5, PF-5.9, and PF-5.10). In addition, the general plans of the Cities of Davis, West Sacramento, Winters, and Woodland contain policies applicable to utility availability and adequate public services. It is assumed that compliance with general plan policies, described above under Section 7.2.2, would direct future development of utility and public services facilities and infrastructure consistent with the demand for these resources within each jurisdiction. In addition, some reasonably foreseeable future projects, such as wind and solar energy generation facilities, could assist in meeting cumulative utility demand.

As identified above in the alternative specific impact discussion, required biological resources mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would generally not contribute to demand for public services and utility resources either individually or cumulatively.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Public services and utilities impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures during implementation of covered activities. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. The following impact discussions focus on the elements of the Proposed Action Alternative that differ from the No Action Alternative. However, the primary result of the neighboring landowner protection program, from a public services and utilities perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Because the program would not change the demand for, or provision of public services and utilities, it would not have an effect on these issue areas, and is not evaluated further in the impact discussions below.

Effect PSU-1: Changes in the Demand for, or Provision of, Public Services and Utilities.

Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks. These activities would result in continuation of existing agricultural operations or the preservation of existing open space, and therefore would not directly or indirectly place additional demands on the existing utilities or public services in the Plan Area.

Where existing agricultural lands are put into conservation easements, this will “fix” the types of crops that can be cultivated on the land, thereby also limiting the range of possible water demand to that needed to support the allowable crops. Without the easement, it is possible that over time, the land in question could be used to cultivate various crop types that use more water, or less water, than existing conditions. It would be speculative to conclude that placing the land under a conservation easement as part of the Plan would have an effect of either permanently increasing or decreasing water demand relative to the conditions with no easement, because absent the easements, crop patterns would change based on the individual decisions of farmers based on unknown future agricultural economic conditions, making it impossible to predict future water demand.

The conservation strategy included in the Proposed Action Alternative also includes habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat restoration and creation where an existing natural or semi-natural land cover type would be converted to a different natural land cover type (e.g., restoration of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation). Vegetation plantings associated with habitat enhancement, restoration, and/or creation may require irrigation to support vegetation establishment. If the land where plantings are undertaken does not already have irrigation available, water delivery and irrigation

infrastructure may need to be installed, and the irrigation would constitute a new water demand. However, irrigation needs for habitat enhancement/restoration/creation are typically relatively modest compared to more intensive land uses, and are often on the scale that water delivery can be achieved with water trucks if needed. Irrigation needs are also temporary, typically occurring for 1-3 years until plantings are established. Therefore, any effects related to water supply and water infrastructure would be minimal.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. Demand for public services and utilities resulting from covered activities under the Proposed Action Alternative would not be appreciably different from those under the No Action Alternative. Specific to the generation of demand for public services and utilities, the biological resources mitigation actions under the No Action Alternative would have a very similar result as the conservation strategy under the Proposed Action Alternative

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**. Overall, with implementation of the conservation strategy included in the Proposed Action Alternative, there would be no new or expanded water or wastewater facilities and no changes in treatment capacity. Any potential increases in water demand would be minor for reserve establishment and management activities. Substantial speculation would be required to attempt to predict any changes in water demand that might be attributable to agricultural conservation easements included in the conservation strategy. Implementation of the conservation strategy would not generate population increases that could result in the need for new or physically altered governmental services and/or facilities. Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant impacts to public services or utilities.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects are described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

As described above, implementation of the Proposed Action Alternative would not directly or indirectly place additional demands on existing utilities or public services in the Plan Area. Therefore, implementation of the Proposed Action Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on public services and utilities. In terms of contributions to cumulative impacts, the Proposed Action Alternative would be the same as the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative in which no activities that would result in take of covered species would be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. Impacts to public services and utilities as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. New development provided incidental take authorization by the Plan would place increased demands on public services and utilities, but these demands would be responded to consistent with applicable regulations and policies, and environmental effects of any new facilities would be consistent for those described for the No Action Alternative in other chapters of this EIS/EIR. However, impacts could be slightly less for the Reduced Take Alternative because of the reduced level of development, depending on the location and extend of any development that might be displaced

from the eight areas where take of covered species is prohibited. Reserves established under the Reduced Take Alternative would be maintained as open space and would not place any substantial new demand on utilities or public services. Thus, with implementation of the reserve system, there would be no new or expanded water or wastewater facilities, demand for these services, or treatment capacity, or population increases that could result in the need for new or physically altered governmental services and/or facilities.

Overall, effects on public services and utilities under the Reduced Take Alternative would not be appreciably different from those described for the No Action Alternative and the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on public services and utilities under the Reduced Take Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Take Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on public services and utilities. The Reduced Take Alternative would make the same contribution to any potential adverse cumulative effects compared as the No Action Alternative and the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

ALTERNATIVE D- REDUCED DEVELOPMENT ALTERNATIVE

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities. There are no immediate plans to develop these areas in the near term, but some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the HCP/NCCP. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Impacts to public services and utilities as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. Since the two areas that would not be covered by the HCP/NCCP could be developed some time in the future, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Relative to demand for, and provision of, public services and utilities, the conservation/mitigation actions for all three action alternatives also would not appreciably differ.

Overall, effects on public services and utilities under the Reduced Development Alternative would not differ in any meaningful way from those described for the No Action Alternative and Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on public services and utilities under the Reduced Development Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Development Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on public services and utilities. The Reduced Development Alternative would make the same contribution to any potential adverse cumulative effects compared to the No Action Alternative and Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and remains **less than significant**.

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8 RECREATION AND OPEN SPACE

8.1 INTRODUCTION

This chapter provides information relevant to recreation and open space impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. The value of open space related to biological resources, agriculture, and aesthetics is address in Chapter 4, *Biological Resources*, Chapter 6, *Agricultural and Forestry Resources*, and Chapter 18, *Visual Resources*, respectively.

8.1.1 Data Sources

The following sources of information were reviewed to prepare the recreation and open space chapter.

- ▲ *The Yolo County 2030 Countywide General Plan* (Yolo County 2009a),
- ▲ *The Background Report for the Yolo County General Plan update* (Yolo County 2005),
- ▲ *The Yolo County 2030 Countywide General Plan EIR* (Yolo County 2009b),
- ▲ *The Yolo County Park and Open Space Master Plan* (Yolo County 2006),
- ▲ Information available on the Yolo County website, www.yolocounty.org,
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016a),
- ▲ *City of Winters General Plan* (City of Winters 1992),
- ▲ *City of Woodland General Plan Update* (City of Woodland 2002), and
- ▲ *Cache Creek Resources Management Plan (CCRMP)* (Yolo County 2002).

8.1.2 Definitions

Recreation resources within the Plan Area include recreation areas and facilities for active and passive recreation such as parks, trails, campsites, and open space. Passive recreation refers to non-consumptive uses requiring minimal facilities such as wildlife observation, walking, hiking, and biking. An area supporting passive recreation is generally an undeveloped space requiring minimal facilities (e.g., trails, parking spaces) to fulfill its intended purpose. The quality of the environment and *naturalness* of an area is a primary focus of the recreational experience in a passive recreation area.

Active recreation is generally any recreational activity that requires significant infrastructure for the purposes of active sports or organized events. Locations supporting active recreation typically require specialized parkland facilities and management. Examples of active recreational outdoor facilities include sports fields, play grounds, skate parks, golf courses, and amphitheaters.

8.2 AFFECTED ENVIRONMENT

8.2.1 Environmental Setting

EXISTING RECREATION AREAS AND OPEN SPACE

Parks and open space within the Plan Area include city and county parks, regional parks, and open space areas managed by federal, State, and local agencies, non-governmental organizations, commercial mitigation banks, and other private interests (Yolo County 2009a). Large properties under public ownership and/or management in Yolo County are discussed in detail on pages CO-10 to CO-12 of the Conservation and Open Space Element of the Yolo County General Plan. The following section provides an overview of existing open space recreation areas in the Plan Area.

Federal Recreation Areas and Open Space

Approximately 28,580 acres (4.4 percent) of the Plan Area is in federal ownership, including the northwest portion of the county within the Blue Ridge Range. This area is primarily owned by the Bureau of Land Management (BLM), and includes the Cache Creek Natural Area/Camp Haswell Park and lands in the southwest portion of the county near Berryessa Peak, as well as other small properties within the Blue Ridge Range (Yolo County 2009b). The Cache Creek Natural Area is jointly managed by the BLM and California Department of Fish and Wildlife (CDFW). The area is designated as a “primitive area,” where facilities, developed campgrounds, and motorized vehicles are not permitted.

State Recreation Areas and Open Space

The State of California owns approximately 17,460 acres (2.6 percent) of land within the Plan Area, including the Yolo Bypass Wildlife Area (Yolo Bypass) and the Fremont Weir Wildlife Area.

The Yolo Bypass Wildlife Area encompasses approximately 16,600 acres of managed wildlife habitat and agricultural land located within the southern floodway of the Yolo Bypass. The Wildlife Area is a public and private restoration project managed by the CDFW. The Yolo Basin Foundation is responsible for environmental education programs associated with the Yolo Bypass Wildlife Area.

The Fremont Weir Wildlife Area is located primarily in the northeastern part of the county, with a small portion located in Sutter County (DFG 2009). This area is a floodway consisting of approximately 1,500 acres and is typically used for fishing, bird watching, wildlife viewing, and hunting. No facilities are located in the wildlife area.

In addition, the Cache Creek Wild and Scenic River Area was added to the State Wild and Scenic River System in 2005. This Wild and Scenic River Area includes 31 miles of upper Cache Creek in Lake and Yolo counties. Designation of the upper reaches of the Creek as “wild and scenic” supports the creek’s scenic, recreational, wildlife, and fishery values and precludes new dams and water diversions.

County Recreation Areas and Open Space

Yolo County manages almost 1,400 acres of regional and community parks and open space areas. The term “resource” park is used to refer to regional and/or open space parkland, which is typically much larger in size than a community park, and is characterized by passive and/or very low-management uses. “Resource” parks are intended to serve the county population and outside visitors, rather than a singular community. Community parks are generally small in area and are developed for a variety of community uses, gatherings, and events. These parks are intended to provide active recreation areas, such as playgrounds sports fields, sports courts, and picnic areas. A list of county parks and their acreage are shown below in Table 8-1.

Table 8-1 Existing County Parks

Park	Acreage
Dunnigan Community Park	0.5
Esparto Community Park	4
Cache Creek Canyon Regional Park, Trail System, and Campground	685
Cache Creek Conservancy Nature Preserve	130
Capay Open Space Park and Trail System	41
Clarksburg River Access Park	4
Correll-Rodgers Habitat Area	40
Elkhorn Regional Park	55
Gibson House Museum	2
Grasslands Regional Park and Trail System	320
Helvetia Oak Grove	11
Knights Landing River Access Park	4
Nichols Park	21
Otis Ranch Open Space and Trail System	587
Putah Creek Fishing Access	150
Wild Wings Park	17

Source: Yolo County 2015a, Yolo County 2015b

Within the Cache Creek planning area, the County has designated an Open Space area of about 5,000 acres of primarily privately owned lands that fall under the management guidance and regulation of the CCRMP.

City Recreation Areas and Open Space

Each of the four cities within Yolo County own public open spaces that include parks within their boundaries. The City of Davis Parks and Open Space Division maintains more than 485 acres of parks and greenbelts and 570 acres of open space land throughout the community. The City has also acquired conservation easements on approximately 5,300 acres of agricultural land and habitat surrounding the community through their Open Space Program (City of Davis 2015).

The City of West Sacramento operates 35 parks sites comprising approximately 150 acres. Parks within West Sacramento include mini parks, playfields, neighborhood parks, boat ramps, community parks, regional parks, and linear parks (City of West Sacramento 2016b).

Existing recreation facilities within the City of Winters includes approximately 6 acres of parkland, facilities associated with each of the schools within the city, the Community Center and Rotary Park Complex, and the Winters Scout Cabin (City of Winters 1992).

The City of Woodland has more than 160 acres of parks and recreation areas in 25 identified facilities, which include mini parks, neighborhood parks, special use parks, a swimming pool, community parks, and regional parks (<http://www.cityofwoodland.org/gov/depts/communityserv/parks/default.asp>).

Other Recreation and Open Space Areas

The Blue Ridge Berryessa area consists of 785,000 acres of predominantly open space along the spine of the western Blue Ridge Mountains in the northwestern part of Yolo County, and includes portions of Colusa,

Solano, Napa and Lake Counties. The area remains primarily in private ownership and is not subject to State or federal management.

PLANNED RECREATION AREAS AND OPEN SPACE

Yolo County has several planned recreation and open space areas, as described in the Yolo County General Plan (Yolo County 2009a) and city general plans (City of Davis 2007; City of West Sacramento 2016a; City of Winters 1992; City of Woodland 2002). Planned features include the following:

- ▲ Capay Valley Bicycle Trail;
- ▲ gateway park in the Western Foothills;
- ▲ Blue Ridge Trail;
- ▲ trail linking Putah Creek access sites;
- ▲ trail linkages along Putah Creek between existing access sites in Winters and Davis;
- ▲ extension of existing bicycle trail along Putah Creek corridor;
- ▲ gateway park to Yolo Bypass;
- ▲ trail linkages along the Sacramento River between Knights Landing and Clarksburg;
- ▲ gateway park in the Delta region;
- ▲ new California Indian Heritage Center;
- ▲ expanded Sacramento River access and trail linkage;
- ▲ new community park in Esparto;
- ▲ Dunnigan Hills Area Park;
- ▲ new community park in Knights Landing;
- ▲ new community park in Dunnigan;
- ▲ trail linking Cache Creek access sites;
- ▲ expansion of Cache Creek Regional Park;
- ▲ additional parks and trail linkages along Cache Creek corridor;
- ▲ Cache Creek Parkway Plan;
- ▲ extension of existing bicycle trail west of Davis;
- ▲ new and expansion of existing neighborhood, miniparks, and community parks in Davis; and
- ▲ ongoing acquisitions by City of Davis Open Space and Habitat Commission.

8.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Cache Creek Coordinated Resource Management Plan

The *Cache Creek Coordinated Resource Management Plan* was adopted by the BLM in 2004 and provides the framework for the future management direction of BLM lands included within the Cache Creek Natural Area. Other collaborating agencies include CDFW, which manages the Cache Creek Wildlife Area, and Yolo County Parks and Resources Management, which manages Cache Creek Canyon Regional Park.

STATE LAWS AND REGULATIONS

Quimby Act

The Quimby Act (California Government Code Section 66477) preserves open space and parkland in urbanizing areas of the state by authorizing local governments to establish ordinances requiring developers of new subdivisions to dedicate land for parks, pay an in-lieu fee, or perform a combination of the two. The Quimby Act provides two standards for the dedication of land for use as parkland. If the existing area of parkland in a community is 3 acres or more per 1,000 persons, then the community may require dedication based on a standard of 5 acres per 1,000 persons residing in the subdivision. If the existing amount of

parkland in a community is less than 3 acres per 1,000 persons, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision.

Delta Protection Act

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any local government's general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta." The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Figure 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

The Delta Protection Commission is charged with preparing a regional plan for the Primary Zone to address land uses and resources management, with particular emphasis on agriculture, which was designated by the Delta Protection Act as the primary use of this zone. This plan, the Land Use & Resource Management Plan (LURMP) provides guidance to local governments. The LURMP provides guidance on a variety of resources, including land use, and recreation and access. Specifically, Land Use Policy P-2 and Agriculture Policies P-1 through P-10 address the role of local governments in preserving and protecting long-term agricultural viability and open space values in the Primary Zone through implementation of general plan policies and zoning codes.

Senate Bill 1556

In 2006, Senate Bill 1556 mandated that the Delta Protection Commission adopt a plan and implementation program for a continuous recreational corridor trail network through all five Delta counties, linking the San Francisco Bay Trail system to the planned Sacramento River trails in Yolo and Sacramento Counties, pending funding availability (Public Resources Code Section 5854). The plan for the Great California Delta Trail (Delta Trail) is to include routes for bicycling and hiking, with interconnections to other trails, park and recreational facilities, and public transportation. This plan prioritizes trail connections on existing public lands, and working with willing private landowners for access. The plan also includes water trails to provide trail continuity in places where land trails are not feasible. The Delta Protection Commission serves as a facilitator for this effort, working in partnership with local entities to coordinate planning and implementation across jurisdictional boundaries (Delta Protection Commission 2007).

LOCAL

Yolo County 2030 Countywide General Plan

The goals and policies of the Conservation and Open Space element of the *Yolo County General Plan* seek to ensure a balanced management of the County's multiple natural and cultural resources. Goals and policies related to recreation and open space and potentially relevant to the HCP/NCCP are:

Goal CO-1 Natural Open Space. Provide a diverse, connected and accessible network of open space, to enhance natural resources and their appropriate use.

- ▲ **Policy CO-1.1.** Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.
- ▲ **Policy CO-1.2.** Develop a connected system of recreational trails to link communities and parks throughout the county.

- ▲ **Policy CO-1.3.** Create a network of regional parks and open space corridors that highlight unique resources and recreational opportunities for a variety of users.
- ▲ **Policy CO-1.4.** Provision of an appropriate level of public facilities and infrastructure shall be a priority for all County park facilities.
- ▲ **Policy CO-1.5.** Establish future resource parks close to population centers, where feasible.
- ▲ **Policy CO-1.7.** Support efforts by willing landowners and non-profit groups to provide new opportunities for outdoor recreation.
- ▲ **Policy CO-1.9.** Promote the conservation of environmental resources in new and existing park and open space facilities.
- ▲ **Policy CO-1.10.** The target threshold for resource parks (regional and open space parks) shall be 20 acres per 1,000 total County population (both unincorporated and incorporated). Larger ratios may be appropriate in Specific Plan areas to accommodate important natural features and/or safety areas.
- ▲ **Policy CO-1.11.** Coordinate the development of recreation areas and public open space with regional trail planning.
- ▲ **Policy CO-1.13.** Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable, natural open space policies of the Land Use and Resource Management Plan of the Delta Protection Commission.
- ▲ **Policy CO-1.14.** Support the preservation of open space consistent with this General Plan, via acquisition of fee title or easement interest by land trusts, government agencies, and conservancies from willing landowners.
- ▲ **Policy CO-1.15.** Support efforts to acquire either fee title or easements on additional open space areas adjoining existing protected natural resource areas to increase the size, connectivity, and buffering of existing habitat.
- ▲ **Policy CO-1.16.** Coordinate open space acquisition with habitat acquisition that occurs pursuant to the Yolo Natural Heritage Program.
- ▲ **Policy CO-1.23.** Increase public access and recreational uses along waterways wherever feasible, particularly Cache Creek, Lower Putah Creek, the Yolo Bypass, and the Sacramento River.
- ▲ **Policy CO-1.24.** Allow for specified areas of resource parks to be preserved, enhanced and/or restored as mitigation sites for public agencies only, consistent with the requirements of appropriate regulatory and funding agencies, provided that adequate compensation, including funding for operations and maintenance of the mitigation, is provided.
- ▲ **Policy CO-1.29.** Require clustering and creative site planning in new development areas to preserve and enhance areas of contiguous open space to the extent feasible.

Yolo County Parks and Open Space Master Plan

The purpose of the *Yolo County Parks and Open Space Master Plan* is to provide information and guidance for the management, use, and future development of Yolo County parks and open space facilities, both individually and system-wide. The Parks and Open Space Master Plan provides baseline inventories and assessments of recreational uses, as well as system-wide classifications and design elements to reinforce an identity and management consistency for county park property. Relevant policies and actions are described on pages VI-1 to VI-4 and VI-8 to VI-22 of the Master Plan (Yolo County 2006).

Cache Creek Resources Management Plan

The CCRMP was developed by Yolo County as part of the *Cache Creek Area Plan* and establishes goals to assist in the overall management of the resources associated with Cache Creek. Goals of the plan include ensuring that the floodway is maintained to allow other beneficial uses of the channel, including groundwater recharge, recreation, and riparian vegetation, without adversely affecting flood capacity (Yolo County 2002).

Yolo County Bicycle Transportation Plan

Yolo County has adopted a Bicycle Transportation Plan that serves as a long-range, comprehensive policy guide for constructing a countywide bike trail network. The plan lists current priorities for bicycle facility development, and sets forth a goal to provide for and encourage the development of an integrated system of bikeway facilities. These facilities would provide for safe and convenient travel for bicyclists throughout the county. The goals and policies of the County relating to bicycle trails are discussed in further detail on pages 2-4 of the *Yolo County Bicycle Transportation Plan* (Yolo County 2013).

Yolo County Oak Woodland Conservation and Enhancement Plan

The *Oak Woodland Conservation and Enhancement Plan* includes a description of the existing oak woodland resources in Yolo County, as well as the goals for protecting and growing these areas. These goals are described on page 5 of the Conservation and Enhancement Plan (Yolo County 2007). Priorities for oak woodland conservation and enhancement projects is described on pages 19 through 41 of the Conservation and Enhancement Plan.

Yolo Land Trust

The Yolo Land Trust helps landowners place conservation easements on their property to permanently preserve farmland, rangeland, stream corridors, wetlands, and oak woodlands in order to protect farms, open space, and habitat lands. Conservation easements have been placed on almost 11,000 acres in Yolo County through the Yolo Land Trust.

City of Davis General Plan

The *City of Davis General Plan* contains the following goals and policies related to recreation and open space and potentially relevant to the HCP/NCCP:

Goal POS 1. Provide ample, diverse, safe, affordable and accessible parks, open spaces and recreation facilities and programs to meet the current and future needs of Davis' various age and interest groups and to promote a sense of community, pride, family and cross-age interaction.

- ▲ **Policy POS 1.2.** Provide informal areas for people of all ages to interact with natural landscapes, and preserve open space between urban and agricultural uses to provide a physical and visual edge to the City.

Goal POS 3. Identify and develop linkages, corridors and other connectors to provide an aesthetically pleasing and functional network of parks, open space areas, greenbelts and bike paths throughout the City.

- ▲ **Policy POS 3.1.** Require creation of neighborhood greenbelts by project developers in all residential projects, in accordance with Policy LU A.5.
- ▲ **Policy POS 3.2.** Develop a system of greenbelts and accessways in new non-residential development areas.

Goal POS 4. Distribute parks, open spaces and recreation programs and facilities throughout the City.

- ▲ **Policy POS 4.1.** Preserve existing parks, greenbelts, and open space areas.
- ▲ **Policy POS 4.2.** Construct new parks and recreation facilities.

Goal POS 6. Encourage local organizations, the Davis Joint Unified School District, UC Davis, and the private sector to provide, develop and maintain needed parks, open space, recreation facilities, programs, activities and special events to the greatest extent possible.

- ▲ **Policy POS 6.2.** Require dedication of land and/or payment of an in-lieu fee for park and recreational purposes as a condition of approval for subdivisions, as allowed by the Quimby Act (Government Code 66477).

Goal HAB 2. Increase public awareness of habitat, wildlife and sensitive species.

- ▲ **Policy HAB 2.1.** Develop environmental educational programs and public access areas and programs to allow viewing of wildlife and habitat through controlled interactions of people with natural areas.

Goal TRANS 4. Davis will strengthen its status as a premier bicycling community in the nation by continuing to encourage bicycling as a healthy, affordable, efficient, and low-impact mode of transportation accessible to riders of all abilities, and by continuously improving the bicycling infrastructure.

- ▲ **Policy TRANS 4.2.** Develop a continuous trails and bikeway network for both recreation and transportation that serves the Core, neighborhoods, neighborhood shopping centers, employment centers, schools and other institutions; minimize conflicts between pedestrians, bicyclists, equestrians, and automobiles; and minimize impacts on wildlife. Greenbelts and separated bike paths on arterials should serve as the backbone of much of this network.
- ▲ **Policy TRANS 4.7.** Develop a system of trails around the edge of the City and within the City for recreational use and to allow pedestrians and bicyclists to reach open space and natural areas.

City of Davis Parks and Recreation Facilities Master Plan

The *City of Davis Parks and Recreation Facilities Master Plan* (City of Davis 2012) provides an overall framework to guide the provision of parks, recreation, and related quality of life services in the community. The 2012 Plan includes a 10-year plan and funding strategy that prioritizes parks and recreation related capital projects that are needed to maintain existing amenities, respond to community requests for enhanced opportunities, and provide for expanded facilities to accommodate projected population growth.

2014 City of Davis Bicycle Action Plan

The City of Davis adopted the 2014 Bicycle Action Plan to provide a detailed road map for implementing bike programs that will help Davis achieve its long-term emissions reductions and mode share goals. It is the goal of the City of Davis to maintain the current integrated system of bicycle facilities and create future linkages and improvements in the system (City of Davis 2014).

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goals and policies that relate to recreation and open space that may be applicable to the analysis of the HCP/NCCP:

Parks and Recreation Element

Goal PR-1. To establish and maintain a public park system and recreation facilities suited to the needs of West Sacramento residents and visitors.

- ▲ **Policy PR-1.2. New Development.** The City shall require new residential development to help meet the City's park acreage standard as shown in Table PR-1 and established in the adopted Parkland Dedication Ordinance. To this end, the City shall require of all new development the dedication of land, dedication of improvements, payment of in-lieu fees, or any combination of these determined acceptable by the City, to the extent authorized by law. Projects located in an areas subject to a specific plan may employ alternative strategies to achieve recreation goals.

- ▲ **Policy PR-1.3. Urban Parks.** The City shall, for development in urban infill areas where traditional neighborhood and community parks are not feasible or appropriate, work with developers to produce creative and flexible solutions for providing urban parks, such as plazas and rooftop gardens.
- ▲ **Policy PR-1.5. Walking Distance.** The City shall strive to provide park facilities within convenient walking-distance of all residents.
- ▲ **Policy PR-1.7. Non-Automobile Access.** The City shall require that new neighborhood and community parks are accessible to pedestrians and bicyclists, and are connected with transit, to the extent feasible.
- ▲ **Policy PR-1.8. City Park Complex.** The City shall promote the development of one or more large-scale park complexes in West Sacramento
- ▲ **Policy PR-1.10. Joint Use.** The City shall prioritize the joint-use of school facilities over the development of new park and recreational facilities and shall support significant improvement of existing school cafeterias and auditoriums for joint use purposes.
- ▲ **Policy PR-1.14. Buffer Potential Impacts.** The City shall strive to ensure new high-activity level parks and parks intended for night use are designed to buffer existing and planned surrounding residential uses from excessive noise, light, and other potential nuisances.
- ▲ **Policy PR-1.15. Community Activity Areas.** The City shall identify appropriate open spaces, including areas within the Central Business District and along the Sacramento River, for development of safe community activity areas.
- ▲ **Policy PR-1.18. Parks as Buffers.** The City shall encourage the use of parks and recreational corridors as buffers between incompatible land uses.

Goal PR-2. To provide a continual system of parks and open space corridors that connect destination points within and beyond the city of West Sacramento.

- ▲ **Policy PR-2.1 Recreational Corridors along River.** The City shall establish recreational corridors along the full length of the Sacramento River and Deep Water Ship Channel located within city limits.
- ▲ **Policy PR-2.2. Pedestrian/Bicycle System.** The City shall develop and maintain a system of pedestrian and bicycle pathways linking City parks, neighborhood shopping areas, major activity centers, and major open space areas with one another and with nearby residential areas.
- ▲ **Policy PR-2.3. Connecting to Recreational Corridors.** The City shall strive to ensure that pedestrian and bicycle pathways that cross the Sacramento River connect to the city's recreational corridors.
- ▲ **Policy PR-2.5 Regional Coordination.** The City shall coordinate with SACOG and surrounding jurisdictions to ensure that recreational corridors within the city connect with existing and planned facilities outside the city.
- ▲ **Policy PR-2.6. Joint Use of City Levee and Utility Properties.** The City shall establish recreational trails as part of future levee and utility property improvements where feasible.

Goal PR-3. To provide and encourage, to the fullest extent possible, public access to the Sacramento River and Deep Water Ship Channel for recreation purposes.

- ▲ **Policy PR-3.1 River Access.** The City shall establish and maintain continuous public access to the Sacramento River for its full length within West Sacramento for fishing and other uses.

- ▲ **Policy PR-3.2 Ship Channel Access.** The City shall strive to establish and maintain continuous public access to the Deep Water Ship Channel, within the limits imposed by safety considerations.
- ▲ **Policy PR-3.3. Public Access Easements.** The City shall require the dedication of public access easements through all new developments along the Sacramento River and Deep Water Ship Channel.
- ▲ **Policy PR-3.4. Water-Oriented Facilities.** The City shall encourage the development of public and private water-oriented park and recreational facilities along the Sacramento River and the Deep Water Ship Channel.
- ▲ **Policy PR-3.5. River, Ship Channel Linkage.** Linear access to the Sacramento River and Deep Water Ship Channel shall be linked to the city's overall system of parks, recreational pathways, and open space. To this end, the City shall require the dedication of public access easements through new developments along the Sacramento River and Deep Water Ship Channel.
- ▲ **Policy PR-3.6. Marinas and Riparian Vegetation.** The City shall encourage the development of public and private marinas in appropriate locations that avoid, as much as possible, areas of significant existing riparian vegetation.

2013 West Sacramento Bicycle, Pedestrian, and Trails Master Plan

The City of West Sacramento has adopted a Bicycle, Pedestrian, and Trails Master Plan to encourage the role of bicycling and walking as viable modes of transportation by providing well maintained facilities that promote public use. This plan outlines a vision for connected bikeways, walkways, and trails that link together neighborhoods, places of employment, shopping centers, parks, and schools within West Sacramento (City of West Sacramento 2013).

City of Winters General Plan

The following policies related to recreation and open space, from Section V, Recreational and Cultural Resources, of the *City of Winters General Plan*, are potentially relevant to the HCP/NCCP:

GOAL V.A: To establish and maintain a public park system and recreation facilities suited to the needs of Winters' residents and visitors.

- ▲ **Policy V.A.1.** The City's overall goal shall be seven acres of developed parkland (combined neighborhood and community) per 1,000 residents.
- ▲ **Policy V.A.14.** The City shall encourage the use of open space and recreational uses as buffers between incompatible land uses.
- ▲ **Policy V.A.15.** The City shall pursue the development of a citywide network of pedestrian and bicycle pathways and equestrian trails. The pedestrian and bicycle pathway and trail system should be designed to link parks, schools, civic and major shopping and employment centers. The City's bicycle pathway system should be integrated with the county-wide bikeway system.

City of Winters Bikeway System Master Plan

The purpose of the *City of Winters Bikeway System Master Plan* is to formulate a long-range, comprehensive, and consistent policy guidance for creating a citywide connected bikeway network that tends to the needs of its various users in a convenient, safe and inviting way. This Master Plan provides a list of potential projects that create a network of bicycle routes that will encourage and promote bicycling. The overall goal is to identify conceptual projects that will increase bicycle ridership by enhancing the safety of routes, comfort of users, and convenience of bicycle facilities.

Putah Creek Nature Park Master Plan

The City of Winters developed the 2008 *Putah Creek Nature Park Master Plan* as an update to the *Winters Putah Creek Park Master Plan*. This plan is a conceptual document that discusses opportunities for public access and sustainable fish and wildlife habitat through restoration of natural channel form and function along a 1-mile stretch of Putah Creek between Railroad Avenue and I-505. The goals of the plan are to integrate the park into the community, support the City's economic vitality, provide access to native riparian habitat, and improve the ecological vitality of the creek (City of Winters 2008).

City of Woodland General Plan

The 2002 *Woodland General Plan* contains the following goals and policies related to recreation and open space that are potentially relevant to the HCP/NCCP:

Goal 5.A: To establish and maintain a public park system and recreational facilities suited to the needs of Woodland residents, employees, and visitors.

- ▲ **Policy 5.A.1.** The City shall continue to develop, expand, and promote the use of its park system to include a balance of passive and active recreation opportunities.
- ▲ **Policy 5.A.2.** The City shall strive to achieve the standard of six acres of parks per 1,000 population for the development of City-owned park facilities. Typically, neighborhood parks are ten to 15 acres, community parks are 20 to 50 acres and sports parks are three to 30 acres.
- ▲ **Policy 5.A.3.** The City shall strive to achieve the standards for sports and recreational facilities established in the Park and Recreation Master Plan. These standards may be satisfied through any combination or joint development of public facilities, private recreational facilities, and school facilities. In addition to these standards and minimum sizes, sports facilities shall be developed according to the adopted sports facilities master plans.
- ▲ **Policy 5.A.6.** The City shall seek to establish and maintain a linear park system of greenbelts, bicycle paths, and pedestrian walkways that link the City park facilities, schools and Downtown. This linear park system should not be counted towards meeting acreage standards for neighborhood or community parks and recreation facilities, lighting, and safety measures shall be included in all new and renovated pedestrian/bikeway routes.

Goal 7.D: To preserve and enhance open space lands to maintain the natural resources of the Woodland area.

- ▲ **Policy 7.D.1.** The City shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The City shall, where appropriate, permanently protect as open space areas of natural resource value, including wetlands preserves, riparian corridors, woodlands, and floodplains.
- ▲ **Policy 7.D.3.** The City shall support the maintenance of open space and natural areas that are interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement, and sustain ecosystems.
- ▲ **Policy 7.D.5.** The City shall encourage the development of natural open space areas in regional, community, and neighborhood parks.
- ▲ **Policy 7.D.7.** The City shall plan and establish natural open space parkland as a part of the overall City park system.

City of Woodland Bicycle Transportation Plan

The *City of Woodland Bicycle Transportation Plan* was prepared by the City to improve bicycle transportation and safety within the City of Woodland. The goals of this plan are to provide a network of bikeways between

residential areas, employment centers, schools, recreational facilities, and commercial businesses; to provide safe convenient travel for cyclists; to reduce air and noise pollution, traffic, and parking congestion, and excess energy consumption caused from automobiles; and to promote the physical and recreational benefits of cycling (City of Woodland 2002).

8.3 ENVIRONMENTAL CONSEQUENCES

8.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts to recreation is based on a review of existing recreational facilities, anticipated future facilities, and recreation-related plans and policies pertaining to the Plan Area described above in Sections 8.2.1, *Environmental Setting* and 8.2.2, *Regulatory Setting*. The impact analysis considers the potential for increases in demand for recreation resources and potential effects to existing recreation recreational resources and open space within the Plan Area.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA. All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on recreation in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- ▲ include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Issues Not Evaluated Further

Under all alternatives there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. There is also valley foothill riparian along Putah Creek that may be considered forest land. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is likely that

some additional landowners would also place their land under easement in the future, which would increase the amount of protected agricultural lands. In addition, under all the alternatives the riparian forest along Putah Creek would continue to be protected via various laws and regulations (e.g., Section 1600 of the Fish and Game Code, see Chapter 4, *Biological Resources*) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee. Because there would be no change to recreation resources or opportunities in the expanded Plan Area, this issue is not discussed further.

8.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the U.S. Fish and Wildlife Service (USFWS) or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities, agricultural economic development, and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in Yolo County and the cities.

Under the No Action Alternative, developments in rural and urban areas within the Plan Area would occur as planned by the plan participants, and would result in the need for expanded and additional parks and recreational facilities. Large-scale residential or commercial developments that either significantly expand an existing community or create a new community where one did not previously exist could substantially increase the demand for recreational facilities. Existing parks and open space operated by federal, state, and local agencies would continue to be available to recreational users. The development of new or expanded recreational facilities would be expected to continue, in part, in response to increased demand, consistent with current local plans and policies. Recreation-related impacts associated with individual development projects would be addressed on a project-by-project basis. Individual development projects would provide for mitigation, including land dedication for recreational purposes or payment of in-lieu fees for park development consistent with applicable laws, regulations, and plan policies as described above in Section 8.2.2, *Regulatory Setting* (e.g., Quimby Act, local general plan policies).

Activities under the rural public services, infrastructure, and utilities category include construction of additional recreational facilities outside of the incorporated cities and rural communities, including installation of trails and bikeways and expansion of existing and development of new planned park and open space uses and activities that are consistent with local General Plans and plans addressing parks, open space, biking facilities, and trails. Examples of planned new or expanded facilities include parks supporting both active and passive recreation as well as areas for campsites, picnicking, swimming, water skiing, fishing, habitat preservation and educational tours, off-highway vehicle use, and hunting. Infrastructure and amenities would be included with these facilities, such as access roads, utilities, signage, landscaping, parking lots, and trash receptacles. These new facilities would provide additional recreational opportunities

and would reduce the demand on existing recreational facilities as new planned residential development proceeds. Other activities under this development category, such as stormwater drainage facilities, levees, and flood control facilities, wastewater treatment, energy generation, solid waste management, and an airport would generally not increase demand on recreational facilities or involve construction of new recreational facilities.

Although activities under the agricultural economic development and open space category could result in relatively large structures being constructed in a rural/agricultural area (e.g., processing plants), these would generally not increase the demand for recreational facilities or require the construction of new recreational facilities. The same would be true for mining operations included in this category. Activities under the open space element of this category would also include planned park and open space uses in the *Yolo County Parks and Open Space Master Plan* and the *Yolo County Cache Creek Area Plan*. The addition of park and open space land uses within the Plan Area would provide additional recreational opportunities and would reduce the demand on existing recreational facilities.

The impact descriptions provided above primarily relate to permanent changes in demand for, and provision of recreational facilities. Construction of new facilities and public and private operations and maintenance activities have the potential to result in temporary disruptions to access to individual recreational facilities, or portions of facilities, if these activities cross, or occur in close proximity to existing facilities. For example, if a new underground utility were to cross a park area and the public was temporarily excluded from the construction corridor. However, access disruptions would cease after construction was complete and full access to the recreation facility would be restored.

As the development and other activities described above are implemented under the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and small, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would not increase the demand for recreational resources, would provide open space values, and could provide passive recreation opportunities if public access were included as part of protected mitigation lands management.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in demand for recreation resources and a subsequent dedication of parklands and open space consistent with current local plans and policies. This has increased the number of developed parklands, trails, and recreational facilities, and the amount of preserved open space within the county.

Projects and activities included within the categories of urban and rural development would continue the trend of increasing the demand for recreational resources and could combine other projects within the county to result in a cumulative increase in demand for recreational resources. Consistent with the general plans of Yolo County, West Sacramento, Davis, Winters, and Woodland, further development of parklands and trails and preservation of open space would occur as planned development proceeds under the No Action Alternative. Therefore, the amount of parkland is expected to increase within the county over time with implementation of planned park and open space uses in the *Yolo County Parks and Open Space Master Plan*, *Yolo County Cache Creek Area Plan*, and CCRMP. This increase is expected to offset the cumulative increase in demand for recreation resources.

In addition, future development implemented under the No Action Alternative would comply with the policies set forth in city and county general plans. Development in rural areas would be limited to preserve the rural landscape as established by Policy CC-1.2 of the *Yolo County General Plan*. Further, recreation resources and open space would increase over time to comply with Policy CO 1.1, which calls for expanding and

enhancing an integrated network of open space to support recreation and Policy CO 1.10, which has a target threshold for resource parks of 20 acres per 1,000 total county population. Additional policies from the Conservation and Open Space Element (provided in the setting of this section) of the *Yolo County General Plan* establish standards and goals to mitigate recreation resources. In addition, the general plans of the Davis, West Sacramento, Winters, and Woodland contain policies applicable to development and maintenance of recreation resources. Compliance with general plan policies, described above under Section 8.2.2, would direct future development of recreation facilities consistent with the demand for recreation within each jurisdiction.

As identified above in the alternative specific impact discussion, required biological resources mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would not adversely affect recreation resources either individually or cumulatively.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Recreation resource impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is the implementation of the Yolo HCP/HCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures during implementation of covered activities. The following impact discussion focuses on these elements of the Proposed Action Alternative that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. However, the primary result of the neighboring landowner protection program, from a recreation perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Project and Alternatives*. Because the program would not change the demand for recreation resources or directly affect recreation facilities, it would not have an effect on recreation resources, and is not evaluated further in the impact discussions below.

Effect REC-1: Potential increase in use of recreation facilities or demand for recreation opportunities such that substantial deterioration would occur.

Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks, ecosystem function, and biological diversity. The conservation strategy included in the Proposed Action Alternative also includes habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat restoration and creation where an existing natural or seminatural land cover type would be converted to a different natural land cover type (e.g., restoration of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation). These elements of the conservation strategy designed to preserve and augment existing ecosystem health and biological diversity could provide additional passive recreation opportunities related to establishment of the reserve system in the Plan Area, but would not increase the demand for recreational facilities or result in any physical deterioration of existing recreation resources. In addition, preservation of large tracts of land may provide additional recreational opportunities, if passive recreation

compatible with preservation, such as wildlife viewing, is allowed. Because a coordinated system of linked reserve lands would be established for habitat preservation, enhancement, and restoration/creation, additional recreation and open space opportunities would be provided compared to the No Action Alternative because continuous areas of land, rather than smaller discrete sites, would be established as mitigation sites that could provide additional passive recreation opportunities.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

Establishment and management of a reserve system under the Proposed Action Alternative could provide additional passive recreation opportunities while not increasing demand for recreational facilities.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial**.

No mitigation is required.

Effect REC-2: Potential construction or expansion of recreational facilities.

Implementation of the various elements of the HCP/NCCP conservation strategy would primarily involve the preservation and enhancement of existing land covers and habitat restoration/creation in some areas. These activities would not result in the construction or expansion of additional recreation facilities. Although preservation of lands within the Plan Area may provide additional opportunities for passive recreation such as wildlife viewing, no new or expanded recreation facilities that would require construction are proposed as part of the Proposed Action Alternative.

Implementation of the Proposed Action Alternative would result in the preservation and enhancement of natural and seminatural areas to promote habitat and ecosystem health and biological diversity. The existing recreation opportunities of these sites would be retained, or lands could be modified towards a more natural state (i.e., habitat restoration/creation), which would generally be considered to have a neutral or beneficial effect on recreation resources.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would have a neutral or beneficial effect on recreation resources.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the Proposed Action Alternative to the cumulative condition for recreation resources would include a potential increase in passive recreation opportunities from establishment of the reserve system in the Plan Area. These enhancements to recreation resources would result from the enhancement and restoration/creation of habitats and open space and be retained through the ongoing maintenance and monitoring of conservation areas. As described above, recreation resources would be improved as a result of the implementation of the Proposed Action Alternative through preservation and enhancement of large areas of open space compared to the existing conditions. Therefore, implementation of the Proposed Action Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on recreation resources and open space.

The Proposed Action Alternative would make less of a contribution to any potential adverse cumulative effects compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

As described in Section 2.3.3, the Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, Alternative C contains eight areas designated for development under the Proposed Action Alternative in which no activities that would result in take of covered species would be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Impacts to recreation resources as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, given that less development would occur, there would be less potential for passive recreation opportunities in some circumstances compared to the development effects described for the No Action Alternative. If the prohibition on take of covered species in the eight designated areas resulted in less overall development in the Plan Area, demand for recreation from development related activities could be slightly less under Alternative C. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new locations were in areas currently used for recreation, this could result in greater impacts on existing recreational facilities. Overall, under the Reduced Take Alternative, Effects, REC-1 and REC-2 and VIS-4 would not be appreciably different from what is described for the Proposed Action Alternative though beneficial effects may be slightly less.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **beneficial**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on recreation resources under the Reduced Take Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Take Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on recreation resources. The Reduced Take Alternative would make less of a contribution to any potential adverse cumulative effects compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **beneficial**.

ALTERNATIVE D – REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under Alternative D, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the Plan and, therefore, would not be provided incidental take authorization through the Plan. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative.) If the prohibition on take of covered species in these designated areas resulted in less overall development in the Plan Area, demand for recreation from development related activities could be slightly less under Alternative D. However, the prohibition on take in these areas could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new locations were in areas currently used for recreation, this could result in greater impacts on existing recreational facilities.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

Overall, under the Reduced Development Alternative, Effects, REC-1 and REC-2 and VIS-4 would not be appreciably different from what is described for the Proposed Action Alternative though beneficial effects may be slightly less.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **beneficial**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on recreation resources under the Reduced Development Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Development Alternative would not result in a cumulatively considerable contribution to a significant cumulative effect on recreation resources. The Reduced Development Alternative would make less of a contribution to any potential adverse cumulative effects compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is **beneficial**.

9 HYDROLOGY AND WATER QUALITY

9.1 INTRODUCTION

This chapter provides relevant to hydrology and water quality impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. This addresses conditions such as the extent and quality of surface water, runoff and drainage patterns, groundwater, and flood conditions in the Plan Area. Water supply is addressed in Chapter 7, *Public Services and Utilities*.

9.1.1 Data Sources

The following sources of information were reviewed to prepare the hydrology and water quality chapter.

- ▲ *The Yolo County 2030 Countywide General Plan* (Yolo County General Plan) (Yolo County 2009a);
- ▲ *The Yolo County 2030 Countywide General Plan EIR* (Yolo County General Plan EIR) (Yolo County 2009b);
- ▲ *City of Davis General Plan* (City of Davis 2007);
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016);
- ▲ *City of Winters General Plan* (City of Winters 1992);
- ▲ *City of Woodland General Plan Update* (City of Woodland 2002); and
- ▲ Various documents and resources available from the California Department of Water Resources website (www.water.ca.gov) as indicated in Chapter 23, *References*.

9.1.2 Definitions

The term 100-year flood refers to a flood event that has a one in 100 chance, or one percent chance, of being equaled or exceeded in any one year. Particular water elevations or flow rates are typically attributed to the 100-year flood event. A 100-year floodplain refers to the area along a waterway that would be inundated during a 100-year flood event. The actual area inundated may be minimized by levees, bypasses, and other flood control features so that a location designated as being within the 100-year floodplain may remain protected from flood waters during a 100-year flood event if the protection features do not fail. 100-year flood protection refers to a location having sufficient flood protection to not be inundated when water elevations or flows in the applicable water body reach the designated 100-year levels.

The same principles apply to a 200-year flood, 200-year floodplain, and 200-year flood protection, but the water level/flow has a one in 200 chance, or 0.5-percent chance, of being equaled or exceeded in any one year. The same applies to terms associated with a 500-year flood, but the water level/flow has a one in 500, or 0.2-percent chance, of being equaled or exceeded in any one year.

9.2 AFFECTED ENVIRONMENT

9.2.1 Environmental Setting

Yolo County's existing conditions related to water resources, hydrology, and water quality are described below and major hydrologic features are shown in Exhibit 9-1. The following sections summarize the Yolo County General Plan EIR information as it pertains to water resources.

YOLO COUNTY CLIMATE AND TOPOGRAPHY

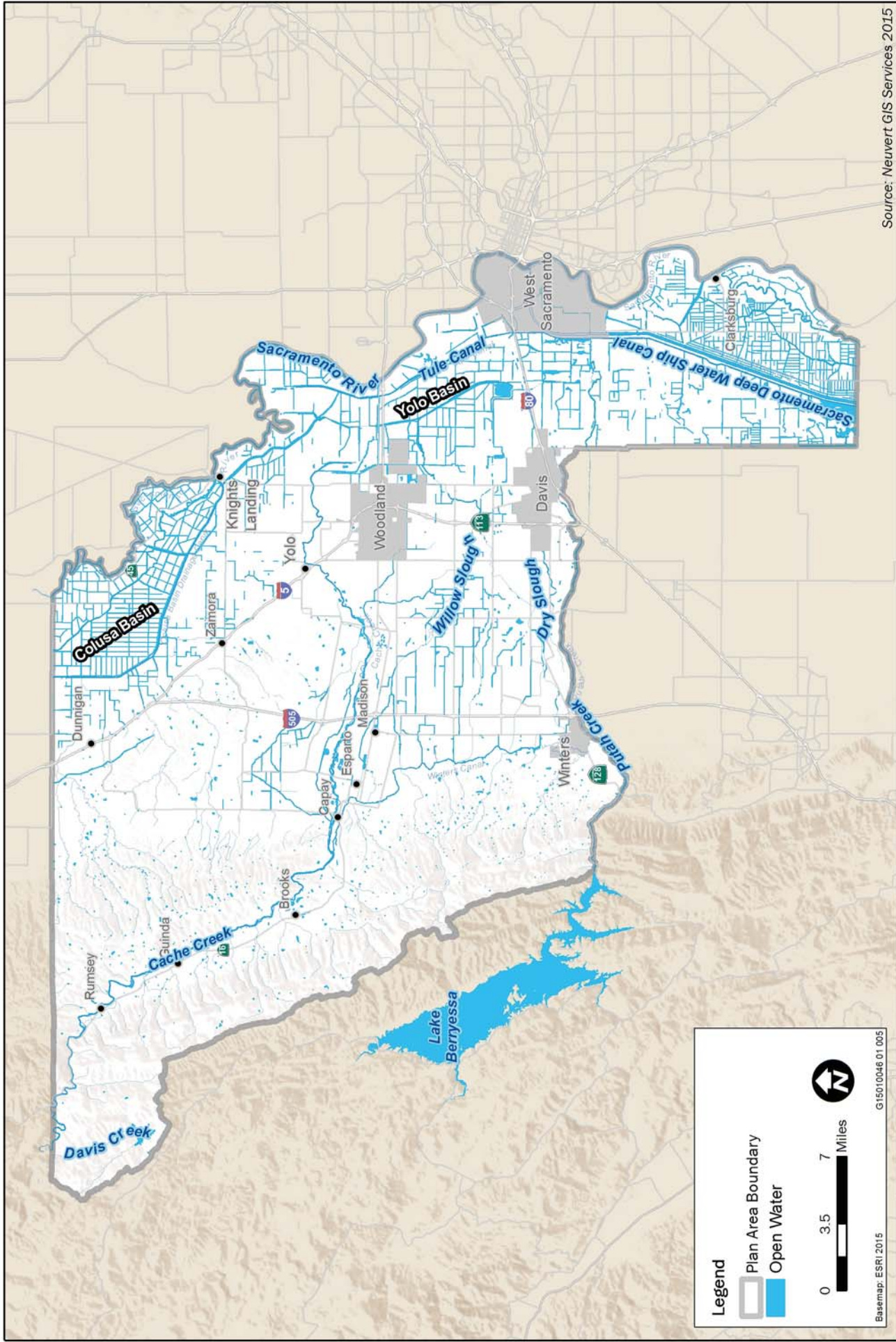
Yolo County has a Mediterranean climate characterized by hot, dry summers and temperate, rainy winters. Yolo County is comprised of two distinct climate zones. The northern and central areas of Yolo County experience hot summers and moderately cold winters, while the southeastern County receives marine air influence from the San Joaquin-Sacramento Delta regions that reduce the temperature extremes. During winter, fair weather alternates with periods of extensive clouds and precipitation. During the summer, temperatures generally average a high of 95° F and a low in the mid-50s. Winter temperatures average a high in the 50s, and low of 38 to 40° F. Much of the precipitation received in Yolo County falls on the Vaca Mountains (part of the Coast Range geomorphic province) to the west of the County, annually averaging 34 inches along the western edge of the County. Rainfall in the eastern County averages approximately 20 inches. Precipitation occurs primarily in the form of rain from October through April, with very little precipitation during the hot, dry summers.

The highest elevations in the County are found along Little Blue Ridge and Blue Ridge (approximately 3,100 feet above mean sea level), decreasing to 5 feet above sea level near the Sacramento River on the eastern edge of the County, with the lowest portions of the Yolo Basin just below sea level. The County is located such that approximately the western 30 percent is located in California's Coast Ranges with the eastern remainder in the Great Valley. The Great Valley portion of the County consists of gently sloping to level alluvial areas, while the Coast Ranges part of the County consists of moderately sloping to very steep uplands and terraces and is characterized by northwest-southeast trending ridges and valleys (Yolo County 2009b).

SURFACE WATER HYDROLOGY

Surface water hydrology for Yolo County is described below based on information from the Yolo County General Plan EIR (Yolo County 2009b:641-642):

- ▲ The unincorporated areas of Yolo County contain approximately 7,300 acres of surface waters.
- ▲ Surface water in Yolo County generally drains from west to east.
- ▲ The major watersheds in Yolo County are the Sacramento River, Cache Creek, Putah Creek, and Willow Slough. Constructed features such as the Yolo Bypass water conveyance channels also act as localized watersheds.
- ▲ Surface water primarily originates from the Cache Creek and Putah Creek watersheds, and the Sacramento River.



FLOODING

Flooding for Yolo County is described below based on information from the Yolo County General Plan EIR (Yolo County 2009b; 642, 645-651):

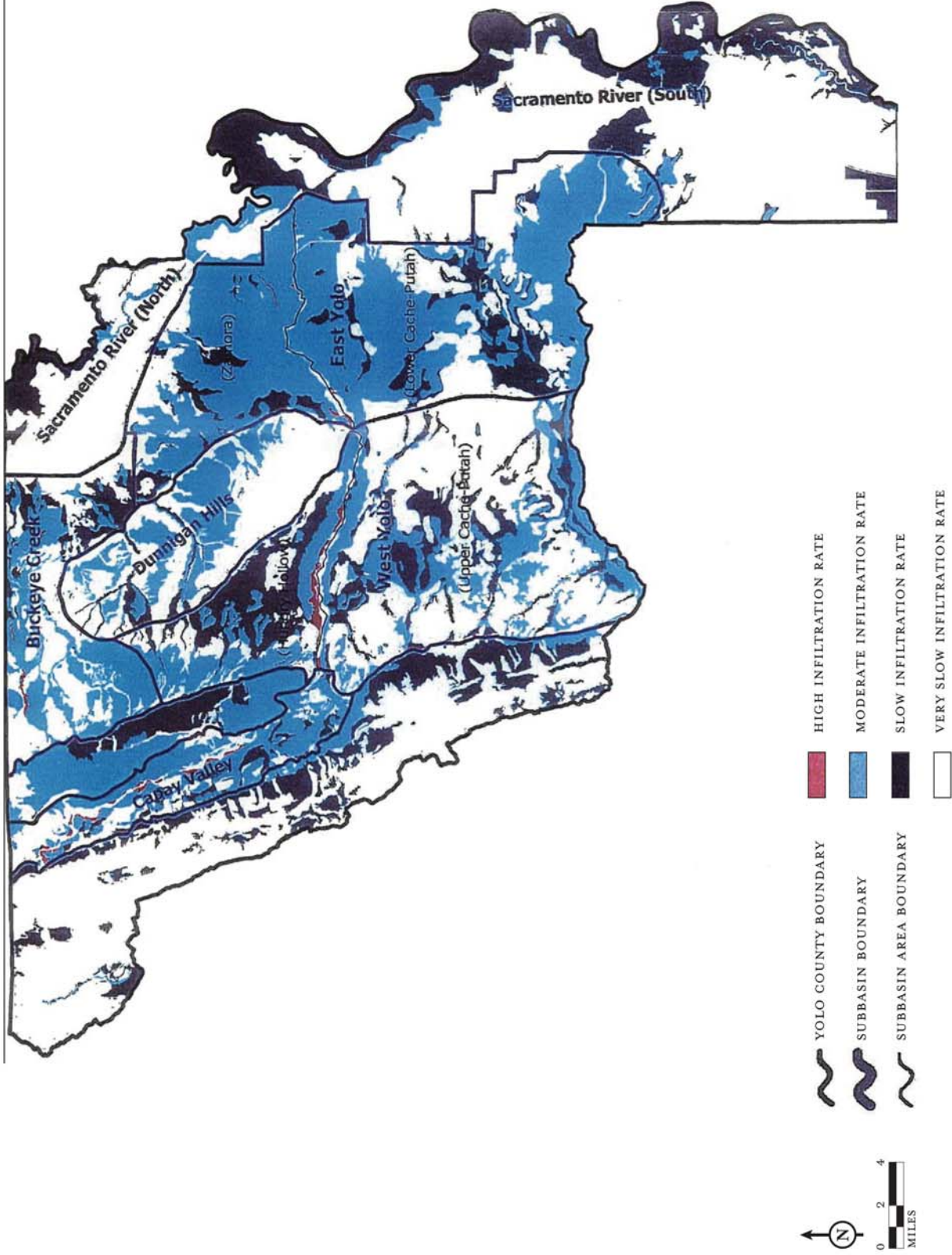
- ▲ The Cache Creek Basin, the Sacramento River corridor, Willow Slough, Colusa Basin Drain, and Dry Slough are the primary areas with potential for flooding.
- ▲ Areas that are within the 100-year floodplain consist of residential and agricultural areas along Cache Creek, the Colusa Basin Drainage Canal, Knights Landing Ridge Cut, the Sacramento River, and the majority of the lower eastern portion of the County.
- ▲ The 500-year floodplain is most extensive north of the City of Woodland, west of the City of Davis, east of the Yolo Bypass, and through the City of West Sacramento south to Clarksburg.
- ▲ Yolo County has approximately 215 miles of levees that provide flood control, and are managed by various agencies including Reclamation Districts, flood control agencies (e.g., West Sacramento Flood Control Agency, the California Department of Water Resources (DWR) and the U.S. Army Corps of Engineers (USACE).
- ▲ As part of the Sacramento River Flood Control Project, high flows that pass over Fremont Weir and through the Sacramento Weir are diverted through the Yolo Bypass located in the Yolo Basin.
- ▲ To the west of Yolo County are the Indian Valley Dam and Reservoir, the Cache Creek Dam at Clear Lake, and the Monticello Dam on Putah Creek at Lake Berryessa. If any of these dams were to fail, or if the nearest upstream dams along the Sacramento, Feather, or American rivers failed, flooding would occur in Yolo County.

GROUNDWATER RESOURCES

A description of groundwater resources is provided below based on information from the Yolo County General Plan EIR (Yolo County 2009b, p:638):

- ▲ The Yolo subbasin which is located within the broader Sacramento Valley Groundwater Basin. The Yolo subbasin underlies the majority of Yolo County. Fresh water is primarily found in upper layers of coarse textured, buried river and stream deposits and in the deeper Tehama Formation. The Tehama Formation ranges from 1,500 to 2,500 feet thick and is the largest source of fresh water in the subbasin (DWR 2004). Beneath the Tehama Formation are brackish volcanic and marine sedimentary rocks with low permeability. The upper limit of these rocks generally coincides with the fresh/saline boundary.
- ▲ Yolo County is underlain by a substantial amount of groundwater, which is divided into six subbasins: Capay Valley, Buckeye Creek, Dunnigan Hills, West Yolo, East Yolo, and Sacramento River. The locations of these subbasins are displayed on Exhibit 9-2.
- ▲ Subsidence is the lowering of the land-surface elevation. In Yolo County, as much as 4 feet of land subsidence due to groundwater withdrawal has occurred since the 1950s, particularly in the area between the towns of Zamora, Knights Landing, and Woodland. The land subsidence has damaged or reduced the integrity of highways, levees, irrigation canals, and wells (Yolo County 2009b).

DWR describes groundwater levels in the Yolo subbasin as declining during periods of drought, which are often combined with increased groundwater pumping, but generally recovering quickly during wet years. Long term trends do not indicate significant declines in water levels, with the exception of pumping depressions in the vicinity of Davis, Woodland, and the Dunnigan/Zamora areas (DWR 2004). Groundwater storage for the Yolo Subbasin in the aquifer found between 20 and 420 feet below ground surface has been estimated as 6,455,940 acre-feet (af).



Source: Yolo County 2009

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WATER QUALITY

Water quality in Yolo County is described based on information from the Yolo County General Plan EIR (Yolo County 2009b:651-652), supplemented with additional information from DWR and other sources provided below.

Groundwater

The groundwater in the Yolo subbasin is generally high in calcium (generally over 180 milligrams per liter [mg/L] CaCo₃) and magnesium, with localized areas of high selenium and boron. Total dissolved solids are 574 ppm on average (DWR 2004). In the east Yolo subbasin, beneath the City of Davis and UC Davis, average concentration of arsenic in the Tehama formation are 0.04 mg/L, which exceeds the U.S. Environmental Protection Agency (EPA) maximum contaminant level of 0.01 mg/L (Yolo County 2009b). Elevated concentrations of selenium, nitrate, and boron have been detected in groundwater along Cache Creek and the Cache Creek Settling Basin area. The intrusion of saline or brackish water into fresh water aquifer systems is generally associated with coastal areas. However, the intrusion of saline or brackish water from the Delta area may occur in the Sacramento Valley, including eastern Yolo County if overdrafting of deep wells lowers the water levels in the groundwater basin. If salt water intrusion were to occur on a widespread basis in this area, the local water supply would be adversely affected.

Sacramento River, Yolo Bypass, and Associated Canals

The Sacramento River is listed by the EPA under Section 303(d) of the Clean Water Act as being impaired by unknown toxicity starting from Red Bluff and by mercury starting at Hamilton City all extending to the Sacramento River–San Joaquin River Delta. In 2003, the Water Board adopted a total maximum daily load (TMDL) for discharges of diazinon to the Sacramento and Feather Rivers (EPA and SWRCB 2006); but it was removed from the 303(d) list in 2012 (EPA and SWRCB 2014). TMDLs for mercury were set in 2012, while TMDLs for toxicity are still under development. Pesticides from agricultural use are also contaminants of concern to water quality of the Sacramento River.

The concentration of chemical contaminants within the Yolo Bypass is influenced directly by discharges from Cache Creek and the Knights Landing Ridge Cut. High concentrations of nutrients and contaminants, perhaps from agricultural fields and abandoned mines, were detected at creek discharge points where spring rains, flush accumulated nutrients to the tidal area of the Sacramento River. As a result, the Sacramento River is also listed as impaired for Chlordane, DDT (dichlorodiphenyltrichloroethane), dieldrin, and PCBs (polychlorinated biphenyls). In addition, the City of Woodland discharges its wastewater effluent to the Tule Canal, which flows to the Yolo Bypass. The Tule Canal is listed as impaired for Boron, *Escherichia coli* (*E.coli*), fecal coliform and salinity.

Clear Lake and Cache Creek

Erosion and groundwater discharges from aquifers associated with marine sediments and marine sedimentary rocks have resulted in release of high boron and mercury concentrations to the Cache Creek watershed. The Yolo County Flood Control and Water Conservation District monitors boron and mercury at seven locations throughout the watershed. Boron concentrations typically range from 0.7 mg/L in the spring to 2.2 mg/L in the winter, and the average concentration during the irrigation season is less than 1.0 mg/L. Many fruit and nut tree crops are sensitive to boron concentrations as low as 0.5-1.0 mg/L, although some of these crops are successfully grown in the Capay Valley. Clear Lake and Cache Creek are both listed as impaired for mercury on the 303(d) list (EPA and SWRCB 2014). These drainage basins are an identified source of mercury and contribute a substantial portion of total mercury load delivered to the Sacramento-San Joaquin Delta. Mercury contamination originates from past mining activities, geothermal springs, erosion of naturally occurring mercury-containing soils, and atmospheric deposition near Clear Lake and at tributaries to Cache Creek. Consequently, high concentrations of mercury have been detected during in the Cache Creek channel and the Yolo Bypass. Numeric targets for methylmercury, a particularly toxic form of mercury that can bioaccumulate in fish and other organisms, have been established in an effort to protect the health of humans and wildlife consuming substantial amounts of fish from Clear Lake and its drainage

basin. A mercury TMDL plan was approved for Clear Lake in 2003 and for Cache Creek in 2005. The mercury TMDLs for Clear Lake and its drainage basin include an implementation plan that presents a strategy and proposes actions to reach established numeric targets to reduce the mercury load. Davis Creek (a tributary of Cache Creek, below Davis Creek Reservoir) also is listed as impaired for mercury (SWRCB 2014). In addition, Clear Lake is listed as impaired for nutrients and a TMDL for nutrients was approved in September of 2007. Cache Creek is also impaired for unknown toxicity.

Lake Berryessa and Lower Putah Creek

The soils and surface waters of the Putah Creek watershed contain elevated concentrations of mercury and boron. Lake Berryessa and Lower Putah Creek, downstream of Lake Solano, are listed as impaired by mercury on the EPA 303(d) list. During low flows in summer months, the majority of flow within Putah Creek originates from the UCD wastewater treatment plant outfall. Lake Berryessa and Lower Putah Creek downstream of Lake Solano are also listed for mercury impairment. TMDLs for mercury in Lake Berryessa and Lower Putah Creek have not yet been established.

Willow Slough

Willow Slough is included in the Clean Water Act (CWA) 303(d) list of impaired water bodies for boron, *Escherichia coli* (*E. coli*), and fecal coliform. TMDLs for mercury in Lake Berryessa and Lower Putah Creek have not yet been established. Previous monitoring studies conducted by the Yolo County Department of Health Services and UCD noted invertebrate and algae impairment from unknown causes and sources. The City of Davis discharges its wastewater effluent to Willow Slough, although a new wastewater treatment plant is being built.

COASTAL HAZARDS

The potential for coastal hazards such as tsunamis, seiche, and sea level rise to affect environmental resources in Yolo County are low; of (Yolo County 2009b). A summary, based on the information found in the Yolo County General Plan EIR (Yolo County 2009b:652-653), and supplemented by information from other sources, is included here.

Tsunami

Tsunamis are long period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. According to the Yolo County General Plan EIR, Tsunami wave run-up elevations for the Sacramento River in the Yolo County area have not been quantified, but would not be expected to represent a hazard for Yolo County given its distance (more than 50 miles) from the coast.

Seiche

A seiche is the oscillation of a body of water at its natural period. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays or harbors. Since Yolo County is generally subject to only low to moderate levels of earthquake-induced groundshaking, hazard of a seiche is not considered high. However, in the event that significant groundshaking does occur, the County of Yolo Emergency Plan has identified the following primary areas in the County in which a seiche could occur: Lake Berryessa; the Sacramento River, which could affect bordering communities including Knights Landing and Clarksburg; the Yolo Bypass when water is present in the bypass; and Lake Washington Harbor, the Port of West Sacramento, and the Deep Water Ship Channel. Since Lake Berryessa is closest of these areas to active faults, it is perhaps the most likely to experience a seiche. Based on a review of the available literature, however, no identified or measurable seiches have been documented in Yolo County surface water bodies.

Sea Level Rise

The most recent cycle of global climate change is a warming trend of the earth's atmosphere (an increase of approximately 1.8°F in the last 100 years) which has resulted in sea level rise. In the San Francisco Bay

area, the background rate of sea level rise has been estimated to be approximately 0.085 inches per year over the past 100 years. The western edge of Yolo County is more than 50 miles inland from the Pacific Ocean. As stated above, the lowest point in the County is at approximately 5 feet above sea level near the Sacramento River on the eastern edge of the County. This location is more than 80 miles from the Pacific Ocean. Given these conditions, the County is not susceptible to projected sea level rise conditions. Also see Chapter 16, *Climate Change*, for further consideration of sea level rise.

9.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Federal Clean Water Act

Section 404

The CWA consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments. The CWA provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Section 404 of the act prohibits the discharge of fill material into waters of the United States, including wetlands, except as permitted under separate regulations by USACE and EPA. To discharge dredged or fill material into waters of the United States, including wetlands, Section 404 requires projects to receive authorization from the Secretary of the Army, acting through the USACE.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges of pollutants into waters of the United States. An NPDES permit sets specific discharge limits for point sources discharging pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The Regional Water Quality Control Boards (RWQCBs) in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

Section 401

Under CWA Section 401, applicants for a Section 404 permit must obtain certification for the discharge. The certification must be obtained 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. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States. The federal government delegates water pollution control authority under CWA Section 401 to the states (and in California, ultimately to the RWQCBs).

Section 303

Section 303(d) of the CWA requires states to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a TMDL for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

Executive Order 11988—Floodplain Management

Executive Order 11988, Floodplain Management, requires federal agencies to prepare floodplain assessments for proposed projects located in or affecting floodplains. An agency proposing to conduct an action in a floodplain must consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative involves siting in a floodplain, the agency must minimize potential harm to or development in the floodplain and explain why the action is proposed in the floodplain.

Federal Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The Federal Emergency Management Agency (FEMA) manages the NFIP. FEMA creates Flood Insurance Rate Maps that designate 100-year floodplain zones and delineate flood hazard areas. A 100-year floodplain zone is the area that has a one in one hundred (1 percent) chance of being flooded in any one year based on historical data.

STATE LAWS AND REGULATIONS

Porter-Cologne Act

Enacted by the California Legislature in 1969, the Porter-Cologne Water Quality Control Act established the State Water Resources Control Board (SWRCB), the primary state agency for protecting the quality of the state's surface and groundwater supplies and enforcing the CWA. The Act also divided the state into nine regional basins, each with a RWQCB. Administration of the Porter-Cologne Act is delegated by the SWRCB to the nine RWQCBs.

The Porter-Cologne Act authorizes the SWRCB to prepare comprehensive water quality control plans or "Basin Plans" for major watersheds in California. For each waterbody, the Basin Plans identify beneficial uses of water to be protected, establish water quality objectives (ambient standards) necessary to support the beneficial uses, and outline the actions needed to bring waterbodies into compliance with water quality objectives.

The Central Valley RWQCB, which regulates water quality within the Plan Area, implements the policies of the SWRCB by making policy recommendations and issuing permits to improve water quality in its jurisdiction. Policy recommendations are made in the Water Quality Control Plans (Basin Plans) for the Central Valley.

The Central Valley RWQCB regulates discharges to water resources through the issuance of a variety of permits, including Wastewater Permits (discharges of treated wastewaters to surface water bodies), Municipal Stormwater Permits (municipal processes for stormwater quality control), and General NPDES Stormwater Permits for construction and industrial activities.

Basin Plan (Regional Water Quality Control Board)

The Central Valley RWQCB implements the Basin Plan, which is a master policy document for managing water quality in the Sacramento River Basin (which includes the County) and the San Joaquin River Basin. The Basin Plan establishes beneficial uses of surface water and groundwater within this region. All groundwater in the Sacramento River Basin is considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply. Specific narrative and numerical water quality objectives (e.g., color and concentration limits, respectively) have been developed in the Basin Plan to protect beneficial use designations through the adoption of waste discharge requirements (WDRs) and cleanup abatement orders.

Beneficial Uses

The Basin Plan (Central Valley RWQCB 1998) defines and designates the existing beneficial uses for surface and groundwater in the Plan area.

Existing beneficial uses of waterways in the Plan area include:

- ▲ **Municipal and Domestic Supply**-waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply
- ▲ **Agricultural Supply** -waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- ▲ **Water Contact Recreation**- water used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These include, but are not limited to swimming, water-skiing, fishing, and others.
- ▲ **Noncontact Water Recreation**-used of waters used for recreational activities involving proximity to water, but not normally involving body contact with water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, and others.
- ▲ **Wildlife Habitat**-uses of waters that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species, such as waterfowl.
- ▲ **Freshwater Habitat** -uses of water that support warm (and potentially cold) water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- ▲ **Spawning, Reproduction, and Development**- uses of water s that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.

The beneficial uses of groundwater in Central Valley Region include the following:

- ▲ **Municipal and Domestic Supply** – Definition provided above.
- ▲ **Agriculture Supply** – Definition provided above.
- ▲ **Industrial Service Supply** – Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.
- ▲ **Industrial Process Supply** – Uses of water for industrial activities that depend primarily on water quality.

NPDES General Permits for Stormwater Discharges

The SWRCB adopted the statewide NPDES General Construction Permit in August 1999. The state requires that projects disturbing more than one acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

In addition to the General Construction Permit, the Industrial General Permit covers activities such as manufacturing, agriculture, and mining, as defined in 40 CFR Section 122.26(b)(14). As with the General Construction Permit, the Industrial General Permit requires the development of a SWPPP, use of Best Available Technology Economically Achievable, and Best Conventional Pollutant Control Technology to achieve performance standards.

Municipal Program

The State Board regulates stormwater discharges from municipal storm sewer systems (MS4s discharges) by the General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems program. This permit was issued in two phases. Under Phase I, which started in 1990, the Water Boards issued NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. There are no medium or large MS4s in Yolo County. Phase II covered small municipalities, including non-traditional MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes. Woodland, Davis, Yolo, UC Davis, and West Sacramento are each covered under a Phase II MS4 General Permit. Yolo County was required under the NPDES MS4 program to implement a Water Board approved Storm Water Management Plan.

A requirement of the Phase II General Permit is that small MS4s develop measures to limit peak stormwater runoff discharge rates from new development. Specifically, post-development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak stormwater discharge rate will result in increased potential for downstream erosion, also referred to as hydromodification.

California Nondegradation Policy

In 1968, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- a) Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water;
- b) Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

State Implementation Policy

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SWRCB 2005) addresses a gap in water quality standards covering priority toxic pollutants. The SIP established the policy for development of new standards for a variety of toxic pollutants, as required by the CWA. It applies to discharges of toxic pollutants into California's inland surface waters, enclosed bays, and estuaries subject to regulation under the Porter-Cologne Water Quality Control Act and the CWA. Such regulation may occur through the issuance of NPDES permits, the issuance or waiver of WDRs, or other regulatory approaches.

Executive Order B-29-15

On April 1, 2015, the Governor of California proclaimed a continued state of emergency due to severe drought conditions, directing the SWRCB to enhance emergency regulations adopted in 2014 and reaffirmed on March 17, 2015. The Governor's Executive Order B-29-15 sets 2013 as a base water use year and directed the SWRCB to impose restrictions to achieve a statewide 25 percent water reduction through February 28, 2016. On May 5, 2015, the SWRCB adopted an emergency regulation requiring an immediate 25 percent reduction in overall potable urban water use statewide in accordance with Executive Order B-29-15.

Delta Protection Commission

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any

local government's general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta." The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Figure 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

The Delta Protection Act created a 23-member Delta Protection Commission. The Delta Reform Act reduced the number of Delta Protection Commission members from 23 to 15 members. The mission of the Delta Protection Commission (Commission) is to adaptively protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment consistent with the Delta Protection Act and the Land Use and Resources Management Plan (LURMP) for the Primary Zone. The Primary Zone of the Sacramento-San Joaquin Delta includes approximately 500,000 acres of waterways, levees and farmed lands extending over portions of five counties: Solano, Yolo, Sacramento, San Joaquin and Contra Costa. The goal of the Commission is to ensure improved flood protection, and orderly, balanced conservation and development of Delta land resources including, but not limited to, agriculture, wildlife habitat, and recreational activities. The LURMP was developed in response to the Delta Protection Act of 1992 by the State Delta Protection Commission. The LURMP sets out findings, policies, and recommendations resulting from background studies in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees, and marine patrol/boater education/safety programs. The LURMP was adopted by the state in 1995 (and revised in 2002 and 2010) for the purpose of providing direction to local jurisdictions in the Delta region on land use decisions. General Plan polices that pertain to the portion of the County located within the Delta primary zone, designated within the General Plan as Delta Protection Overlay, must be consistent with the LURMP. The LURMP was adopted by the County as a General Plan amendment on March 18, 1997 by Resolution No. 97-34.

California WaterFix/EcoRestore

The California WaterFix project consists of a water conveyance facility with three new intakes on the Sacramento River and dual tunnels to convey water to existing state and federal pumping plants. This system would include construction of two 30-mile long tunnels, each 40 feet in diameter and 150 feet underground. The tunnels would pump as much as 9,000 cubic feet of water per second from the three new intakes on the Sacramento River near Courtland to the Clifton Court Forebay. This project and California EcoRestore replace the Bay Delta Conservation Plan (BDGP), which previously proposed the same project as an HCP/NCCP. The state is no longer pursuing mitigation through an HCP/NCCP. Instead, construction and operation impacts are proposed to be mitigated through about 2,300 acres of habitat restoration and up to 13,300 acres of habitat protection (e.g., conservation easements). California EcoRestore would restore at least 30,000 acres of habitat in the Sacramento – San Joaquin Delta completely independent of habitat restored as mitigation under California WaterFix, including the lower Yolo Bypass and the Clarksburg region. The WaterFix/EcoRestore are still in the planning phases and have not yet started construction of projects.

Central Valley Flood Protection Board

In 2007 California Senate Bill 5 (SB5-2007) and California Assembly Bill 5 (AB5-2007), both dealing with flood management in the Central Valley were adopted. Between them, they renamed the Department of Water Resources Reclamation Board as the Central Valley Flood Protection Board (CVFPB), and expanded its size, duties, and powers, including a requirement that the CVFPB prepare and adopt a Central Valley Flood Protection Plan by 2012 and update the plan on a 5-year cycle. In addition, the program required that cities and counties in the Sacramento–San Joaquin Valley, including Yolo County, amend their General Plan and Zoning Ordinances to be consistent with newly adopted flood protection standards within 36 months of flood plan adoption, and established other flood protection requirements for local land-use decisions consistent with the Central Valley Flood Protection Plan. Further, SB5-2007 established higher standards of flood protection (generally 200- year protection) for urban and urbanizing areas (defined as areas of at least 10,000 residents, or which will grow to 10,000 or more within the next 10 years). Other areas remain subject to the pre-existing 100-year standard for flood protection (DWR 2008). The initial 2012 CVFPP was completed, and the first 5-year update is in preparation.

The Central Valley Flood Protection Board, is required to enforce standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the board includes flood control facilities throughout Yolo County. According to Section 8709.22 of the California Water Code, a permit is required prior to construction within the board's jurisdiction for the following actions:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projections, fill, embankment, building, structure, obstruction, encroachment, or excavation; the planting or removal of vegetation; and any repair or maintenance that involves cutting into the levee.
- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised.
- Vegetation plantings require submission of detailed design drawings; identification of vegetation type; plant and tree names (both common and scientific); quantities of each type of plant and tree; spacing and irrigation method; a vegetative management plan for maintenance to prevent the interference with flood control operations, levee maintenance, inspection, and flood fight procedures.

Dam Inundation Mapping Requirement

The California Code of Regulations, Section 8589.5, requires that dam owners submit flood routing information, land surveys to delineate the floodplain, and a technical report to support a dam failure inundation map to the Office of Emergency Services. The purpose of the program is to provide decision support for emergency preparedness planning, mitigation, response to, and recovery from potential damage to life and property from dam inundation flood waves. Based upon approved inundation maps, or the delineated areas, cities and counties with territory in the mapped areas are required to adopt emergency procedures for the evacuation and control of populated areas below the dams (COES 2008). The technical study must contain information about dam specifications, physical conditions affected by the dam, including downstream areas and floodwater routing, and the cities, towns, and County areas which could be affected by a dam failure. The requirements of the technical study can also include modeling of worst case breaching parameters and identification of the downstream hazard potential from partial or complete failure of the dam. The technical study and dam inundation map must be updated when a dam is enlarged.

Levee Flood Protection Zones

As of October of 2007, AB 156-2007 requires the DWR to prepare Levee Flood Protection Zones (LFPZ) maps using the best available information. The LFPZ maps were developed for areas protected by the 1,600 miles of state and federal project levees in the Central Valley. In addition to the total inundation areas, those regions that have depths greater than 3 feet also will be identified. Under Water Code section 9110(b), "Levee Flood Protection Zone" means the area, as determined by the Central Valley Flood Protection Board or DWR, which is protected by a project levee. DWR delineated the LFPZs by estimating the maximum area that may be flooded if a project levee fails with flows at maximum capacity that may reasonably be conveyed (http://www.water.ca.gov/floodmgmt/lrafm/fmb/fes/levee_protection_zones/LFPZ_maps.cfm).

Groundwater Management Act

As of January, 1993, AB 3030 California's Groundwater Management Act, (Water Code Sections 10750–10756) provides guidelines by which local agencies not having authority for groundwater management can acquire that authority over the management of groundwater resources in basins recognized by the DWR. Its intent is to promote the voluntary development of groundwater management plans and provide criteria for the plans in order to ensure sustainable groundwater supplies for the future. The Act stipulates the technical components of a groundwater management plan as well as procedures for such a plan's adoption, including passage of a formal resolution of intent to adopt a groundwater management plan, and holding a public hearing on the proposed plan. The Act also allows agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin,

such as extraction wells, conveyance infrastructure, recharge facilities, and testing and treatment facilities. SB 1938 of-2002 also requires basin management objectives and other additions to be included in local groundwater management plans to comply with California Water Code.

Streambed Alteration Agreements

Sections 1600-1603 of the CFGC requires project proponents to notify CDFW before any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Preliminary notification and CDFW review of a submitted notification generally occurs during the environmental review process. When an existing fish or wildlife resource may be substantially adversely affected, including adverse effects to water quality, CDFW is required to propose reasonable changes to the project to protect those resources. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

LOCAL LAWS AND REGULATIONS

Yolo County 2030 Countywide General Plan

The Conservation and Open Space Element of the *Yolo County General Plan* describes existing water resources in Yolo County and presents goals, policies, and actions intended to protect those resources. The following policies related to water resources from multiple Elements of the *Yolo County General Plan* are potentially relevant to the Plan:

- ▲ **Policy CO-2.22.** Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.
- ▲ **Policy CO-5.3.** Manage the County's groundwater resources on a sustainable yield basis that can provide water purveyors and individual users with reliable, high quality groundwater to serve existing and planned land uses during prolonged drought periods.
- ▲ **Policy CO-5.5.** Integrate water conservation and water quality protection into all aspects of the planning and development process.
- ▲ **Policy CO-5.6.** Improve and protect water quality for municipal, agricultural, and environmental uses.
- ▲ **Policy CO-5.9.** Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable water policies of the Land Use and Resource Management Plan of the Delta Protection Commission.
- ▲ **Policy CO-5.14.** Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.
- ▲ **Policy CO-5.32.** In water districts where there is insufficient water to serve new development, require new development to offset demand through one or more of the following measures as appropriate, so that there is no net increase in demand: use of reclaimed water, water catchments and reuse on-site; water retention serving multiple sites; retrofits of existing uses in the district to offset increased demand;

and other such means. These measures should be achieved in partnership with the applicable water district.

- ▲ **Policy LU-3.7.** Prohibit the designation of new urban development in places with one or more of the following characteristics:
 - Areas where there are significant hazards and where there are no plans to adequately mitigate the risk (e.g. floodplains, high fire hazard areas, unstable soils, known seismic faults, etc.).
 - Areas where there are significant natural resources (e.g. groundwater recharge, wildlife habitat, mineral or timber resources, scenic areas, etc.).
- ▲ **Policy LU-4.2.** Continue active involvement with State and regional efforts to establish policy, regulation and management for the Delta, to promote the economic and social sustainability of the town of Clarksburg, the viability of the Agricultural District, the habitat needs of the Yolo Natural Heritage Program and the water resources needed for the success of each of these efforts.
- ▲ **Policy CC-3.10.** In addition to Table LU-11, achieve the following within the Dunnigan Specific Plan growth boundary:
 - G. Preserve the Tehama-Colusa Canal as Dunnigan's western boundary and as an important source of future water.
- ▲ **Policy CI-4.5.** Roads and road-related structures (bridges, culverts, retaining walls, abutments, etc.) located in or near watercourses shall be placed, designed, built, and landscaped so as to minimize the impact to riparian corridors. Structures shall reduce erosion during and after construction, accommodate flood flows, and minimize grading on slopes greater than 20 percent.
- ▲ **Policy PF-2.2.** Construct on-site stormwater detention facilities that are designed so that runoff from the 100-year storm event does not: (1) result in an increase in peak release rate; (2) result in a time decrease associated with the time of concentration; (3) contribute to adjacent flood problems; and/or (4) significantly alter the direction of runoff.
- ▲ **Policy PF-2.3.** Design new stormwater facilities to enhance recreational, habitat, and/or aesthetic benefits, as well as to integrate with existing parks and open space features.
- ▲ **Policy PF-2.4.** Encourage sustainable practices for stormwater management that provide for groundwater recharge and/or improve the quality of runoff through biological filtering and environmental restoration.
- ▲ **Policy AG-2.1.** Protect areas identified as significantly contributing to groundwater recharge from uses that would reduce their ability to recharge or would threaten the quality of the underlying aquifers.
- ▲ **Policy AG-2.2.** Preserve water resources for agriculture, both in quantity and quality, from competition with development, mitigation banks and/or interests from outside of the County.

Yolo County Flood Management Ordinance

When the County joined the NFIP, it adopted and began to enforce minimum floodplain management standards. FEMA worked closely with the state and the county to identify flood hazard areas, flooding risk, and to establish minimum floodplain management standards. The floodplain management standards are designed to prevent new development from increasing the flood threat and to protect new and existing buildings from anticipated flood events. To satisfy the requirements of the Floodplain Management Ordinance, projects planned for construction within a special flood hazard area must meet development and construction standards specifically designed to prevent or limit flood damage. If a property proposed for

development is determined to be in a FEMA special flood hazard area, the applicant will be required to obtain a floodplain permit from the Building Inspection Division before applicable permits can be issued.

Yolo County Emergency Preparedness

The Yolo County Office of Emergency Services is responsible for coordinating the county government's role in preparation and response to a disaster or large scale emergency within the county. Countywide emergency preparedness plans outline procedures for coordination and response. The County's federally approved Yolo Operational Area Multi-Hazard Mitigation Plan provides the framework for this disaster response.

Stormwater Management Program

The EPA regulates urban stormwater discharges as point sources and requires municipalities to obtain NPDES permits for these discharges, as described above. The County developed a Storm Water Management Program (SWMP) Planning Document in March of 2003 (revised in October 2004) to address stormwater quality within the County's jurisdiction. The SWMP addresses a wide variety of activities conducted in urbanized areas of the County that are sources of pollutants in stormwater. The SWMP was submitted with the Notice of Intent to comply with the permit to the Water Board, indicating the County's commitment to managing properties, facilities and operations within its jurisdiction to protect stormwater resources and the quality of receiving waters.

Integrated Regional Water Management Program

The Yolo County Integrated Regional Water Management Program (IRWMP) was completed by the Water Resources Association of Yolo County in 2007 which is comprised of multiple public water purveying entities to identify issues related to water supply, water quality, flood management and drainage, recreation, and riparian and aquatic ecosystem enhancement. The IRWMP contains a list of priority projects and integrated actions that are planned and implemented within Yolo County.

Cache Creek Area Plan

The *Off-Channel Mining Plan for Lower Cache Creek* (OCMP) together with the *Cache Creek Resources Management Plan for Lower Cache Creek* (CCRMP) comprise the *Cache Creek Area Plan* (CCAP). The CCAP describes approaches for managing riparian habitats along Cache Creek from the Capay Dam to I-5, in particular, for restoring habitats, reducing erosion, maintaining flood capacity, and improving water quality. Among the goals of the plan is to promote coordination of local, state, and federal regulation of activities within Cache Creek. The OCMP was established as a comprehensive and integrated planning framework for regulating and protecting the Cache Creek area. The OCMP accommodates gravel mining on the creek terraces (but not in-channel) while emphasizing habitat restoration, open space, and reclamation of mined lands to agricultural use (Yolo County 1996a). The OCMP describes a future groundwater recharge and storage program and allows for future recreation opportunities along the creek. The CCRMP is a comprehensive creek management plan that eliminated commercial in-channel aggregate mining, established an improvement program for implementing on-going projects to improve channel stability, and ensured restoration of riparian habitat along creek banks in the future (Yolo County 1996b, Revised 2002).

City of Davis General Plan

The City of Davis General Plan contains the following policies related to hydrology and water quality that are potentially relevant to the Plan:

- ▲ **Policy WATER 2.2.** Manage groundwater resources so as to preserve both quantity and quality.
- ▲ **Policy WATER 2.3.** Maintain surface water quality.
- ▲ **Policy WATER 3.2.** Coordinate and integrate design, construction, and operation of proposed stormwater retention and detention facilities City-wide, to minimize flood damage potential and improve water quality.
- ▲ **Policy HAZ 1.1.** Site and design developments to prevent flood damage.

City of Woodland General Plan

The City of Woodland General Plan contains the following policies related to hydrology and water quality and are potentially relevant to the Plan:

- ▲ **Policy 4.C.1.** The City shall protect the groundwater basin from overdraft due to City pumpage.
- ▲ **Policy 4.E.3.** The City shall prohibit grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of storm drainage facilities.
- ▲ **Policy 4.E.4.** The City shall require projects that have impacts on the quantity and quality of surface water runoff to incorporate mitigation measures for impacts related to urban runoff and/or pay fees in lieu of the support of City-sponsored projects for this purpose.
- ▲ **Policy 4.E.5.** Future drainage system requirements shall comply with applicable state and federal pollutant discharge requirements.
- ▲ **Policy 7.A.1.** The City shall cooperate with Yolo County in the conservation of Cache Creek for the protection of its water resources and its open space qualities. To this end, the City shall oppose the introduction of new potential sources of pollutants to Cache Creek.
- ▲ **Policy 7.A.5.** The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect receiving waters from the adverse effects of construction activities and urban runoff.
- ▲ **Policy 8.B.1.** The City shall continue to implement floodplain zoning and undertake other actions required to comply with state floodplain requirements, and to maintain the City's eligibility under the Federal Flood Insurance Program.
- ▲ **Policy 8.B.2.** The City shall require evaluation of potential flood hazards prior to approval of development projects. The City shall require proponents of new development to submit accurate topographic and flow characteristics information. This will include depiction of the 100-year floodplain boundaries under fully-developed, pre- and post-project runoff conditions.
- ▲ **Policy 8.B.3.** The City shall not allow development in areas subject to deep flooding (i.e., over four feet deep) unless adequate mitigation is provided, to include project levees designed for a standard project flood or a minimum of 400-year protection, whichever is less.
- ▲ **Policy 8.B.4.** The City shall require flood-proofing of structures and outdoor storage areas for hazardous materials in areas subject to flooding. Hazardous materials and wastes shall be contained within flood-proofed structures or storage areas.
- ▲ **Policy 8.B.6.** The City shall continue to work closely with the U.S. Army Corps of Engineers, the Yolo County Resource Conservation District, the Federal Emergency Management Agency, the State Department of Water Resources, and the Yolo County Flood Control and Water Conservation District in defining existing and potential flood problem areas and solutions.

City of Winters General Plan

The City of Winters General Plan contains the following policies related to hydrology and water quality and are potentially relevant to the Plan:

- ▲ **Policy VI.A.2.** In reviewing development proposals, the City shall consider the project's potential for adversely affecting water quality in Putah Creek, Dry Creek, and the area's groundwater and shall condition development approvals to avoid or adopt all feasible measures to mitigate any identified significant effects.

- ▲ **Policy VI.A.6.** The City shall condition development approvals to minimize the discharge of sediment from grading into Putah Creek and Dry Creek
- ▲ **Policy VI.D.1.** The City shall require that all new development along Putah Creek east of Railroad Avenue be set back at least 100 feet from the top of the creek bank, that all new development along Putah Creek west of Railroad Avenue be set back at least 50 feet from the top of the creek bank, and that all new development along Dry Creek be setback at least 50 feet from the top of the creek bank. Where there is no discernable bank, the setback shall be measured from the line closest to the creek where riparian vegetation is permanently established.
- ▲ **Policy VI.D.4.** Any upstream development that creates potential erosion impacts on Dry Creek and Putah Creek shall be required to adopt all feasible measures to mitigate such impacts.
- ▲ **Policy VII.B.1.** The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.
- ▲ **Policy VII.B.2.** Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall.
- ▲ **Policy VII.B.3.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to the storm drainage system.

West Sacramento General Plan

The City of West Sacramento General Plan contains the following policies related to hydrology and water quality and potentially relevant to the HCP/NCCP:

Public Facilities and Services Element

Goal PR-4. To maintain an adequate level of service in the City's storm drainage system to accommodate runoff from existing and future development, prevent property damage due to flooding, and improve environmental quality.

- ▲ **Policy PFS-4.1. Public Improvement Design.** The City shall design public improvements such as streets, parks, and plazas for retention and infiltration of stormwater by diverting urban runoff to bio-filtration systems such as green spaces.
- ▲ **Policy PFS-4.2. Accommodate New and Existing Development.** The City shall continue to expand and develop stormwater drainage facilities to accommodate the needs of existing and planned development.
- ▲ **Policy PFS-4.6. Enhance Recreation.** The City shall require new stormwater drainage facilities to be designed to enhance recreation and habitat and be integrated into existing parks and open space features.
- ▲ **Policy PFS-4.7. Fix Local Flooding.** The City shall continue to identify and correct problems of localized flooding within the city. Where practical and economical, the City shall upgrade existing drainage facilities as necessary to correct localized flooding problems.
- ▲ **Policy PFS-4.8. Rainwater Catchment.** The City shall encourage the use of rainwater catchment facilities and improvements where appropriate, cost effective, safe, and environmentally sustainable.
- ▲ **Policy PFS-4.9. Grading Projects.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- ▲ **Policy PFS-4.10. Diversion.** The City shall require new development to be designed to prevent the diversion of floodwaters onto neighboring parcels.

- ▲ **Policy PFS-4.11.** The City shall require construction of storm drainage improvements, as appropriate, to prevent flooding during periods of heavy rainfall.

Natural and Cultural Resources Element

Goal NRC-4. To preserve and protect water quality in the City's natural water bodies and drainage systems and the area's groundwater basin.

- ▲ **Policy NCR-4.1. Integrated Water Management Program.** The City shall continue to integrate water management programs that emphasize multiple benefits and balance the needs of agricultural and urban users.
- ▲ **Policy NCR-4.2. Open Space Buffers.** The City shall conserve and, where feasible, create or restore open space areas that serve to protect water quality such as riparian corridors, buffer zones, wetlands, undeveloped open space areas, levees, and drainage canals.
- ▲ **Policy NRC-4.5. No Adverse Impact.** The City shall not approve new development that has a significant potential for adversely affecting water quality in the city's natural waterbodies and drainage systems including the Sacramento River, the Deep Water Ship Channel, Lake Washington, or the area's groundwater basin.
- ▲ **Policy NCR-4.6. New Development.** The City shall require new development to protect the quality of water resources and natural drainage systems through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID).

Goal NRC-5. To preserve and protect West Sacramento's water resources and supply.

- ▲ **Policy NCR-5.2. Groundwater Sustainability.** The City shall protect the sustainability of groundwater resources for urban and agricultural uses.
- ▲ **Policy NCR-5.3. Groundwater Recharge.** The City shall protect and require new development to preserve, where feasible, areas that provide important groundwater recharge and stormwater management benefits such as undeveloped open spaces, natural habitat, riparian corridors, wetlands, and natural drainage areas.

Safety Element

Goal S-2. To prevent loss of life, injury, and property damage due to flooding.

- ▲ **Policy S-2.1 Flood Insurance Program.** The City shall continue to participate in the National Flood Insurance Program, and ensure that local regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.
- ▲ **Policy S-2.9. 200-Year Flood Protection in New Development.** The City shall require new development to achieve a minimum of 200-year level of flood protection either through: i) the construction of flood management improvements or other mitigation measures beyond those required by the City's Floodplain Management Ordinance (Title 18 of the Municipal Code); or ii) payment of in-lieu flood management fees.
- ▲ **Policy S-2.11. New Development.** The City shall require evaluation of potential flood hazards prior to approval of development projects to determine whether the proposed development is reasonably safe from flooding and consistent with California Department of Water Resources (DWR) Urban Level of Flood Protection Criteria. The City shall not approve new development or a subdivision or enter into a development agreement for any property within a flood hazard zone unless the adequacy of flood protection specific to the area has been demonstrated.

9.3 ENVIRONMENTAL CONSEQUENCES

9.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

Evaluation of the potential impacts that may result from each alternative is based on a review of the covered activities as described in the Yolo HCP/NCCP; review of the Yolo County General Plan, and planning documents from the Cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative will comply with applicable local, State, and federal regulations and general plan policies.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW)—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the federal Environmental Species Act and California Natural Community Conservation Planning Act.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on hydrology and water quality in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ violate any water quality standards or waste discharge requirements;
- ▲ substantially deplete groundwater supplies or substantially interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- ▲ substantially alter the existing drainage pattern of a site or area, including through the modification of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off the site;
- ▲ substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off the site;

- ▲ create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- ▲ otherwise substantially degrade water quality;
- ▲ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas, or other flood hazard delineation map;
- ▲ place structures within a 100-year flood hazard area, the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas, that would impede or redirect flood flows;
- ▲ expose people or structures to a substantial risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- ▲ inundation by seiche, tsunami, or mudflow.

ISSUES NOT EVALUATED FURTHER

As discussed above in Section 9.2.1, *Environmental Setting*, the potential for coastal hazards such as tsunami or seiche to affect environmental resources in Yolo County are very low. The distance of the Plan Area from the coast (over 50 miles at the closest point) greatly reduces the chances of inundation by tsunami, and there is no record of seiche occurring in or near the Plan Area. The topography of the western portion of the Plan Area may lend itself to risk of mudflow, however no development covered activities are located in this area. The majority of the plan area and the areas in which development covered activities would occur is flat and not likely to be subject to mudflows. Given these conditions, these issues are not evaluated further in this chapter.

9.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Clarksburg, Dunnigan, Esparto, Elkhorn, Knights Landing, and Madison). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Urban and rural projects and activities under the No Action Alternative can result in violations of water quality standards or waste discharge requirements. However, projects and activities would be subject to water quality discharge standards including the provisions of the CWA, Porter-Cologne Act, the statewide General Construction Permit, and the Industrial General NPDES Permit as discussed above in Section 8.2.2, *Regulatory Setting*. These activities would also be subject to general plan polices that help reduce and prevent water quality impacts such as, Yolo County Policy CO-2.22, which requires a 100-foot buffer from the top of banks of all lakes, perennial ponds, rivers, creeks, sloughs and perennial streams.

General urban and rural development activities under the No Action Alternative can result in depletion of groundwater supplies or interfere with groundwater recharge for projects that replace land uses that utilize surface water with activities that utilize groundwater, and for projects that increase impervious surfaces in areas of moderate or better infiltration rates (Exhibit 9-2). However, activities under the No Action Alternative would be implemented under California regulations governing water use and groundwater including Executive Order B-29-15 and the Groundwater Management Act, as well as groundwater provisions of the Yolo County General Plan and applicable local general plans. Taken as a whole, these regulations are intended to reduce water use and subsequent overdraft of groundwater. The Yolo County General Plan also contains Policy CO-5.14 that addresses the need for open space to preserve groundwater recharge.

Those activities under the No Action Alternative that greatly increase impervious surfaces or require a substantial amount of grading could alter the existing drainage pattern in a manner that would result in erosion, siltation, and/or environmental harm, or could increase the rate or amount of surface runoff in a manner that would result in flooding. As discussed in Section 9.2.1, *Environmental Setting*, the Plan Area contains a number of impaired waterways under Section 303(d) of the Clean Water Act, including Cache Creek, Lower Putah Creek and the Sacramento River. Stormwater discharge standards for runoff to these impaired waters and other waters within the Plan Area under the No Action Alternative would be subject to the provisions of the Sacramento River Basin Plan, the statewide NPDES General Construction Permit, the California Non-degradation Policy, State Implementation Policy, as well as the Yolo County Storm Water Management Program and applicable general plan polices. In addition to these regulations and policies, planning for future stormwater drainage is conducted as part of the Yolo County IRWMP, and it is anticipated that stormwater facilities would be constructed under the No Action Alternative that would have benefits to water quality.

General urban and rural development activities under the No Action Alternative may place housing within a 100-year flood hazard area, or the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas, and may place structures within a 100-year flood hazard area, or the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas that would impede or redirect flood flows. As described in Section 9.2.1, *Environmental Setting*, and further in the Yolo County General Plan EIR, there are several areas within the Plan Area that are within a 100-year floodplain, 500-year floodplain, or otherwise have the potential for flooding (e.g., localized creek flooding). Areas that are within the 100-year floodplain consist of residential and agricultural areas along Cache Creek, the Colusa Basin Drainage Canal, the Sacramento River, and the majority of the lower eastern portion of the County. The 500-year floodplain is most extensive north of the city of Woodland, west of the City of Davis, east of the Yolo Bypass, and through the City of West Sacramento south to Clarksburg. Additional areas, primarily located along the Sacramento River and lower Willow Slough are proposed to be re-designated as part of the 100-year floodplain. Rural and urban residential development and other covered activities under the No Action Alternative would likely occur in these floodplains. However, appropriate construction standards and mitigation measures would be required, flood control projects are also anticipated to be built under the No Action Alternative that would result in a reduced flood risk.

The land use pattern proposed under the No Action Alternative could result in projects and activities that could expose people or structures to a substantial risk of loss, injury or death involving flooding from the failure of a levee or dam. As described in Section 9.2.1, *Environmental Setting*, and further in the Yolo County General Plan EIR, there are approximately 215 miles of levees located within the Plan Area, and to the west of the plan area are the Cache Creek Dam at Clear Lake and the Monticello Dam on Putah Creek at

Lake Berryessa. If any of these levees or dams were to fail, or if dams located upstream of the County along the Sacramento, Feather, or American rivers failed, there is a potential for flooding to occur in Yolo County. However, there are no indications of particular dam failure risk associated with these dams. Portions of levees within Yolo County have been de-certified, however some projects such as the West Sacramento levee improvement program and feasibility studies are underway to improve the level of flood protection provided by levees and other flood control features.

Under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the Expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is anticipated that some additional landowners would also place their land under easement in the future. It is also expected that under the No Action Alternative, the riparian forest along Putah Creek would continue to be protected via various laws and regulations (e.g., Section 1600 of the Fish and Game Code, see Chapter 4, *Biological Resources*) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee. These conservation and enhancement activities in the Expanded Plan Area are likely to have a benefit to water quality by limiting development in the area and enhancing riparian habitat that provides a buffer between the Creek and adjacent land uses.

As necessary, under the No Action Alternative, project applicants would be required to implement mitigation measures to reduce potentially significant and significant impacts to biological resources. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat, including agricultural lands), or convert lands to a more natural state (i.e., habitat establishment/re-establishment). These mitigation actions would generally have benefits to hydrology and water quality. By preserving lands for sensitive species, these lands would no longer be subject to development and the associated potential for increased ground water use, reduced recharge, increased stormwater runoff, and increased flood risk.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in the amount of agricultural and natural landscapes converted to residential, commercial and other uses. This past development has increased demand on groundwater resulting in ground subsidence in some locations within the Plan Area. Past development has also increased impervious surfaces reducing the surface area of land available for groundwater recharge and increasing runoff. Residential development in the plan area has also increased the number of residences and structures located within floodplains, and increased sewage discharges and other mechanisms carrying pollutants to waters within the Plan Area, resulting in several water bodies being listed as impaired under Section 303(d) of the CWA. In total, there is a currently adverse cumulative effects on hydrology and water quality within the Plan Area.

Additional foreseeable future development in the county beyond the covered activities included under the No Action Alternative would include activities such as solar and wind energy development, Caltrans infrastructure projects, and additional flood control activities. These additional development activities would have similar impacts to hydrology and water quality as projects under the No Action Alternative.

These additional foreseeable activities and those included under the No Action Alternative would be implemented under the same existing federal, State and local policies and regulations as described in Section 9.2.2, *Regulatory Setting*. These regulations are anticipated to result in reduced water quality and hydrologic impacts when compared to past development. Although impacts may be less than those from past development, when combined with additional development projects within the county, activities under

the No Action Alternative may contribute to a cumulatively considerable contribution to a significant cumulative effect on water quality and hydrology within the Plan Area.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Hydrology and water quality impacts as a result of these activities would be the same as described under the No Action Alternative and a comparison of the impacts from these activities to those under the No Action Alternative is not discussed further in the impact discussions below.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required implementation of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. However, the primary result of the neighboring landowner protection program, from a hydrology and water quality perspective, would be the general preservation of existing conditions on lands adjacent to Yolo HCP/NCCP reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Since the program would not change conditions related to hydrology and water quality (e.g., water demand, ground disturbance, level or location of development), it would not have an effect relative to this issue area and is not evaluated further in the impact discussions below.

All covered actions implemented under the Proposed Action Alternative including both development and conservation actions, would be subject to AMMs required by the HCP/NCCP, which would reduce hydrologic and water quality impacts. The AMMs that would reduce the likelihood of hydrology and water quality impacts are shown in Table 9-1 and discussed in detail in Appendix C.

Table 9-1 Yolo HCP/NCCP Avoidance and Minimization Measures Applicable to Hydrology Water Quality

General Project Design
AMM1, Establish Buffers
AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces
General Construction and Operations and Maintenance
AMM3, Confine and Delineate Work Area
AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas
Sensitive Natural Communities
AMM9, Establish Buffers around Sensitive Natural Communities
AMM10, Avoid and Minimize Effects on Wetlands and Waters
Cache Creek Area Plan Projects
AMM21, Implement Performance Standards of the Off-Channel Mining Plan and the Cache Creek Resources Management Plan

Effect HYDRO-1: Result in a violation of any water quality standard or waste discharge requirement.

Under the Proposed Action Alternative, the implementation of the conservation strategy includes conservation easements that would maintain current agricultural practices, which would not cause any

changes from existing conditions that would result in violations of a water quality standard or alterations in waste discharge timing, volume, or quality. Implementation of the conservation strategy would also include habitat enhancement, restoration, and creation for covered species, as well as operations and maintenance within the reserve system which may require ground disturbance and have a potential for violations of water quality standards and waste discharge requirements. However, these conservation activities under the Proposed Action Alternative would be subject to the various laws, regulations, and policies, described previously that would result in the protection of water quality, and are no more likely to result in violations of water quality standards or waste discharge requirements than the similar conservation activities under the No Action Alternative.

In addition, as discussed above, covered actions which require ground disturbance and the potential for discharge implemented as part of the conservation strategy under the Proposed Action Alternative would be subject to AMMs required by the HCP/NCCP. These AMMs would reduce the likelihood of a violation of any water quality standard or waste discharge requirement. Potential effects from implementation of conservation strategy actions under the Proposed Action Alternative are subject to existing regulations; therefore, they would not result in a violation of any water quality standard or waste discharge requirement. In addition, AMMs would further reduce the likelihood of a violation.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HYDRO-2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.

The covered activities associated with the conservation strategy under the Proposed Action Alternative would maintain agricultural practices on existing agricultural lands through conservation easements which would maintain similar water usage, and maintain the potential for groundwater recharge. Lands where habitat is enhanced, restored, or created may require irrigation on a temporary basis to establish new vegetation. However, the need for irrigation would be temporary (typically 1-3 years), and where habitat enhancement, restoration, or creation is undertaken on former agricultural lands, the temporary habitat irrigation would generally use less water than the previous agricultural practices. Habitat areas would also preserve recharge potential when located on lands that are suitable for groundwater recharge. Because the conservation actions under the Proposed Action Alternative and those under the No Action Alternative would be subject to the same regulations and policies and likely result in similar ground water usage and infiltration rates, it is likely that they would have similar effects on groundwater supplies and recharge. Potential effects from implementation of conservation strategy actions under the Proposed Action Alternative would not result in a change in the substantive depletion of groundwater supplies or substantive interference with groundwater recharge.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HYDRO-3: Substantially alter the existing drainage pattern in a manner that would result in substantial erosion, siltation, and/or environmental harm, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding.

In general terms, the covered activities that are part of the implementation of the conservation strategy under the Proposed Action Alternative (e.g., establishment of a reserve system; habitat enhancement, restoration, and creation) are similar to mitigation actions that would occur on a project by project basis under the No Action Alternative.

These actions under the Proposed Action Alternative are no more likely to substantially alter the existing drainage pattern in a manner that would result in substantial erosion, siltation, and/or environmental harm, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding than under the No Action Alternative. In addition, conservation activities under the Proposed Action Alternative would be required to implement AMMs that would result in reduction in erosion and siltation through the implementation of buffers from wetlands, riparian habitats and waters, as well as limiting temporary construction footprints (Table 9-1) within the Plan Area. Therefore, it is likely that any potential effects associated with the alteration of drainage patterns that would result in erosion or substantively increase the rate or amount of surface runoff in a manner that would result in flooding as a result of implementation of the Proposed Action Alternative.

Potential effects from implementation of conservation strategy actions under the Proposed Action Alternative would not result in the alteration of drainage patterns that would result in erosion or substantively increase the rate or amount of surface runoff in a manner that would result in flooding and would be subject to AMMs.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HYDRO-4: Create or contribute runoff water that would provide substantial additional sources of polluted runoff, exceed the capacity of existing or planned stormwater drainage systems or otherwise substantially degrade water quality.

Activities that are part of the conservation strategy under the Proposed Action Alternative would maintain existing agricultural uses through conservation easements; enhance, restore, and create habitat for covered species; and maintain and operate reserve system lands. These activities are highly unlikely to create additional sources of polluted runoff, degrade water quality, or alter stormwater drainage. Conservation actions under the Proposed Action Alternative would also be subject to the same regulations and policies related to water quality and stormwater drainage and discharge described above for the No Action Alternative. Additionally, conservation activities under the Proposed Action Alternative would be subject to AMMs that would have the potential to reduce the volume and increase the quality of runoff reaching impaired waters by the implementation of buffers from wetlands, riparian habitats and waters, as well as limiting temporary construction footprints (Table 9-1). Conservation actions under the Proposed Action Alternative would also be subject to the current regulations and policies related to water quality and stormwater drainage and discharge. Additionally, conservation activities under the Proposed Action Alternative would be subject to AMMs that would have the potential to reduce the volume and increase the quality of runoff.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HYDRO-5: Place housing, or place structures that would impede or redirect flood flows within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map, or within the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas; within a 100-year flood hazard area.

Implementation of the conservation strategy under the Proposed Action Alternative does not include residential development, and as such it would not place housing within flood hazard areas. While there may be structures associated with the reserve system (e.g., gates, fences), they would not be of sufficient size or mass to impede or redirect flood flows. In addition, the purchase of reserve system lands within flood hazard

areas would reduce potential future effects from development by removing the potential for residential and other development on those lands.

Since the conservation actions under the Proposed Action Alternative and those under the No Action Alternative are likely to be similar in nature (containing no development component), and be subject similar policies and regulations regarding activities in floodplains, it is likely they would result in similar effects associated with the placement of housing within a 100-year flood hazard area, or placement of structures within a 100-year flood hazard area that would impede or redirect flood flows.

Potential effects from implementation of conservation strategy actions under the Proposed Action Alternative would not result in the placement of housing within a 100-year flood hazard area, or placement of structures within a 100-year flood hazard area that would impede or redirect flood flows.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HYDRO-6: Expose people or structures to a substantial risk of loss, injury or death involving flooding from the failure of a levee or dam.

As described in Section 9.2.1, *Environmental Setting*, and further in the Yolo County General Plan EIR, there are approximately 215 miles of levees located within the Plan Area, and to the west of the Plan Area are the Cache Creek Dam at Clear Lake, and the Monticello Dam on Putah Creek at Lake Berryessa. If any of these levees or dams were to fail, or if upstream dams located along the Sacramento, Feather, or American rivers failed, there is a potential for flooding to occur in Yolo County.

As discussed in Effect HYRO-5 above, implementation of the conservation strategy under the Proposed Action Alternative does not include residential development, nor is it likely to expose structures to increased risk of loss due to the failure of a levee or dam.

The conservation actions under the Proposed Action Alternative and those under the No Action Alternative are likely to be similar in nature (containing no development component), and would be subject to similar risk from the failure of a flood control feature.

Potential effects from implementation of conservation strategy actions under the Proposed Action Alternative would not include residential development, nor is it likely to expose structures to increased risk of loss due to the failure of a levee or dam. *No mitigation is required.*

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the conservation strategy under the Proposed Action Alternative to the cumulative condition of hydrology and water quality in the Plan Area would include the establishment of conservation easements which would maintain existing agricultural uses, and the restoration, enhancements, and creation of habitat for covered species which may have a benefit to the hydrology and water quality in the Plan Area over existing conditions by removing the development potential and restoring natural communities on reserve system lands. In addition, conservation activities that require ground disturbance such as some habitat restoration would be subject to the AMMs listed in Table 9-1 above and discussed in detail in Appendix C. When implemented, these AMMs would further reduce the potential effects to hydrology and

water quality from conservation activities. Therefore, implementation of the conservation strategy under the Proposed Action Alternative would result in a reduced cumulatively considerable contribution to a significant cumulative effect from the combined effects of past, current, and probable future projects on hydrologic and water quality resources in the Plan Area, when compared to the No Action Alternative, and therefore results in a beneficial effect relative to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of development related covered activities as the Proposed Action Alternative (Alternative B); however, under The Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative, where no activities that would result in take of covered species would be permitted. These locations are in the vicinity of Clarksburg, Davis, the Dunnigan Specific Plan, Woodland, and West Sacramento (Exhibit 2-6). All other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, monitoring, funding) remain the same. See Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Effects to hydrology and water quality as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, activities that could result in take (e.g., development) would be reduced by approximately 1,335 acres within specific areas in the vicinity of impaired waters such as Clarksburg, West Sacramento, and the Woodland Elkhorn Specific Plan area. Therefore, there would be less potential for effects on hydrology and water quality compared to the effects of ground disturbance and other activities described for the No Action Alternative. However, the prohibition on take in these areas could result in the development planned for these specific areas being diverted to another part of the Plan Area in the vicinity of other impaired waters which would reduce this benefit.

The Reduced Take Alternative includes implementation of the Yolo HCP/NCCP and associated conservation strategy and AMMs for covered activities. This would further reduce any potential for some hydrologic and water quality effects when compared to the No Action Alternative as discussed for the Proposed Action Alternative above.

Overall, under The Reduced Take Alternative, Effect Hyrdo-1, Hydro-2, Hydro-3, Hydro-4, and Hydro-6 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact similar and is **less than significant**.

No mitigation is required.

Effect HYDRO-5: Place housing, or place structures that would impede or redirect flood flows within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map, or within the 200-year flood hazard boundary as defined by the Central Valley Flood Projection Plan in urban areas; within a 100-year flood hazard area.

The existing conditions of floodplains under the Reduced Take Alternative are described in Section 9.2.1, *Environmental Setting*, and the federal, State and local regulations and policies regarding development and other activities in floodplains are discussed in Section 9.2.2, *Regulatory Setting*, and referenced in the Proposed Action Alternative above. Some of the rural and urban residential development and other covered

activities under the Reduced Take Alternative would occur within floodplains. However, under the Reduced Take Alternative, some lands that would be developed under the No Action Alternative are assumed to only be used for activities that would not result in take of covered species. It is not expected that under these conditions that housing and similar development would be permissible. These locations are in the vicinity of Clarksburg, Davis, the Dunnigan Specific Plan, Woodland, and West Sacramento, and approximately 860 acres of these lands are within the 100-year floodplain, approximately 310 acres are within the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas, and approximately 11 acres are within the 500-year floodplain.

The Reduced Take Alternative would result in approximately 860 fewer acres of activities that could result in take of covered species within 100-year floodplains, approximately 310 fewer acres within the 200-year flood hazard boundary as defined by the Central Valley Flood Protection Plan in urban areas, and approximately 11 fewer acres within 500-year floodplains than the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative.

The individual effects on hydrology and water quality in the Plan Area from The Reduced Take Alternative would be similar to those under the Proposed Action Alternative, however due to an overall reduction in development under The Reduced Take Alternative the potential effects would also be reduced.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

The Reduced Take Alternative would make less of a cumulatively considerable contribution to a significant cumulative effect.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

ALTERNATIVE D- REDUCED DEVELOPMENT ALTERNATIVE

The Reduced Development Alternative (Alternative D) would include the same categories of development related covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area and the Elkhorn Specific Plan Area would not be covered activities (Exhibit 2-7). There are no immediate plans to develop these areas in the near term, but some type of development could potentially occur within the term of the permit. If such development were to occur, it would not be considered a covered activity under the HCP/NCCP. (See Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative). Effects related to hydrology and water quality as a result of implementation of The Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative; however, given that less development could occur within the two designated areas, there is the potential for less adverse effects from development related to hydrology and water quality. If these areas were developed some time in the future, or if this development was displaced to other locations within the Plan Area, effects on hydrology and water quality would be the same as those for the Proposed Action Alternative, although the HCP/NCCP would not be available as a

mechanism to address losses of these resources. Mitigation would be more similar to what would occur under the No Action Alternative.

Effects to hydrology and water quality as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, as AMMs would be implemented for some, but not all activities under this alternative, the resulting impacts would be less than those for the No Action Alternative, but greater than the Proposed Action Alternative.

Overall, under The Reduced Development Alternative, Effect Hydro-1, Hydro-2, Hydro-3, Hydro-4, and Hydro-6 would not be appreciably different from what is described for the Proposed Action Alternative, although some activities would not be implemented under the Yolo HCP/NCCP and therefore without AMMs.

Under The Reduced Development Alternative, Effect Hydro-5 would also not be appreciably different from what is described under the Proposed Action Alternative, although development within a portion of the Elkhorn Specific Plan Area, would not be covered under the HCP/NCCP, but some type of development could potentially occur in the future. If such development were to occur, it may be located within a flood hazard area. Thus the area of potential development within flood hazard areas is not appreciably different from that under the Proposed Action Alternative.

However, due to the implementation of some activities without AMMs, overall effects would be somewhat less beneficial relative to the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for The Reduced Development Alternative. The contribution of The Reduced Development Alternative to the cumulative condition of hydrology and water quality in the Plan Area would be similar to that of the Proposed Action Alternative, in the type, scope and location of activities implemented, as well as the implementation of AMMs that would further reduce negative effects on water quality. However, unlike the Proposed Action Alternative, under The Reduced Development Alternative, some activities that could potentially be implemented in the future would not be covered under the Yolo HCP/NCCP and would not be subject to the same AMMs.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

Overall effects would be somewhat less beneficial relative to the Proposed Action Alternative.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

10 POPULATION AND HOUSING

10.1 INTRODUCTION

This chapter provides information relevant to population and housing impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

10.1.1 Data Sources

The following key sources of data and information were reviewed to prepare the population and housing chapter.

- ▲ *Yolo County 2013-2021 Housing Element* (Yolo County 2013);
- ▲ *City of Davis Housing Element Update 2013-2031* (City of Davis, 2014);
- ▲ *City of West Sacramento 2013-2021 Housing Element Update* (City of West Sacramento, 2013);
- ▲ *City of Winters 2013-2021 Housing Element Update* (City of Winters, 2013);
- ▲ *City of Woodland 2013-2021 Housing Element Update* (City of Woodland, 2013);
- ▲ Regional Housing Needs Plan for the SACOG Region January 1, 2013 through October 31, 2021 (SACOG 2012);
- ▲ Federal census data on demographics, income, and employment in Yolo County (U.S. Census Bureau 1990, 2000, 2010);
- ▲ California Department of Finance's (DOF) population and housing estimates for cities, counties and the state. (DOF 2014, 2015a, 2015b); and
- ▲ U.S. Census Bureau's 2010-2014 American Community Survey 5-Year Estimates.

10.1.2 Definitions

A General Plan by definition guides and directs growth in a community or region by providing a plan for accommodating future increased population, housing, and other development. The Housing Element is one of the seven mandated elements of the general plan and works to ensure local governments adequately plan to meet existing and projected housing needs of all economic segments of the community. Unlike the other mandatory general plan elements, the housing element is required to be updated every 8 years for the Sacramento region, and is subject to detailed statutory requirements and mandatory review by a State agency (Department of Housing and Community Development). The Housing Element identifies the community's goals, policies, and standards designed to address housing supply and affordability needs, ensure equal access to housing, reduce housing constraints, work to preserve existing housing opportunities, and promote energy conservation in housing.

10.2 AFFECTED ENVIRONMENT

10.2.1 Environmental Setting

POPULATION

As of January 2015, 87 percent of Yolo County's population of 209,393 residents resided in the four incorporated cities of Davis, West Sacramento, Winters, and Sacramento (DOF 2015a [Table 10-1]). The average annual growth rate for the county as a whole from 2010 to 2015 was 0.84 percent. The unincorporated county had an average annual growth rate of 1.97 percent (2,494 persons), which, in terms of percentage growth, was higher than any of the cities. West Sacramento's average annual growth rate was 1.02 percent (2,528 persons), the highest among the cities. The City of Davis had the lowest average annual growth rate at 0.34 percent (1,135 persons).

The Department of Finance estimates that the county's population will grow at an average annual rate of 0.79 percent from 2010 to 2060, with a 2060 population of 298,451 (DOF 2014).

Table 10-1 Yolo County Population and Annual Growth Estimates for 2010 – 2015

Area/Jurisdiction	2010	2011	2012	2013	2014	2015	Average Annual Growth (percent)
Incorporated Cities							
Davis	65,622	65,419	65,465	66,101	66,802	66,757	0.34
West Sacramento	48,744	49,051	49,606	50,157	50,908	51,272	1.02
Winters	6,624	6,608	6,878	6,922	6,970	6,954	0.98
Woodland	55,468	55,346	55,996	56,569	57,307	57,525	0.73
Unincorporated County	24,391	24,647	26,260	26,630	26,259	26,885	1.97
County Total	200,849	201,071	204,205	206,379	208,246	209,393	0.84

Source: State of California, Department of Finance 2015a

HOUSING

As shown in Table 10-2, housing in Yolo County is characterized by a majority of single-family homes (i.e. 49,582) and fewer multi-unit buildings (i.e. 22,116). According to DOF 2015 estimates, single-family detached homes in the county's four incorporated cities comprise approximately 57% percent of the county's total housing. Woodland has the greatest number of single-family detached homes in the county with 12, 818 units (Table 10-2). West Sacramento has the greatest number of mobile homes in the county, comprising approximately 43% percent of the county's total mobile home units. Mobile homes are an important source of affordable housing in Yolo County. Approximately 10 percent of total housing units within Yolo County are located within the unincorporated portion of the county.

Vacancy rates, which are a good indicator of the demand for housing, are relatively low in the county, but vary depending on location. The DOF 2015 estimates indicate that the vacancy rates for the incorporated cities range from approximately 3.4 percent in Davis to 6.3 percent in West Sacramento (Table 10-2). Vacancy rates in the unincorporated county are approximately 9.4 percent. Generally, a vacancy rate of 5 percent is considered to be an indicator of a relatively balanced housing market with sufficient availability and options for residents.

Table 10-2 Estimated Housing Types, Vacancy and Household Size for Yolo County (2015)

Incorporated Cities	Housing Type					Occupancy			
	Single Units		Multiple Units		Other	Total Housing Units	Occupied	Vacancy Rate (percent)	Persons per House-hold
	Detached	Attached	2 - 4	5+	Mobile Homes				
Davis	12,318	2,271	3,165	7,822	487	26,063	25,174	3.4	2.59
West Sacramento	12,144	1,015	1,257	3,344	1,508	19,268	18,048	6.3	2.82
Winters	1,715	109	183	276	88	2,371	2,259	4.7	3.08
Woodland	12,818	1,135	1,673	3,997	537	20,160	19,142	5.0	2.96
Unincorporated County	5,856	201	275	124	913	7,369	6,677	9.4	2.87
County Total	44,851	4,731	6,553	15,563	3,533	75,231	71,300	5.2	2.79
California Total	8,066,626	975,132	1,121,287	3,191,257	560,407	13,914,715	12,830,035	7.8	2.95

Source: State of California, Department of Finance 2015b.

Note: Any UC Davis campus housing included in the Department of Finance data is attributed to the unincorporated county.

In 2014, the median home value of owner-occupied units in Yolo County as a whole was \$317,700 (Census 2014). However, housing prices can vary considerably across communities in Yolo County. In 2014, the median value of owner-occupied units in the incorporated cities ranged from \$248,000 for a home in the City of West Sacramento to \$532,800 for a home in City of Davis (Table 10-3). The median home value in the city of Davis is the highest in the region and surpassed the median home value of \$371,400 for California as a whole.

Table 10-3 Median Housing Prices of Owner-Occupied Units

Community	Median Home Value (2014)
Davis	\$532,800
Woodland	\$254,200
Winters	\$262,700
West Sacramento	\$248,000
Yolo County	\$317,700
Sacramento County	\$236,500
California	\$371,400

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimate

10.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

There are no federal laws or regulations related to housing and population relevant to the analysis of impacts from the Proposed Action and alternatives.

STATE LAWS AND REGULATIONS

California Government Code Section 65302(c)

The state of California requires all general plans to include a Housing Element. Housing elements must be updated at least every eight years. The Housing Elements for Yolo County and each city within the county are summarized below in the discussion of *Local Laws and Regulations*.

California Government Code Section 65584

The California Department of Housing and Community Development (HCD) requires development of Regional Housing Needs Plans (RHNP) by regional council of governments (COG). RHNP assign a share of a region's housing construction need to each city and county. The Sacramento Area Council of Governments (SACOG) determines fair-share portions of State allocations for Yolo County, which are included in SACOG's RHNP (SACOG 2012).

LOCAL LAWS AND REGULATIONS

Regional Housing Needs Allocation and Regional Housing Needs Plan

Based on the regional determination provided by HCD, a COG must develop both a RHNP and a Regional Housing Needs Allocation (RHNA). These state-mandated documents allocate a "projected share" of the regional housing needs to each of the cities and counties in a COG. The RHNA establishes the total number of housing units that each city and county must plan for within an eight-year planning period. Based on the adopted RHNA, each city and county must update the Housing Element of its general plan to demonstrate how the jurisdiction will meet the expected growth in housing need over this period of time. An RHNP further refines the housing needs analysis by allocating to the cities and counties their "fair share" of the region's projected housing need based on household income group over a 7.5-year planning period covered by the plan. The RHNP provides an opportunity for fair distribution of housing among cities and counties for a mix of housing affordable to all economic segments. The housing allocation targets are goals for each community to accommodate through appropriate planning policies and land use regulations.

The RHNP for the SACOG Region assigns the allocations to cities and counties in the six-county Sacramento region, including Yolo County and its cities. The SACOG RHNP adopted in 2012 covers the planning period from January 1, 2013 to October 31, 2021 (SACOG 2012).

Yolo County Housing Element

The Yolo County 2013-2021 Housing Element was adopted in October 2013 and addresses the statewide housing goal of "attaining decent housing and a suitable living environment for every California family" (Yolo 2013: HO-2). The Housing Element identifies the community's goals and policies relative to the improvement, development, and maintenance of housing in Yolo County. The following goal and policy related to housing are relevant to the analysis of the HCP/NCCP:

Goal HO-1 Housing Mix. Provide housing to meet the social and economic needs of each community, including both existing and future residents, as well as employers.

- ▲ **Policy HO-1.2.** Ensure that amendments to the General Plan do not result in a net loss of zoned land upon which the inventory for meeting the County's RHNA allocation relies. Promote live/work uses, such as home occupations, employee housing, and caretaker accommodations.

City of Davis Housing Element

The City of Davis 2013-2021 Housing Element (City of Davis 2014) contains various goals with associated standards, policies, and actions, designed to address the City's housing supply and affordability needs, ensure equal access to housing, reduce housing constraints, work to preserve existing housing

opportunities, and promote energy conservation in housing. The following goal and policy related to housing are relevant to the analysis of the HCP/NCCP:

Goal HOUSING 1. Promote an adequate supply of housing for people of all ages, income, lifestyles, and types of households consistent with General Plan policies and goals.

- ▲ **Policy HOUSING 1.1.** Encourage a variety of housing types that meet the housing needs of an economically and socially diverse Davis.

City of West Sacramento Housing Element

The City of West Sacramento 2013-2021 Housing Element Update (City of West Sacramento 2013) contains various goals that focus on adequate land for a balanced range of housing; maintenance, improvement, and rehabilitation of housing; energy efficiency; balance of employment and housing; adequate services for residential development; and equal housing opportunity. In addition, policies, implementation programs, and actions are included to help the City meet its housing goals. The following goal and policy related to housing are relevant to the analysis of the HCP/NCCP:

Goal HE-1. Adequate Land for A Balanced Range Of Housing (Encompasses Government Code Sections 65583(C)(1), (2), & (3))

- ▲ **Policy HE-P-1.2.** The City shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate the City's regional housing allocation under the Sacramento Area Council of Governments (SACOG) Regional Housing Needs Plan.

City of Winters Housing Element

The City of Winters 2013-2021 Housing Element Update (City of Winters 2013) is based on seven strategic goals that would facilitate the provision of housing to meet the needs of all income levels. Policies, programs, and an action plan are provided to meet these strategic goals. The Housing Element also identifies and analyzes housing needs and the resources and constraints to meeting those needs. The following goal and policy related to housing are relevant to the analysis of the HCP/NCCP:

Goal II.A. To designate adequate land for a balanced range of housing types and densities for all economic segments of the community.

- ▲ **Policy II.A.2.** The City shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate the City's fair share of projected regional growth and have as a goal a residential vacancy rate of 5 percent.

City of Woodland Housing Element

The City of Woodland 2013-2021 Housing Element Update (City of Woodland 2013) contains 4 goals designed to address development and maintenance of housing, equal opportunity in housing, and energy conservation and sustainable housing development. Each goal statement includes policy, implementation programs, the agency or department responsible for carrying out the program, and a timeframe for accomplishing the program. Several of the implementation programs also have quantified objectives.

The following goal and policy are relevant to this project:

Goal 2.A. To promote the provision of adequate housing for all persons in the City, including those with special housing needs and to emphasize the basic human need for housing as shelter.

- ▲ **Policy 2.A.2.** The city shall ensure sufficient land for residential development, consistent with the City's fair share obligation, that promotes efficient use of land and reduces significant environmental impacts.

10.3 ENVIRONMENTAL CONSEQUENCES

10.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts to population and housing is based on a review of population and housing data, the Regional Housing Needs Plan, and the Housing Elements pertaining to the Plan Area described above in Sections 10.2.1, *Environmental Setting* and 10.2.2, *Regulatory Setting*. The impact analysis considers whether the Proposed Action and alternatives would induce substantial population growth or housing that could result in an adverse change in the physical environment beyond that which was addressed in planning documents within the Plan Area.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA. All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on population and housing in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- ▲ displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- ▲ displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

10.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities, agricultural economic development, and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Developments in rural and urban areas within the Plan Area would continue to occur under the No Action Alternative, and would result in population growth either directly (i.e. new homes and businesses) or indirectly (i.e. road and infrastructure extensions), potentially resulting in the need for expanded and additional homes and community services. However, population growth in the Plan Area has been estimated and planned for in the general plans, area plans, and SACOG's RHNP, and other applicable planning documents. Land use activities associated with the general plans would anticipate and accommodate the population growth. Existing housing and community services would continue to be available to residents. The development of new or expanded communities and services would continue, in part, in response to increased demand as a result of population growth, consistent with current local plans and policies. Environmental impacts associated with the construction of new development would be addressed on a project-by-project basis. Since new housing is a substantial component of planned development in rural and urban areas, if any housing or people were displaced by this development, there would be sufficient new housing stock available to accommodate these individuals and there would not be a direct need to construct replacement housing elsewhere. As discussed in city and county housing element goals and policies described above in Section 10.2.2, *Regulatory Setting*, the County and each city would maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate the regional housing allocation established in the SACOG RHNP.

Activities under the rural public services, infrastructure, and utilities category include improvements, replacements, and construction of new public services, infrastructure, and utilities outside of the incorporated cities and rural communities, such as roads, wet and dry utility infrastructure, landfills and related facilities, levees, airports, and ports. Although development under this category could induce growth through the generation of new jobs and the expansion of utilities and municipal services to new areas, the anticipated development is intended to provide increased community services, infrastructure, and utilities that serve planned land uses that are consistent with local general plans. These new facilities are responsive to planned population growth and are not generators of substantial new population growth. Although it is possible that small numbers of homes or people could be displaced by development included in the rural public services, infrastructure, and utilities category, because new housing is a substantial component of planned development in rural and urban areas (as described above), there would be sufficient new housing

stock available to accommodate any displaced individuals and there would not be a direct need to construct replacement housing elsewhere.

Activities under the agricultural economic development and open space category could result in relatively large facilities being constructed in a rural/agricultural area (e.g., processing plants). These projects would create new employment opportunities in the Plan Area, potentially bring new residents to the area, and possibly increase demand for housing and community services. Since 2000, the unemployment rate in Yolo County has ranged from 4% to 13.4%. As of May 2016, the unemployment rate in Yolo County was 5% and the National unemployment rate was 4.7% (U.S. Department of Labor Bureau of Labor Statistics [BLS] 2016). Over the past 10 years, the county's unemployment rate has generally remained slightly above (i.e. one percent or less) the national unemployment rate (California Employment Development Department 2016; BLS 2016)). Given the moderate unemployment rate of Yolo County, it's anticipated that housing demand would not increase substantially through implementation of these types of projects because permanent positions could typically be filled by existing county residents and many of the remaining positions would be seasonal and would not be anticipated to generate large new permanent resident populations.

Further, the addition and expansion of planned housing and community services to accommodate anticipated growth in the Plan Area would reduce new demands on existing housing and community services, as well as provide housing opportunities for individuals that might be displaced (although unlikely) by implementation of development under the agricultural and economic development and open space category.

Under the public and private operations and maintenance development category, various operations and maintenance activities would be implemented as part of existing and planned land uses, facilities, and services in both urban and rural areas. Activities would include management, operations, rehabilitation, replacement, repair, and maintenance of facilities ranging from utilities, roadways, bridges, and industrial land uses to parks and open space. Most of these activities would be undertaken with existing personnel and would not generate large numbers of new jobs or otherwise induce growth. Although these types of activities could generate disruptions for residents for limited periods of time, it is highly unlikely that homes or persons would be permanently displaced.

As the development and other activities described above are implemented under the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would not substantially increase the demand for housing or result in population growth within the Plan Area. Typically, locations with more than a few residences (i.e. subdivisions) are typically not suitable for habitat preservation, enhancement, restoration, or creation, or are prohibitively expensive for these activities relative to undeveloped lands. Therefore, it is not expected that substantial numbers of existing housing or people would be displaced as a result of mitigation for impacts to threatened and endangered species.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in demand for housing to accommodate increased populations. The capacity to provide housing has typically increased as needed to meet demand.

Projects and activities included within the categories of urban and rural development would continue the trend of increasing the demand for housing and could combine other projects within the county to result in a larger cumulative increase in demand for housing. However, consistent with the general plan Housing Elements of Yolo County and the cities of Davis, West Sacramento, Winters, and Woodland, further

development of housing would occur as planned development proceeds under the No Action Alternative. It is anticipated that future development implemented under the No Action Alternative, as well as any other projects in the Plan Area, would comply with the policies set forth in city and county general plans. It is expected that compliance with general plan Housing Element policies, described above under Section 10.2.2, would direct future development of housing consistent with the demand for housing within each jurisdiction.

Multiple foreseeable future projects could each result in some displacement of housing or individuals, resulting in a cumulative demand for replacement housing. However, many of these projects would also provide new housing opportunities and as a result of the continued provision of housing addressed by the general plan Housing Elements, there would continue to be sufficient housing stock to make replacement housing available.

As identified above in the alternative specific impact discussion, required biological resources mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation), which would have little to no effect on population and housing in the Plan Area either individually or cumulatively.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Population and housing impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. The primary result of the neighboring landowner protection program from a population and housing perspective, would be the general preservation of existing conditions on lands adjacent to Plan reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Since the program would not change the demand for or availability housing, promote population growth, or displace people or housing, it would not have an effect on populations and housing and is not evaluated further in the impact discussions below.

Effect HP-1: Potential to induce substantial population growth in the Plan Area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks. These activities would result in continuation of existing agricultural operations or the preservation of existing open space. The conservation strategy included in the Proposed Action Alternative also provides for habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat restoration and creation where an existing natural or seminatural land cover type would be converted to a different natural land cover type (e.g., restoration of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation).

These activities would not include new homes or infrastructure that could promote population growth. Implementation of the conservation strategy would result in the creation of a small number of employment opportunities to establish, manage, and monitor reserves and implement habitat enhancement, restoration, and creation efforts. As indicated in the HCP/NCCP in Chapter 8, *Costs and Funding*, much of this work is

expected to be implemented by contractors, local partners, and others. There would not be large numbers of permanent Conservancy staff hired to implement the HCP/NCCP. Existing employees and businesses within the county and the region would be able to accommodate work efforts and any increased employment demand. If a small number of new employees were to relocate to the Plan Area, available housing stock (see vacancy rates in Table 10-2) would be able to accommodate the minor increase in demand.

NEPA Level of Significance: As compared to the No Action Alternative, this impact **than significant**. Both implementation of biological resources mitigation under the No Action Alternative and implementation of the conservation strategy under the Proposed Action Alternative would result in little, if any, population growth.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**. Overall, with implementation of the conservation strategy included in the Proposed Action Alternative, there would be little, if any, population growth.

No mitigation is required.

Effect HP-2: Potential to displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.

The potential to displace homes and people associated with development-related covered activities under the Proposed Action would be the same as described above for the various development categories under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. Implementation of the various elements of the HCP/NCCP conservation strategy would primarily involve the preservation and enhancement of existing land covers and habitat restoration/creation in some areas. Implementation of the Proposed Action Alternative would have very low to no potential to displace any existing homes because covered activities would involve either placing easements on existing agricultural lands or restoring habitat in undeveloped areas. In addition, locations with more than a few residential dwellings (e.g. subdivisions) are typically not suitable for habitat preservation, enhancement, restoration, or creation, or are prohibitively expensive for these activities relative to undeveloped lands. Therefore, it is not expected that substantial numbers of existing housing or people would be displaced as a result of implementation of the conservation strategy. This is the same conclusion as for mitigation for impacts to threatened and endangered species under the No Action Alternative.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**. Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse effects related to the displacement of people or housing and need for replacement housing.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

As described above, implementation of the Proposed Action Alternative would not directly or indirectly place additional demands on housing, induce population growth, or displace substantial numbers of existing housing or people in the Plan Area. Therefore, implementation of the Proposed Action Alternative would not result in a considerable adverse contribution to any combined effects of past, current, and probable future projects on population and housing. In terms of cumulative impacts, the Proposed Action Alternative would be the same as the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight geographic areas designated for development under the Proposed Action, in which no activities that would result in take of covered species would be permitted. These locations are in the vicinity of Clarksburg, Davis, the Dunnigan Specific Plan, Woodland, and West Sacramento (Figure 2-6) and cover a total of 1,335 acres. All other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, monitoring, funding) remain the same. See Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Impacts to population and housing as a result of implementation of Alternative C would be similar to those discussed under the No Action Alternative and the Proposed Action. Specific effects on population and housing from not allowing activities that result in take in the eight designated areas would depend on various factors, including the type of development that would have occurred under the No Action Alternative or Proposed Action that would no longer be permitted. If these sites would have ultimately contained primarily residential uses, then the loss of potential future housing stock could be diverted to areas located outside of the designated areas. Similarly, if these sites would have ultimately supported primarily job generating land uses, the restriction on development of these uses within the designated areas could simply divert demand for employment opportunities to other locations. In either scenario, the Reduced Take Alternative would not induce substantial population growth in the county as a whole; however, if development originally planned in any of the eight areas were diverted to another location, this could induce substantial population growth in that community or area.

Not allowing new activities that result in take of covered species in the eight designated areas under this alternative would not, in and of itself, result in displacement of existing homes or residents. If any development that is currently planned for any of these areas was diverted to another location, it is possible that homes or individuals at the new development locations could be displaced; however, to project the potential for such displacement to occur would require significant speculation and cannot be determined at this time.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

Relative to population and housing issues, the effects of the conservation/mitigation actions among the alternatives would not appreciably differ. Overall, effects on housing and population under the Reduced Take Alternative would not be substantially different from those described for the No Action Alternative and Proposed Action Alternative. Although there is the potential for increased impacts related to population and housing if development that would have occurred in the reduced take areas were displaced to another location, to project the extent and nature of the impact would require significant speculation and cannot be determined at this time.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area is the same as described for the Proposed Action. The individual effects on population and housing under the Reduced Take Alternative would be comparable to

those described for the Proposed Action Alternative. Overall, implementation of the Reduced Take Alternative, like the Proposed Action Alternative, would not result in a considerable contribution to existing significant cumulative impacts on population and housing.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and **less than significant**.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the Yolo HCP/NCCP and therefore could not be provided incidental take authorization through the Plan. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative). Since the two areas that would not be covered by the HCP/NCCP could be developed some time in the future, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Relative to population and housing issues, the effects of the conservation/mitigation actions among the alternatives also would not appreciably differ.

Overall, effects related to population and housing as a result of implementation of the Reduced Development Alternative would not be appreciably different from what is described for the Proposed Action or No Action Alternatives.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on population and housing under the Reduced Development Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Development Alternative would not result in a considerable adverse contribution to the combined effects of past, current, and probable future projects on population and housing. The Reduced Development Alternative would make the same contribution to potential adverse cumulative effects compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

11.1 INTRODUCTION

This chapter provides information relevant to socioeconomics and environmental justice impacts under NEPA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

11.1.1 Data Sources

The following key sources of information and data were reviewed to prepare this chapter.

- ▲ federal census data on demographics, income, and employment in Yolo County (U.S. Census Bureau 2015); and
- ▲ the *Yolo County Comprehensive Annual Financial Report* for the fiscal year that ended June 30, 2014 (Yolo County 2015).

11.1.2 Definitions

Social and economic effects of the alternatives are considered in this analysis if they are related to effects on the natural or physical environment. Environmental justice is defined below in Section 11.2.2, *Regulatory Setting, Environmental Justice*.

As defined by Council on Environmental Quality's (CEQ's) *Guidance for Agencies on Key Terms in Executive Order 12898* (CEQ 1997), minority individuals are identified as American Indian or Alaskan Native, Asian or Pacific Islander, black, or Hispanic. Minority populations are identified by two factors: 1) where the minority population percentage of the affected area is meaningfully greater than the minority population percentage of the general population, and 2) where the minority population percentage of the affected area exceeds 50 percent.

Low income populations are identified on the basis of poverty thresholds provided by the U.S. Census Bureau and identified as one of the following: 1) the percentage of the population below the poverty level is meaningfully greater than the corresponding percentage in the general population, and/or 2) the percentage of the population below the poverty level in the affected area is 20 percent or more.

11.2 AFFECTED ENVIRONMENT

11.2.1 Environmental Setting

The Plan Area encompasses all of Yolo County, a generally rural area in which the Yolo County General Plan designates approximately 603,544 acres of land in Yolo County for agricultural use (Yolo County 2009), which is approximately 92 percent of the Plan Area. As of January 2015, 87 percent of the county's population of 209,393 residents resided in the four incorporated cities of Davis, West Sacramento, Winters,

and Sacramento (DOF 2015). Each of the incorporated cities is demographically and economically distinct, and there is diversity within and between these communities. Davis is defined in large part by the presence of the University of California (UC) campus, but is also a residential community internationally known for its commitment to environmental awareness and progressive social programs. Woodland is the county seat and has a strong historic heritage. West Sacramento is home to the Port of Sacramento, which is the export point for over one million tons annually of some of Yolo County's many agricultural products, such as rice, wheat, and corn, as well as industrial products, such as lumber, wood chips, and cement. Winters is a small town in the eastern part of the county with a growing locally- and regionally-sourced food economy. The unincorporated area of Yolo County has exceptionally productive soils, an excellent growing climate, and adequate water supply to support its large and diverse agricultural industry (Yolo County 2015).

The populations of Yolo County and the incorporated cities are shown in Table 11-1. The rate of population growth in Yolo County between 2010 and 2014 (3.4 percent) was similar to the statewide rate of growth (4.2 percent). Within the county, the population of the city of West Sacramento grew 6.4 percent, which is above the county average, while the city of Davis grew 1.7 percent, notably less than the county as a whole (U.S. Census Bureau 2015).

Table 11-1 Yolo County Population, 2010 and 2014

Area/Jurisdiction	2010	2014	Percent Change
Incorporated Cities			
Davis	65,611	66,742	1.7%
West Sacramento	48,744	51,847	6.4%
Winters	6,624	6,941	4.8%
Woodland	55,468	57,432	3.5%
Unincorporated County	24,391	26,259	7.7%
County Total	200,838	209,221	3.4%

Source: U.S. Census Bureau 2015

DEMOGRAPHICS

Table 11-2 shows comparative racial characteristics for the county and Table 11-3 provides additional demographic data. The majority of residents self-identify as white. With the exception of a notable Asian population in the cities of Davis and West Sacramento, there are no racial groups (or individuals who identify with two or more racial groups) that make up a substantial (10 percent or more) proportion of the Plan Area. Additionally, roughly 30 percent of the population of Yolo County identifies as being of Hispanic or Latino origin (the federal government considers race and Hispanic or Latino origin to be separate, distinct concepts [U.S. Census Bureau 2001]). This population is particularly represented in the cities of Winters and Woodland (U.S. Census Bureau 2015).

When compared to the state as a whole, fewer families in Yolo County and the incorporated cities speak a language other than English at home (Table 11-3), and the percentage of the population that has achieved at least a high school education is roughly equivalent to the statewide average. The average number of people per household (i.e., occupied housing unit) is similar to, but slightly less than, the statewide average.

Table 11-2 Race and Origin of Yolo County's Population, 2010

Area/Jurisdiction	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or other Pacific Islander	Two or more races	Hispanic or Latino
Incorporated Cities							
Davis	64.9%	2.3%	0.5%	21.9%	0.2%	5.4%	12.5%
West Sacramento	60.6%	4.8%	1.6%	10.5%	1.1%	7.7%	31.4%
Winters	70.0%	0.6%	0.8%	1.0%	0.1%	5.0%	52.4%
Woodland	62.9%	1.5%	1.3%	6.2%	0.3%	5.2%	47.4%
County Total	63.2%	2.6%	1.1%	13.0%	0.5%	5.8%	30.3%

Source: U.S. Census Bureau 2015

Table 11-3 General Demographic Characteristics of Yolo County and Incorporated Cities, 2010-2014

Characteristic	California	Yolo County*	Davis	UC Davis (CDP)	West Sacramento	Winters	Woodland
Households, 2010-2014	12,617,280	70,953	24,306	912**	17,571	2,479	19,348
Average household size (persons), 2010-2014	2.95	2.76	2.63	2.55**	2.82	2.76	2.85
Language other than English spoken at home (% of persons over 5) 2010-2014	43.8%	35%	27.6%	47.3%	36.4%	34.1%	40.4%
High school graduate or higher (% of persons over 25) 2010-2014	81.5%	85%	95.8%	98.5%	81.9%	82.3%	78.7%

CDP= Census-designated place

* data includes cities, CDP's, and unincorporated portions of Yolo County

** on-campus only

Source: U.S. Census Bureau 2015

INCOME AND EMPLOYMENT

As summarized in Table 11-4, the median household incomes reported throughout the county are similar to, although less than, the statewide average of \$61,489, and range from \$53,307 for the City of West Sacramento to \$57,454 for the City of Davis. The portion of the population reported by the U.S. Census Bureau as in poverty varies widely, from 4.7 percent in the City of Winters to 27.1 percent in the city of Davis.

Table 11-4 Economic Data for Yolo County and Incorporated Cities

	California	Yolo County*	Davis	West Sacramento	Winters	Woodland
Median household income (in 2014 dollars), 2010-2014	\$61,489	\$55,918	\$57,454	\$53,307	\$59,856	\$54,532
Individuals below poverty level (percent)	16.4%	19.5%	27.1%	20.8%	4.7%	14.6%

* data includes cities and unincorporated portions of Yolo County

Source: U.S. Census Bureau 2015

As of July 2015, the unemployment rate in Yolo County was 6.3 percent (California Employment Development Department [EDD] 2015a). Table 11-5 presents the county's annual average employment data for several industry sectors for the ten-year period between 2005 and 2014. While the county's economy is based primarily on agriculture, the government sector is the largest employer in the county, followed by retail, then the transportation, warehousing, and utilities category. Industries with notable gains in employment include farm, retail, and education and health services. Declines have occurred for the construction and financial industries. In 2014, approximately six percent of the labor force was employed in farm-related jobs (EDD 2015b).

Table 11-5 Yolo County Annual Average Industry Employment (2005 – 2014)*

Industry Sector	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Farm	3,800	4,100	4,300	4,700	4,900	4,900	5,100	5,300	5,400	5,900
Mining and Logging	200	300	300	300	100	200	200	100	200	200
Construction	5,300	5,300	5,500	4,800	4,000	3,500	3,300	3,100	3,000	2,900
Durable Goods Manufacturing	3,500	3,600	3,300	3,000	2,400	2,500	2,400	2,600	3,000	3,600
Nondurable Goods Manufacturing	3,100	3,000	2,700	2,800	2,800	2,700	2,300	2,400	2,500	2,400
Wholesale Trade	4,900	5,200	5,300	5,300	4,600	4,200	4,300	4,300	4,600	4,500
Retail Trade	6,900	7,200	7,700	8,000	7,700	7,700	7,800	7,600	7,800	8,200
Transportation, Warehousing and Utilities	7,700	7,700	8,000	7,900	6,900	6,400	6,400	6,300	6,400	6,600
Information	1,100	1,100	1,200	1,100	1,000	1,000	1,000	1,000	1,100	1,000
Financial Activities	3,700	3,900	4,300	3,500	3,500	3,100	2,900	2,900	2,800	2,500
Professional and Business Services	8,000	7,800	8,100	7,700	7,100	6,900	7,200	7,700	7,800	7,800
Educational and Health Services	7,200	7,200	7,700	7,900	8,100	8,100	8,000	8,300	8,900	9,200
Leisure and Hospitality	6,600	6,600	6,600	6,700	6,700	6,400	6,300	6,700	6,800	7,200
Other Services	1,800	1,800	2,000	2,100	2,000	1,900	2,000	2,100	2,200	2,400
Government	36,400	35,500	36,200	36,700	36,800	36,200	36,000	36,100	36,500	37,300

* data includes cities, CDP's, and unincorporated portions of Yolo County

CDP= Census-designated place

Source: California Employment Development Department 2015b

PROPERTY TAX REVENUES

Agricultural property and businesses provide a significant portion of the tax base in Yolo County. Yolo County has led the State in agricultural preservation for the last several decades, primarily by directing growth into the incorporated cities. This effort has succeeded in preserving prime agricultural land, but has led to reduced potential for property tax revenues for the county. Property tax revenues generated by agriculture are generally lower than would be generated by other uses on the same land. Property tax revenues may be further limited by Williamson Act contracts (Yolo County 2014: iv) (see Chapter 6, *Agricultural and Forestry Resources*, in this EIS/EIR for a description of the Williamson Act). The county's share of property tax is the second lowest in the State (Yolo County 2014: iv). Yolo County property tax revenues for the 2013 fiscal year totaled \$40,937,000 (Yolo County 2014: 11). In 2013, there were 312,984 acres of land under Williamson Act contracts in Yolo County (California Department of Conservation 2015). This constitutes approximately 49 percent of the county's total acreage, most of which is located within unincorporated Yolo County.

Property tax revenue for each of Yolo's incorporated cities varies. Property tax revenues for the 2013-2014 fiscal year totaled \$11,926,326 for the City of Davis (Davis 2014: 14), \$18,038,515 for the City of West Sacramento (West Sacramento 2014: 11), \$1,232,688 for the City of Winters (Winters 2014:9), and property tax revenues for the 2012-2013 fiscal year totaled \$8,837,000 for the City of Woodland (Woodland 2014: 8).

11.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Socioeconomics

NEPA requires that an EIS consider social and economic effects if they are related to effects on the natural or physical environment, and the NEPA definition of effects includes social and economic factors (40 CFR1508.8, 1508.14).

Environmental Justice

Environmental justice is defined by the US Environmental Protection Agency (EPA) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA 2010). Fair treatment means that “no group of people, including racial, ethnic, or socioeconomic group, shall bear a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies” (EPA 2011).

Environmental justice is rooted in the Civil Rights Act of 1964, which prohibited discrimination in federally assisted programs, and in Executive Order 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), issued February 11, 1994. Executive Order 12898 was intended to ensure that federal actions and policies do not result in disproportionately high adverse effects on minority or low-income populations. It requires each federal agency to take “appropriate and necessary” steps to identify and address any such disproportionate effects resulting from its programs, policies, or activities, including those it implements directly, and those for which it provides permitting or funding. Additional guidance from the President's Council on Environmental Quality (1997) clarifies that environmental justice concerns may arise from effects on the natural or physical environment that produce human health or ecological outcomes, or from adverse social or economic changes.

In 2011, the EPA released an updated strategy, Plan EJ 2014, as a roadmap to help EPA integrate environmental justice into its programs, policies, and activities. The plan is intended to advance environmental justice through: protecting the environment and health in overburdened communities;¹ empowering communities to take action to improve their health and environment; and establishing partnerships with local, state, tribal, and federal governments and organizations to achieve healthy and sustainable communities. Goals of the plan include minimization and mitigation of disproportionate, negative impacts while fostering environmental, public health, and economic benefits for overburdened communities through the use of interagency legal tools, such as NEPA.

Environmental justice issues are mandated and regulated at the federal level, and compliance with NEPA requires analysis of environmental justice effects.

¹ In Plan EJ 2014, EPA uses the term “overburdened” to describe the minority, low-income, tribal, and indigenous populations or communities in the United States that potentially experience disproportionate environmental harms and risks as a result of greater vulnerability to environmental hazards. This increased vulnerability may be attributable to an accumulation of both negative and lack of positive environmental, health, economic, or social conditions within these populations or communities.

STATE LAWS AND REGULATIONS

Socioeconomics

CEQA requires analysis of a proposed project's potential impacts on population growth and housing supply, but social and economic changes are not considered environmental impacts in and of themselves under CEQA, unless they contribute to a significant adverse physical change in the environment. CEQA also permits discussion of social and economic changes that would result from a change in the physical environment and could in turn lead to additional (secondary or indirect) effects in the physical environment (CEQA Guidelines Sec. 15064[f]).

Environmental Justice

California does not require environmental justice analysis in documents prepared for CEQA compliance.

LOCAL LAWS AND REGULATIONS

Yolo County General Plan

The Yolo County 2030 Countywide General Plan includes land use policies developed to ensure fair treatment and equitable decision-making. These include the following policies related to socioeconomics and environmental justice issues and are potentially relevant to the Plan:

- ▲ **Policy LU-5.1.** Balance land use decisions and land use burdens countywide so that there is not a disproportionate impact to any one group of residents because of age, culture, ethnicity, gender, race, socio-economic status, or other arbitrary factor.
- ▲ **Policy LU-5.3.** Employ strategies to overcome linguistic, institutional, cultural, economic and historic barriers to effective public participation in the planning process.
- ▲ **Policy LU-5.5.** Ensure that public facilities, services and amenities are distributed equitably and in locations that enhance the quality of life for the broadest number of county residents.

City of Davis General Plan

Chapter 13, *Diversity*, of the Davis General Plan includes goals and policies related to attainment of equal opportunity in all aspects of public life, including employment, entrepreneurship, financing, and housing. However, these goals and policies are not directly relevant to the Plan as it focuses on equal access to City programs and support and assistance of disabled population.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policies that relate to economic development that may be applicable to the analysis of the HCP/NCCP:

Economic Development Element

Goal ED-1. Maintain and expand a strong, diverse, and sustainable local economy that provides abundant employment opportunities, a high quality of life, and a sound tax base.

- ▲ **Policy ED-1.3. Global Food Industry Hub.** The City shall continue to recruit and retain regional, national, and international businesses in food and agricultural-related industries, including food production, distribution, equipment manufacturing, education, research and development to grow West Sacramento's image as a global food industry hub.
- ▲ **Policy ED-1.4. Targeted Industry Clusters.** In addition to food, agriculture and green technology, the City shall promote the development of other targeted industry clusters including advanced manufacturing, health care technology, biotechnology through strategic partnerships with higher education institutions,

work force training agencies, business associations, financial institutions, and venture capitalist concerns.

City of Winters General Plan

The City of Winters General Plan does not include goals or policies directly applicable to the issues of socioeconomics and environmental justice that are relevant to the Plan.

City of Woodland General Plan

The Woodland General Plan includes goals and policies designed to celebrate and support the diversity of Woodland's population (Goal 5.M). However, the policies for this goal are not directly relevant to the Plan as promote diversity education programs, equal access to City programs, and support and assistance of disabled population. There are no goals and policies in the general plan that are directly applicable to the issues of socioeconomics and environmental justice that are relevant to the Plan.

11.3 ENVIRONMENTAL CONSEQUENCES

11.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA. All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on socioeconomics and environmental justice in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

Socioeconomics

The effects of the action alternatives on socioeconomics are evaluated qualitatively. Generally, socioeconomic effects could occur if the alternatives result in a substantial change in wages earned in the current employment sectors through the displacement of nonagricultural or agricultural businesses or in a substantial reduction in property tax revenue. Such a reduction could occur if land currently used for nonagricultural and agricultural businesses is converted into public uses that do not contribute to property taxes as a result of habitat restoration activities. Accordingly, the analysis qualitatively addresses the potential conversion of agricultural lands to nonagricultural uses that do not generate tax revenue and estimates the degree to which implementing each alternative would reduce agricultural uses—affecting the agricultural economy of the region—or affect property tax revenues through acquisition of land for reserves. Since socioeconomics analysis is not required by CEQA, only a NEPA determination is made in the analysis.

Environmental Justice

This subsection describes how disproportionately high and adverse effects on environmental justice populations were identified. This methodology follows the general guidance provided by EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, CEQ's Environmental Justice: Guidance under the National Environmental Policy Act (CEQ 1997), and EPA's Toolkit for Assessing Potential Allegations of Environmental Injustice (EPA 2004).

The following definitions were used to identify relevant populations and guide analysis of environmental justice issues. These definitions come from the CEQ guidance and EPA Toolkit for Assessing Potential Allegations of Environmental Injustice.

- ▲ Minorities: individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black (not of Hispanic origin); or Hispanic (Council on Environmental Quality 1997). Hispanic or Latino refers to a place of origin whereas American Indian, Alaskan Native, Asian, Pacific Islander, and Black or African-American (as well as White or European-American) refer to racial categories; thus, for census purposes, individuals classify themselves into racial categories as well as place of origin categories, including Hispanic/Latino and non-Hispanic/Latino. The U.S. Census 2010 allowed individuals to choose more than one race. For this analysis, consistent with guidance from CEQ and EPA (EPA 2004), minority refers to people who are Hispanic/Latino of any race, as well as those who are non-Hispanic/Latino of a race other than White or European-American.
- ▲ Low-income: low-income populations are identified using the national poverty thresholds from the U.S. Census Bureau (CEQ 1997).
- ▲ Disproportionately high and adverse effects: effects that are adverse under NEPA and disproportionately affect a minority or low-income community as described below. Where minority or low-income individuals constitute a meaningfully greater population, a disproportionately high and adverse finding is made.

The EPA Toolkit for Assessing Potential Allegations of Environmental Injustice (EPA 2004) provides a general roadmap and methodology for the assessment of environmental justice effects. In accordance with this guidance, environmental justice effects are identified in a phased process with the following steps.

- ▲ Problem formulation: identify the scope of the action or program that may have environmental justice consequences and integrate the environmental justice assessment with parallel environmental review processes (EPA 2004). For this chapter, the scope of the problem subject to analysis consists of all the alternatives.
- ▲ Data collection: collect information about sources of environmental or health effects in environmental justice populations and identify minority and low-income groups as well as appropriate reference populations (EPA 2004). In Section 14.1.2, *Environmental Setting*, of this chapter, information about the distribution of environmental justice populations in the Plan Area is presented.
- ▲ Identification of adverse effects: identify significant environmental effects associated with the agency action or program that may affect environmental justice populations (EPA 2004). This environmental justice assessment is limited to effects that have been identified as adverse even after mitigation as described in Chapters 4 through 13 and Chapter 15 of this EIS/EIR that may affect environmental justice populations. These effects are included in this chapter and analyzed for their potential to result in disproportionate adverse effects on environmental justice populations. Effects determined not to be adverse in Chapters 4 through 13 and Chapter 15 are not considered in the analysis below because those effects would not result in disproportionate effects on minority and low-income populations. In addition, significant effects that would not result in direct or discernable indirect effects on environmental justice populations are not included in the analysis. These would include terrestrial and aquatic resources, as any significant environmental effects that may be disclosed in Chapter 6,

Biological Resources, would not result in direct or discernable indirect effects on environmental justice populations. This approach is consistent with CEQ guidance (CEQ 1997).

- ▲ Identification of disproportionate effects: use the information gathered in the identification of adverse effects and determine if these environmental consequences may disproportionately affect an environmental justice population. Where effects are identified as adverse under NEPA, this analysis further identifies whether the adverse effects would result in disproportionately high and adverse effects on minority or low-income populations.

Since analysis of environmental justice impacts is not required by CEQA, only a NEPA determination is made.

SIGNIFICANCE CRITERIA

Socioeconomics

For the purposes of this analysis, a socioeconomic impact is considered to be adverse if it would result in any of the following.

- ▲ Substantially change economic activity within the Plan Area.
- ▲ Substantially affect property tax revenue.

Environmental Justice

Federal CEQ guidance provides relevant thresholds for identification of environmental justice effects. The CEQ guidance identifies three factors to be considered to the extent practicable when determining whether environmental effects are disproportionately high and adverse (CEQ 1997).

- ▲ Whether there is or would be an impact on the natural or physical environment that significantly and adversely affects a minority population, or low-income population. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment. For the purposes of this analysis a significant and adverse effect on a minority population is found where significant environmental effects would occur in a location where minority populations (as defined above) constitute greater than 50 percent of the population, or low-income individuals constitute 20 percent or more of the population.
- ▲ Whether the environmental effects are significant and are or may have an adverse impact on minority populations, or low-income populations, which appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group. For the purposes of this analysis an effect appreciably exceeds the effect on the general population if it would occur in a location where minorities constitute greater than 50 percent of the population or low-income individuals constitute 20 percent or more of the population.
- ▲ Whether the environmental effects occur or would occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards that appreciably exceed the cumulative or adverse exposure of the population at large. For the purposes of this analysis an effect appreciably exceeds the effect on the general population if the affected population is greater than 50 percent minority or 20 percent or greater low-income.

These standards are consistent with the standards of the California Resources Agency Environmental Justice Policy. This policy states that the Resources Agency and the constituent departments shall (California Resources Agency 2012) undertake the following.

- ▲ Identify relevant populations that might be adversely affected by programs or projects submitted by outside parties, as appropriate.

- ▲ Work in conjunction with other federal, state, regional, and local agencies to ensure consideration of disproportionate impacts on relevant populations

The factors and standards described above have been summarized into the following significance criteria; for the purposes of this analysis, an impact is considered to be adverse if it would result in any of the following:

- ▲ Substantially disproportionately affect minority or low-income populations.

11.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the U.S. Fish and Wildlife Service (USFWS) or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Developments in rural and urban areas within the Plan Area would continue to occur under the No Action Alternative, and would result in population growth either directly (i.e. new homes and businesses) or indirectly (i.e. road and infrastructure extensions), potentially resulting in the need for expanded and additional homes and community services. Land use activities associated with the general plans would anticipate and accommodate the population growth. The development of new or expanded communities and services would be expected to continue, in part, in response to increased demand as a result of population growth, consistent with current local plans and policies. Environmental impacts associated with the construction of new development would be addressed on a project-by-project basis. With projected population growth within the Plan Area, implementation of the general plans would result in an overall increase in housing and employment. This increase would have a beneficial effect on the local economy resulting from new employment and industry within the jurisdictions of the Plan Area. Developments in rural areas and some urban areas would result in the removal of agricultural lands within individual project sites, which would result in the conversion of agricultural lands to non-agricultural uses (see Chapter 6, *Agricultural and Forestry Resources*, Tables 6-8 and 6-9 in this document). This could result in the loss of some jobs within the farm industry. Displacement and overall reduction of farms and agricultural land are expected as urban land uses expand into existing agricultural areas (see Chapter 6, *Agricultural and Forestry Resources*). Farms typically generate lower levels of property taxes and taxes in general than do urban uses. Covered activities associated with general plan implementation could entail rezoning parcels, introducing new or substantially different uses, and altering or expanding support infrastructure (e.g., water service,

transportation facilities) in support of planned development. With anticipated increases in housing and employment as a result of projected population growth, the associated increase in urban property uses, the number of businesses, and the expansion of existing businesses are expected to positively contribute to the local tax base through the generation of property tax revenue. Since the County is able to collect more property taxes from urban uses (e.g., residential homes) than from other uses (e.g., agricultural uses) property taxes are expected to increase as urban uses increase.

Activities under the rural public services, infrastructure, and utilities category include improvements, replacements, and construction of new public services, infrastructure, and utilities outside of the incorporated cities and rural communities, such as roads, wet and dry utility infrastructure, landfills and related facilities, levees, airports, and ports. Development under this category would generate new jobs through the expansion of utilities and municipal services to new areas, and the anticipated development is intended to provide increased community services, infrastructure, and utilities that serve planned land uses that are consistent with local general plans.

Activities under the agricultural economic development and open space category could result in relatively large facilities being constructed in a rural/agricultural area (e.g., processing plants). These projects would create new employment opportunities in the Plan Area, would generally support the agricultural economy, and would be expected to result in little or no conversion of agricultural land that could result in loss of existing agricultural jobs.

Under the public and private operations and maintenance development category, various operations and maintenance activities would be implemented as part of existing and planned land uses, facilities, and services in both urban and rural areas. Activities would include management, operations, rehabilitation, replacement, repair, and maintenance of facilities ranging from utilities, roadways, bridges, and industrial land uses to parks and open space. Most of these activities would be undertaken with existing personnel and would not generate large numbers of new jobs. These activities generally would not result in permanent conversion of agricultural lands to other uses; therefore, loss of agricultural jobs is not anticipated as a result.

As indicated in Table 11-2, minority individuals constitute a meaningfully larger percentage of the population (more than 50 percent) within the City of Winters (i.e. In 2010, Hispanic or Latino population made up 52.4 percent of city of Winters population) than in the general population. As shown in Table 11-4, low-income individuals constitute a meaningfully larger percentage of the population (more than 20 percent) within Davis and West Sacramento than in the general population.

When creating general plans, the County and cities conduct public outreach and engagement programs to involve the residents, business owners, and other stakeholders in the development of the vision, goals, and policies. While CEQA doesn't require Lead Agencies to review whether a project would have a disproportionately high and adverse effect on minorities and low-income populations, there are requirements that each jurisdiction accommodate low-income residents as part of housing element policies. In addition, the general plans contain other policies which aim to provide for the needs of all residents, including minorities and low-income persons. The City of Davis General Plan has a diversity chapter, in which they provide goals, policies, and actions aimed at equal opportunities for all residents and to reflect the ethnic diversity of the City in the makeup of City staff and leadership.

There is no evidence that the development and other activities described in the general plans and expected to be implemented in the 50-year study period would have a disproportionately high and adverse effect on minorities and low-income persons.

As the development and other activities described above are implemented under the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation

actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). Retaining land in its existing condition would not substantially change economic activity and property tax revenue or disproportionately affect minority or low-income populations. However, if habitat restoration activities convert agricultural land to publicly owned habitat preserves, this could result in a reduction in property tax revenue for the local jurisdictions.

Cumulative Effects

It is anticipated that implementation of the general plans would result in an overall increase in economic activities within the Plan Area as a result of urban development and would not substantially reduce expected agricultural production in the Plan Area, given the projections presented in Tables 6-8 and 6-9 of this document (see Chapter 6, *Agricultural and Forestry Resources*). Accordingly, the No Action Alternative would not result in an incremental contribution to cumulative socioeconomic effects.

Implementation of the general plans, which must consider various economic and environmental factors, is unlikely to result in overall disproportionate effects on environmental justice populations.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Socioeconomic and environmental justice impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program. The Proposed Action Alternative would target habitat restoration areas for covered species in Yolo County as a result of increased development activity. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; monitoring; and control of invasive nonnative species.

Effect SOC-1: Substantially change economic activity within the Plan Area.

Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks. These activities would result in continuation of existing agricultural operations or the preservation of existing open space. The conservation strategy included in the Proposed Action Alternative also provides for habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat restoration and creation where an existing natural or seminatural land cover type would be converted to a different natural land cover type (e.g., restoration of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation).

Issuance of take permits to local authorities would streamline the permit process and clearly define project mitigation requirements for future projects. The streamlined process may allow for quicker completion of projects and greater efficiency in land development, which could affect overall economic activity in the Plan Area. Also, implementation of the conservation strategy would result in the creation of a small number of employment opportunities to establish, manage, and monitor reserves and implement habitat enhancement, restoration, and creation efforts. As indicated in the HCP/NCCP in Chapter 8, *Costs and Funding*, much of this work is expected to be implemented by contractors, local partners, and others. The Conservancy will not

hire large numbers of permanent staff to implement the HCP/NCCP. Work efforts and any increased employment demand would be accommodated by existing employees and businesses within the county and the region.

The conservation strategy would result in the conversion of 702 acres of cultivated agricultural lands and up to 210 acres of grazing land to create habitat. However, the conservation strategy would also acquire 14,362 acres of cultivated lands (non-rice), 2,800 acres of cultivated lands (rice), and at least 4,430 acres of grassland natural community (potentially suitable for grazing) for inclusion in the reserve system.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**. Although the Proposed Action Alternative would result in conversion of agricultural lands to habitat preserve, the Yolo HCP/NCCP would result in protection of substantial acreage of agricultural lands protected in perpetuity through the reserve system, resulting in a beneficial effect on the Plan Area's agricultural economy. Potential effects from establishment and management of a reserve system, and associated permitting streamlining under the Proposed Action Alternative would result in a beneficial change in economic activity within the Plan Area.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

No mitigation is required.

Effect EJ-1: Substantially affect property tax revenue.

As discussed above, implementation of the conservation strategy would result in the conversion of up to 702 acres of cultivated lands and 210 acres of grazing land to create habitat and acquisition of up to 21,592 acres of agricultural lands for inclusion in the reserve system. Land acquisition for the conservation strategy could indirectly affect tax revenue by removing 702 acres of cultivated lands and 210 acres of grazing land from production and therefore reducing taxable economic activity. Converting agricultural land to habitat could also reduce County property tax rolls if these habitat reserves pay no, or reduced, property taxes. There are also various mechanisms by which lands that are put under conservation easement, including agricultural lands put under an agricultural conservation easement, could pay reduced property taxes. When a landowner sells a conservation easement, they often receive a reduced assessed value to reflect the transfer of rights associated with the easement. However, a non-profit entity that purchases the easement may have less of a tax obligation on the value of the easement than the original land owner. In this scenario, less total property taxes may be paid on the easement acreage than if an easement had not been sold. In addition, in California, the Natural Heritage Preservation Tax Credit Act offers incentives to preserve wildlife and plant habitat, agricultural lands, open spaces, and water rights on private lands. Landowners, including pass-through entities who donate land, an easement, or water rights are eligible for the credit. Landowners are allowed an income tax credit of 55% of the fair market value of the donated property against their income, with an eight-year carry-forward period (CWCB 2016). Therefore, donation of land or an easement could reduce income taxes collected.

The Proposed Action Alternative specifies the amount of fee-title versus easement acquisition for establishing the reserve system (i.e. 1,091 acres in fee title, or less than 3% of total acreage proposed) but has not yet identified specific parcels for acquisition; therefore, a detailed determination of impact on property tax revenue is not feasible. However, the conservation strategy would use conservation easements wherever feasible, thereby keeping the land in production, maintaining economic activity, and reducing the effects on tax revenue.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. In general, property tax revenues generated by agricultural and conservation lands are generally lower than would be generated by other uses on the same land. Accordingly, the potential loss in tax revenue (property taxes and taxes generated by economic activity) associated with conversion of up to 702 acres of cultivated land and 210 acres of potential grazing lands to habitat reserves and placement of land under conservation

easements through implementation of the conservation strategy would be offset by higher tax revenue associated with planned urban development actions that are covered activities under the Proposed Action Alternative. The general balance between extent and type of development and level of conservation, relative to generation of tax revenue, are very similar between the Proposed Action Alternative and the No Action Alternative.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made. However, because of the interest in potential effects of the HCP/NCCP on economic conditions, the following information is provided. Relative to existing conditions, implementation of the Proposed Action Alternative would reduce tax revenue generated by lands placed into the reserve system, but tax revenue would increase from planned urban development actions receiving incidental take authorization from the Plan. Because urban development typically generates greater tax revenue than agricultural lands, future tax revenue for the County would be greater overall than existing tax revenue.

No mitigation is required.

Effect EJ-2: Substantially disproportionately affect minority or low-income populations.

The potential to have a substantially disproportionate effect on minority or low-income populations under the Proposed Action Alternative would be the same as described above for the various development categories under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**. Implementation of the conservation strategy and conservation measures was determined to have less-than-significant effects (after mitigation) on all resource categories, except for the conversion of agricultural land to a non-agricultural use under the CEQA Level of Significance (see Effect AG-1 in Chapter 6, *Agricultural and Forestry Resources*). Potential effects from establishment and management of a reserve system under the Proposed Action Alternative, including Effect AG-1, would not result in significant adverse effects to minority or low-income populations. This effect is very similar between the Proposed Action Alternative and the No Action Alternative.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

With implementation of the Proposed Action Alternative, issuance of take permits to local authorities would streamline the permit process and clearly define project mitigation requirements for future projects, a small number of employment opportunities would be created, and substantial acreage of agricultural lands would be protected in perpetuity through the reserve system, resulting in a beneficial effect on the Plan Area's agricultural economy. Therefore, implementation of the Proposed Action Alternative would not result in a considerable adverse contribution to any combined effects of past, present, and probable future projects on socioeconomics. In terms of cumulative impacts, the Proposed Action Alternative would be the same as the No Action Alternative. Similar to the No Action Alternative, the Proposed Action Alternative would not result in disproportionate impacts to minority and low-income populations. Accordingly, the Proposed Action Alternative would not result in a contribution to a cumulative environmental justice impact.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative where activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Impacts to economic activity within the Plan Area, property tax revenues, and environmental justice populations as a result of implementation of the Reduced Take Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative. However, specific effects on economic activity within the Plan Area from not allowing activities that result in take in the eight designated areas would depend on various factors, including the type of development that may still occur at those eight locations. If these sites would have ultimately contained urban development or supported primarily job generating land uses, the restriction on take of these uses could either slow employment growth in the county, or divert demand for employment opportunities to another location. In either scenario, the Reduced Take Alternative could have a less positive effect on the county's economy activity as a whole.

Overall, not allowing new activities that result in take of covered species in the eight designated areas under this alternative (1,335 acres) would not, in and of itself, result in substantial changes in economic activity within the Plan Area (653,549 acres). Relative to socioeconomics and environmental justice populations, the effects of the conservation/mitigation actions among the alternatives would not substantially differ. Effects could be slightly less than under both the No Action Alternative and the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made. *No mitigation is required.*

Cumulative Effects

The existing cumulative condition in the Plan Area is the same as described for the Proposed Action Alternative. The individual effects on minority and low-income populations under the Reduced Take Alternative would be comparable to those described for the Proposed Action Alternative. Overall, implementation of the Reduced Take Alternative, like the Proposed Action Alternative, would not result in a considerable contribution to existing significant cumulative impacts on minority and low-income populations.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomics and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the Yolo HCP/NCCP and therefore could not be provided incidental take authorization through the Plan. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative). (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative). Because the two areas that would not be covered by the HCP/NCCP could be developed some time in the future, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Relative to socioeconomic and environmental justice issues, the effects of the conservation/mitigation actions among the alternatives also would not appreciably differ.

Overall, effects related to socioeconomic and environmental justice issues as a result of implementation of the Reduced Development Alternative would not differ in any meaningful way from those described for the No Action Alternative and Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomic and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area is the same as described for the Proposed Action Alternative. The individual effects on minority and low-income populations under the Reduced Development Alternative would be comparable to those described for the No Action Alternative and the Proposed Action Alternative. Overall, implementation of Reduced Development Alternative, like the No Action Alternative and Proposed Action Alternative, would not result in a considerable contribution to existing significant cumulative impacts on minority and low-income populations.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As stated above in the description of Methods and Assumptions, because the analysis of socioeconomic and environmental justice impacts is not required by CEQA, only a NEPA determination is made.

12 CULTURAL AND PALEONTOLOGICAL RESOURCES

12.1 INTRODUCTION

This chapter provides information relevant to cultural and paleontological resources impacts under National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) in connection with the Proposed Action and alternatives. This chapter includes an introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action alternatives, and mitigation measures to address effects that are identified as significant.

12.1.1 Data Sources

The following sources of information were reviewed to prepare this chapter.

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County General Plan) (Yolo County 2009a),
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County General Plan EIR) (Yolo County 2009b),
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016),
- ▲ *City of Winters General Plan* (City of Winters 1992), and
- ▲ *City of Woodland General Plan Update* (City of Woodland 2002).

12.1.2 Definitions

Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations).

Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or local registers of historical resources.

Historical (or architectural or built environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges).

Paleontological resources include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains that are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units.

12.2 AFFECTED ENVIRONMENT

12.2.1 Environmental Setting

The Yolo County General Plan EIR setting section for Cultural Resources includes a detailed discussion of the paleontological, prehistoric, ethnographic, and historical settings of Yolo County on pages 517 through 529. The following is a brief summary of those discussions. The environmental setting information provided below addresses the County as a whole and does not specifically differentiate between conditions in the individual cities (i.e., Davis, West Sacramento, Winters, and Woodland). For the purposes of describing general cultural and paleontological conditions for the analysis of a county level HCP, information on conditions in the County overall also sufficiently describe conditions within the jurisdictions of each City.

PALEONTOLOGIC SETTING

Significant nonrenewable vertebrate and invertebrate fossils and unique geologic units have been documented throughout California. The fossil yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks (refer to geologic timescale in Table 12-1). Paleontological potential refers to the likelihood a rock unit will yield a unique or significant paleontological resource. All sedimentary rocks, some volcanic rocks, and some low-grade metamorphic rocks have potential to yield significant paleontological resources. Depending on location, the paleontological potential of subsurface materials generally increases with depth beneath the surface, as well as with proximity to known fossiliferous deposits.

Table 12-1 Divisions of Geologic Time

Era	Period	Time in Millions of Years Ago (approximately)	Epoch
Cenozoic	Quaternary	< 0.01	Holocene
		2.6	Pleistocene
	Tertiary	5.3	Pliocene
		23	Miocene
		34	Oligocene
		56	Eocene
		65	Paleocene
Mesozoic	Cretaceous	145	
	Jurassic	200	
	Triassic	251	
Paleozoic	Permian	299	
	Carboniferous	359	
	Devonian	416	
	Silurian	444	
	Ordovician	488	
	Cambrian	542	
Precambrian		2,500	

Source: U.S. Geological Survey 2010

The County's diverse geology spans 145 million years, from the Cretaceous Period through today. The western boundary of the County contains the Blue and Rocky ridges, a northwest-southeast trending range comprised of the Cretaceous Great Valley Sequence. The Great Valley Sequence formed when great quantities of mud, sand, and gravel accumulated as regularly bedded layers on the ocean floor of a deep trench along the margin of the North American continent. Seven geological formations have been identified in the Upper Cretaceous sediments; from oldest to youngest these are the Fiske Creek, Venado, Yolo, Sites, Funks, Guinda, and Forbes Formations. The units are exposed along a north-south axis, dipping below the surface steeply towards the east to form the hills on the west side of Yolo County. The Blue Ridge is bounded by two faults, and is being uplifted on its eastern edge. The geological units within the County are described below, from youngest (surface) to oldest (deepest).

Holocene Alluvium. Late Holocene alluvial deposits overlie older Pleistocene alluvium and/or the upper Tertiary bedrock formations in the southern and eastern portions of Yolo County. This alluvium consists of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments. These alluvial deposits contain vertebrate and invertebrate fossils of extant, modern taxa, which are generally not considered paleontologically significant (see the discussion of Significance Criteria below for more information on determining the significance of paleontological resources).

Pleistocene Alluvium. The majority of alluvium in the Capay Valley and the southern portion of the County consist of the Pleistocene-age Modesto-Riverbank and Red Bluff formations. Vertebrate fossils in this alluvium are representative of the land mammal age, including mammoth, ground sloths, saber-toothed cats, dire wolves, rodents, birds, reptiles, and amphibians. Pleistocene alluvium is highly sensitive for paleontological resources.

Tehama Formation. The Tehama Formation is exposed in the western side of the County, on both sides of the Capay Valley and in the Dunnigan Hills, and in isolated outcrops in the southern portion of the County. This series of fluvial deposits is 2,000 feet thick on average and contains fragmentary vertebrate bones. The majority of fossil sites found in the County are in the Tehama Formation.

Capay Formation. The Capay Formation is exposed on the western side of the Capay Valley. The formation varies in thickness between 10 feet and 500 feet and consists of shale and sandstone that dates to the Eocene. The Capay Formation contains numerous invertebrate marine fossils, mostly consisting of shells and is considered to have high paleontological sensitivity.

Forbes Formation. The Forbes Formation is in the hills east of Capay Valley and also comprises the Blue Ridge on the western edge of Yolo County. The Forbes Formation consists of massive beds of fine-to-coarse-grained sandstone, with shell fragments that grade into inter-bedded siltstone and shale. This unit contains Late Cretaceous amoeboid protists and may contain invertebrate marine fossils.

Guinda Formation. The Guinda Formation is in the hills east of Capay Valley and the Blue Ridge on the western edge of Yolo County. This formation contains Late Cretaceous protozoa and amoeboid protists. There are no fossils recorded in the Guinda Formation in the County, but fossils from this formation found in other locations have been of paleontological significance.

Funks Formation. The Funks Formation is in the hills east of Capay Valley and the Blue Ridge on the western edge of Yolo County. The Funks Formation consists of a tan weathering, gray, marine siltstone and mudstone. The Funks Formation shale beds contain Late Cretaceous amoeboid protists.

Sites Formation. The Sites Formation is found in the hills east of Capay Valley and the Blue Ridge on the western edge of Yolo County. The Sites Formation consists of thick bedded, laminated gray sandstone and thick beds of dark gray carbonaceous siltstone. This unit is up to 6,000 feet thick and has been attributed to the Late Cretaceous. No significant fossils have been found in this formation.

Yolo Formation. The Yolo Formation is found in the hills east of Capay Valley and the Blue Ridge on the western edge of Yolo County. The Yolo Formation is moderately thick-bedded, fine-to-coarse grained

sandstone with local mudstone and siltstone. The unit contains Carbonaceous debris and the mudstone beds have Late Cretaceous protozoa and amoeboid protists.

Venado Formation. The Venado Formation is found in the hills east of Capay Valley and the Blue Ridge on the western edge of Yolo County and consists of more than 1,000 feet of massive sandstone, shale, and conglomerate. This unit may contain marine shells; however, the Venado Formation is of low paleontological significance.

PREHISTORIC SETTING

It is probable that humans have inhabited the Sacramento Valley for the last 10,000 years. However, evidence for early occupation is likely deeply buried under alluvial sediments deposited during the late Holocene. Although rare, archaeological remains of the early period have been identified in and around the Central Valley. Early archaeological manifestations are categorized as the Farmington Complex, which is characterized by core tools and large, reworked percussion flakes.

Later periods are better understood because of more abundant representation in the archaeological record. Fredrickson (1973) identified three general patterns of cultural manifestations for the period between 4500 Before Present (B.P.) and 3000 B.P.: the Windmill Pattern, the Berkeley Pattern, and the Augustine Pattern.

The Windmill Pattern (4500 B.P.–3000 B.P.) shows evidence of a mixed economy of game procurement and use of wild plant foods. The archaeological record contains numerous projectile points with a wide range of faunal remains. Hunting was not limited to terrestrial animals, as is evidenced by fishing hooks and spears that have been found in association with the remains of sturgeon, salmon, and other fish. Plants also were used, as indicated by ground stone artifacts and clay balls that were used for boiling acorn mush. Settlement strategies during the Windmill period reflect seasonal adaptations: habitation sites in the valley were occupied during the winter months, but populations moved into the foothills during the summer.

The Windmill Pattern ultimately changed to a more specialized adaptation labeled the Berkeley Pattern (3500 B.P.–2500 B.P.). A reduction in the number of manos and metates (stone tools for grinding) and an increase in mortars and pestles indicate a greater dependence on acorns. Although gathered resources gained importance during this period, the continued presence of projectile points and atlatls (spear-throwers) in the archaeological record indicates that hunting was still an important activity.

The Berkeley Pattern was superseded by the Augustine Pattern (1500 B.P.–200 B.P.). The Augustine Pattern is characterized by a change in technology and subsistence strategies. Bow and arrow technology is introduced, as evidenced by a growing increase in the number of small projectile points in Augustine Pattern lithic assemblages. Mortar and pestle implements continue to be used, with acorns becoming the dominant staple. Trade also expands and intensifies at this time, with the acquisition of both exotic finished goods and raw materials. Augustine Pattern mortuary patterns are characterized by: either cremation or burial of the dead within habitation areas of a site; pre-interment grave pit burning; a flexed position of the body with variable orientations; and a differential distribution of grave goods with more items being associated with cremations compared to subsurface burial. Indeed, cremations may have been reserved for relatively wealthy and prestigious individuals.

ETHNOGRAPHIC SETTING

Yolo County includes portions of territories of two Native American groups, the Patwin and the Plains Miwok. Both groups speak languages classified as part of the Penutian linguistic stock. Penutian speakers appear to have entered California relatively late in time and settled nearly half the state by approximately 200 years ago. The Patwin occupied most of the County, while the Plains Miwok were more restricted, inhabiting the lower reaches of the Mokelumne and Cosumnes rivers and the banks of the Sacramento River from Rio Vista to Freeport. The material culture and settlement and subsistence patterns of these groups share many similar traits, likely due to historical relationships and a shared natural environment.

Patwin are comprised of numerous different tribal groups with separate dialects, but anthropologists usually separate Patwin into two primary subdivisions: Hill Patwin and River Patwin. Hill Patwin occupied the lower, eastern slopes of the southern North Coast Range and River Patwin occupied the west side of the lower Sacramento River below the mouth of the Feather River and the lower reaches of Cache Creek and Putah Creek in the Sacramento Valley.

Patwin were organized into tribelets, which were usually composed of a principal village and a few satellite settlements. Each tribelet had a head chief and each village had a chief who administered its economic and ceremonial activities. Patwin manufactured a variety of utilitarian and ceremonial/luxury items, including baskets, stone tools, mortars and pestles, shell beads, and clothing. Shell beads were manufactured for personal adornment and as a medium of exchange. River Patwin also built tule balsa boats to facilitate river travel and acquisition of fish resources.

Patwin traded for various commodities and subsistence resources using clamshell disc beads as a medium of exchange. Initially, River Patwin obtained finished shell beads from Hill Patwin, who obtained them from their Pomo neighbors. In the historic period, however, River Patwin traded for whole shells from the Pacific coast and made beads themselves. Obsidian was obtained from sources in the southern North Coast Ranges, primarily Napa Valley.

The Plains Miwok inhabited the lower reaches of the Mokelumne and Cosumnes rivers, and the banks of the Sacramento River from Rio Vista to Freeport. The primary sociopolitical unit was the tribelet, consisting of the residents of several base settlements and their associated seasonal camps. Each tribelet was independent and held and defended specific territories.

The basic subsistence strategy of the Plains Miwok was seasonally mobile hunting and gathering. However, tobacco was cultivated and dogs were domesticated. Plant foods included acorns, buckeyes, laurel nuts, hazelnuts, seeds, roots, greens, and berries. Acorns, the primary staple, were gathered in the fall and stored through the winter. Seeds were gathered from May through August. Intentional, periodic burning in August ensured an ample supply of seed-bearing annuals and forage for game. The Plains Miwok ate more meat in the winter when stores of plant resources grew smaller. Hunting was accomplished with the aid of the bow and arrow, traps, and snares. Salt was obtained from springs or through trade with people from the Mono Lake area.

Plains Miwok technology included tools of bone, stone, antler, wood, and textile. Typical basketry items were seed beaters; cradles; sifters; rackets used in ball games; and baskets for storing, winnowing, parching, and carrying burdens. Other textiles included mats and cordage. The Plains Miwok constructed several types of structures: conical habitation structures fashioned from tule matting, earth-covered semi-subterranean winter dwellings, acorn granaries, menstrual huts, sweathouses, and conical grinding huts over bedrock mortars.

HISTORICAL SETTING

The Central Valley was explored by Spaniards as early as 1808, including Gabriel Moraga, who guided an expedition up the Sacramento River to present day Sutter County in search of potential inland mission sites. His excursion was followed in 1817 by Father Narciso Duran, Father Ramon Abella, and Luis Arguello, who established a temporary camp near present day Clarksburg. In 1821, Arguello and a party of explorers entered the area once again, this time passing through Solano and Yolo counties before reaching the Sacramento River near Grimes.

During the early 1800s, the region was also explored by hunters and trappers such as Jedediah Strong Smith, Ewing Young, and Hudson's Bay Company trappers. The hunters found the banks of the rivers and streams rich with beaver, otter, and other animals whose pelts were a highly valuable commodity in the worldwide trade of the time. They used to "cache" their pelts near Cache Creek, hence the name.

The influx of European and Spanish explorers and settlers during the 1830s and 1840s rapidly changed Patwin demography. The second quarter of the nineteenth century encompasses the Mexican Period (ca. 1821-1848) in California. This period is an outgrowth of the Mexican Revolution, and its accompanying social and political views, which affected the mission system across California. In 1833, the missions were secularized and their lands divided among many of the elite Mexican families as land grants called ranchos. These ranchos facilitated the growth of a semi-aristocratic group that controlled the larger ranchos. Patwin were essentially used as forced labor on many of these large tracts of land.

Simultaneously with the exploration of the Central Valley and the flanks of the Sierra Nevada, settlers blazed trails across the plains and mountains of the central United States, facilitating the westward migration of Euroamericans. The discovery of gold at Sutter's Mill in Coloma in 1848, however, was the catalyst that caused a dramatic alteration of both Native American and Euroamerican cultural patterns in California. Once news of the discovery of gold spread, a flood of Euroamericans entered the region, and gravitated to the area of the "Mother Lode." The population of California quickly swelled from an estimated 4,000 Euroamericans in 1848 to 500,000 in 1850. The discovery of gold and the large influx of Euroamerican immigrants had a positive effect on the growth and economic development of the area, but a negative effect on Native American cultures. The discovery of gold in California marked the beginning of a relatively rapid decline of both Native American populations and culture.

The Gold Rush transformed Yolo County from an isolated farming community to a booming agricultural region, as disenchanted miners realized they could make a greater fortune through farming and ranching rather than gold prospecting. In 1850, 1,086 people lived in the County; by 1870 that number swelled to 9,899. The majority of growth occurred in the central and western parts of the County near roads and fords crossing Putah and Cache creeks.

Fremont, the County's first town, was founded in 1849 along the confluence of the Sacramento and Feather rivers (south of present day Knights Landing). It became the first County seat in 1850. After Fremont suffered flood damage in 1851, the County government was moved to Washington (now West Sacramento). Between 1856 and 1861, the County seat moved from Washington to Cacheville (present day Yolo) and back to Washington. Flooding finally motivated voters to choose centrally located Woodland as the permanent County seat in 1862.

Transportation

As the County developed, the area's transportation improved. Although early rancho boundaries commonly served as transportation routes, growth and land subdivision led to the creation of travel corridors. The demand for more direct transportation routes resulted in the construction of several railroad lines throughout the County, including the Central Pacific Railroad (1876) and the California Pacific (1868). By 1871, rail lines extended from Vallejo to Dixon, Davisville (now Davis), Washington (West Sacramento), Woodland, and Vacaville.

Farmers in the southwestern portion of the County were faced with poor transportation options, as no rail lines were close enough to serve their needs. Growers were forced to haul their goods to market by horse and wagon in Sacramento and beyond. The owners of the Vaca Valley Railroad Company recognized this dilemma and in 1857, the southern leg of the Vaca Valley Railroad was laid which resulted in the permanent establishment of the town of Winters. In 1877, the Vaca Valley and Clear Lake Railroad Company was incorporated and extended the line north from Winters to Cache Creek. The Southern Pacific Railroad took over ownership of the Vaca Valley and Clear Lake Railroad Company the following year, and the railroad was extended into the Capay Valley. The new line assisted farmers who were starting to cultivate fruit and nut orchards in the northwest region of the County. As a result of the development, the Capay Valley Land Company laid out new towns including Brooks, Esparto, Capay (formerly Langville), Cadenasso, Tancred, Guinda, and Rumsey.

Agriculture and Industry

Barley and wheat became the dominant crops in the County starting in the 1860s. Between 1870 and 1900, 25,000 to 35,000 acres of barley were planted each year in the County. Grown primarily for beer production, the barley crop was sold both in the U.S. and abroad. In 1860, 13,236 acres of wheat were planted, and by 1893, the acreage had increased to 231,306. In 1893, however, a worldwide depression resulting from an overproduction of wheat effectively ended the boom.

Other successful crops included alfalfa, hops, green peas, onions, beans, tomatoes, corn, sugar beets, flax, and grapes. Fruit and nut varieties were also planted, such as almond, walnut, cherry, pear, plum, apple, olive, orange, lemon, apricot, peach, nectarine, and berries of all kinds. By the mid 1880s, California's fruit industry was thriving and was second only to gold mining in economic importance.

In 1906, the University of California purchased 780-acres near Davis to establish a farm, which was to function as part of the university's College of Agriculture. The Davis farm eventually evolved into a separate campus of the University of California system, the University of California, Davis (UC Davis), and is currently the largest employer in the County.

During the early 1900s, hundreds of miles of levees were constructed to control flooding in the Sacramento Valley. In addition, the Fremont and Sacramento weirs, the Knights Landing Ridge Cut, and the Yolo Bypass were built as part of massive flood control efforts. These flood control facilities supported reclamation of thousands of acres of land near the Sacramento River. Companies such as River Garden Farms of Knights Landing and Holland Land Company of Clarksburg developed large farms on the land and revitalized many communities.

Although much of Yolo County remained rural with agriculture as the foundation of the economy, areas such as Davis, Woodland, and West Sacramento became increasingly urbanized during the 20th century.

KNOWN CULTURAL AND PALEONTOLOGICAL RESOURCES

Data from Yolo County 2030 Countywide General Plan

The Yolo County General Plan EIR includes a discussion of the recorded cultural resources located throughout the entire County, including the incorporated cities, on pages 529 through 533. That discussion is summarized here and incorporated by reference.

More than 1,200 cultural resources have been recorded countywide. Of those resources, 275 are archaeological resources. There are 157 prehistoric-era archaeological resources comprised primarily of temporary occupation sites, hunting/processing camps, habitation sites, milling stations, lithic scatters, rock features, quarry/single reduction loci, and rock art sites (in order of frequency). There are 118 recorded historic-era archaeological resources which include homesteading, ranching and agriculture, mining, town and urban sites.

The remaining resources are built environment resources, which include buildings, roads, trails, bridges, canals, and railroads associated with the time period that begins with the first contact between Euro-Americans and native cultures. The County is rich in historic resources because non-native settlement dates to the 1830s. Several hundred properties within the County appear to meet the criteria for listing in state and federal historic registers. Sites that are officially listed in the NRHP and/or CRHR are shown in Table 12-2, based on data provided on the State Office of Historic Preservation website (<http://ohp.parks.ca.gov/ListedResources/?view=county&criteria=57>).

A fossil location search of Yolo County identified eight fossil sites within or directly adjacent to the County. Five fossil sites with 46 Blancan-age (4,750,000 to 1,808,000 years before present) vertebrate (bony fish, mammals, and reptiles) specimens were found in the Pliocene Tehama Formation. One fossil location with two Rancholabrean-age (240,000 years to 11,000 years before present) mammals (horses) was found in

the Pleistocene Red Bluff formation. Two fossil sites with two Rancholabrean-age mammals were found in undifferentiated Pleistocene alluvium. Three additional fossil sites with Rancholabrean-age vertebrate specimens have been identified along Putah Creek, but it is unknown whether these sites were on the Yolo or Solano County side of the creek. These fossils are in the Pleistocene-age (see Table 12-1) Montezuma Formation. The sites identified during the search occur in four distinguishable geologic formations, all of which are known to contain fossils. Most sedimentary geological units of Yolo County are paleontologically sensitive.

The Yolo County General Plan EIR also identifies fossil site records in the County available on the University of California Museum of Paleontology website. These included: 15 Late Cretaceous microfossil sites; 27 Late Cretaceous invertebrate fossil sites; 32 fossil sites in the Eocene Capay formation; two Eocene fossil sites outside the Capay formation; seven fossil sites with 25 vertebrate specimens in the Pliocene Tehama Formation; and six Pleistocene fossil sites with 17 vertebrate specimens.

California State Historical Landmarks

The State of California began memorializing sites of statewide historic importance in 1932 with what is now known as the California State Historical Landmarks program. The criteria for consideration have been refined over the long history of this program; today a State Historical Landmark must be the first, last, only, or most significant of a type in a large geographic area. Two resources in Yolo County have been designated as California Historical Landmark (Table 12-2).

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and must be one of the following.

- ▲ The first, last, only, or most significant of its type in the state or within the local geographic region (city or county).
- ▲ Associated with an individual or group having a profound influence on the history of the local area.
- ▲ A prototype of, or an outstanding example of, a period, style, architectural movement or construction.
- ▲ One of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

If a Point of Historical Interest is subsequently granted status as a Landmark, the Point designation will be retired. Eight resources in Yolo County are Points of Historical Interest (Table 12-2).

Table 12-2 Yolo County Historic Resources by Designation

Resource (Landmark Plaque Number)	Vicinity	NRHP- listed	California Historical Landmark	CRHR- listed	Point of Historical Interest
Animal Science Building (N1442)	Davis	X			
Beamer, R. H., House (N1131)	Woodland	X			
Canon School (N177)	Brooks	X			
Capay School (P567)	Capay				X
Davis Subway (N2023)	Davis	X			
Downtown Woodland Historic District (N2060)	Woodland	X			
Dresbach-Hunt-Boyer House (N439)	Davis	X			
First Pacific Coast Salmon Cannery Site (N35)	Broderick	X			

Table 12-2 Yolo County Historic Resources by Designation

Resource (Landmark Plaque Number)	Vicinity	NRHP- listed	California Historical Landmark	CRHR- listed	Point of Historical Interest
Gable Mansion (864)	Woodland		X		
Gibson, William B., House (N449)	Woodland	X			
Hotel Woodland (N1881)	Woodland	X			
I.O.O.F. Building (N1048)	Woodland	X			
Leonidas Taylor Monument (P765)	West Sacramento				X
Main Street Historic District- Winters (N1967)	Winters	X			
Mary's Chapel and Cemetery (P213)	Yolo				X
Moore, James, House (N697)	Woodland	X			
Nelson Ranch (N186)	Woodland	X			
Porter Building (N710)	Woodland	X			
Rumsey Town Hall (N179)	Rumsey	X			
Russell Boulevard (P144)	Davis				X
Saint Agnes Church (P214)	Woodland				X
Southern Pacific Railroad Station (N450)	Davis	X			
Tufts, Joshua B., House (N816)	Davis	X			
Union Church of Dunnigan (N2210)	Dunnigan	X			
Walnut Street School (N2318)	Woodland	X			
Washington Firehouse (C14)	West Sacramento			X	
William B. Gibson House, Yolo County Museum (P767)	Woodland				X
Woodland Congregational Ch, First Ch of Christ Scientist (P374)	Woodland				X
Woodland Opera House (851)	Woodland	X	X		
Woodland Public Library (N973)	Woodland	X			
Yolo Branch Library (N1666)	Yolo	X			
Yolo County Courthouse (P766)	Woodland				X

12.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

National Environmental Policy Act

In accordance with NEPA, an agency must consider:

- ▲ unique characteristics of the geographic area, such as proximity to historic or cultural resources (40 CFR 1508), and
- ▲ the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) (40 CFR 1508.27[b][8]).

Section 106 of the National Historic Preservation Act

Federal and federally-sponsored programs and projects are reviewed pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. NHPA requires federal agencies to initiate consultation with the State Historic Preservation Officer as part of the Section 106 review process.

Section 106 of the NHPA requires consideration of effects on properties that are listed in, or may be eligible for listing in the NRHP. The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:
 - a. Association with events that have made a significant contribution to the broad patterns of history (events).
 - b. Association with the lives of persons significant in the past (persons).
 - c. Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).
 - d. Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Advisory Council on Historic Preservation

Under federal law, the Criteria of Adverse Effect for historic properties are set forth by the Advisory Council on Historic Preservation in its implementing regulations, 36 CFR Part 800. As codified in 36 CFR Part 800.4(d)(2), if historic properties may be affected by a federal undertaking, the agency official shall assess adverse effects, if any, in accordance with the Criteria of Adverse Effect.

The Criteria of Adverse Effect (36 CFR 800.5 [a][1]) reads:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the [NRHP] in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the [NRHP]. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

36 CFR 800.5 (a)(2) reads:

Adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the [Secretary of the Interior's] Standards for the Treatment of Historic Properties (the Standards) (36 CFR part 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 (AIRFA) (42 USC Sections 1996 and 1996a) affirms the right of Native Americans to have access to their sacred places. If a place of religious importance to American Indians could be affected by a federal undertaking, AIRFA promotes consultation with Indian religious practitioners, which could be coordinated with Section 106 consultation. Amendments to Section 101 of NHPA in 1992 strengthened the interface between AIRFA and NHPA by clarifying the following: (1) properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization could be determined to be eligible for inclusion in the NRHP; and (2) in carrying out its responsibilities under Section 106, a federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described under (1).

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (Title 25, USC, § 3001 *et seq.*), in addition to requiring federal agencies and federally funded projects to document Native American human remains and cultural items within their collections and providing an opportunity for repatriation of these materials, requires federal agencies to develop plans for dealing with potential future collections of Native American human remains and associated funerary objects, sacred objects, and objects of cultural patrimony that are discovered as a result of projects funded or overseen by the federal government.

STATE LAWS AND REGULATIONS

California Register of Historical Resources

All properties listed in or formally determined eligible for listing in the NRHP are eligible for the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant within the context of California's history. The CRHR is a statewide program of similar scope and

with similar criteria for inclusion as those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations (CCR) Title 15, Chapter 11.5, Section 4850. The CRHR criteria are similar to the NRHP criteria and are tied to CEQA because any resource that meets the criteria below is considered a historical resource under CEQA.

The CRHR uses four evaluation criteria:

1. Is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.
4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a resource must meet one of the above criteria and retain integrity. The CRHR addresses integrity in the same manner as the NRHP.

California Environmental Quality Act

Historical Resources

CEQA requires that public or private projects financed or approved by state or local public agencies be assessed to determine their potential to affect historical resources. CEQA uses the term *historical resources* to include buildings, sites, structures, objects, or districts, each of which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance. CEQA states that if implementation of a project would result in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (14 CCR 15064.5, 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined.

The state's CEQA guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review.

- ▲ The resource is listed in or determined eligible for listing in the CRHR.
- ▲ The resource is included in a local register of historical resources, as defined in Section 5020.1[k] of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of section 5024.1[g] of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- ▲ The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (CCR, Title 14, Division 6, Chapter 3, section 15064.5[a]).

Each of these ways of qualifying as an historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (PRC 5020.1[k], 5024.1, 5024.1[g]). The CRHR is described further above.

According to CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (14 CCR 15064.5[b]). Under CEQA, a *substantial adverse change* in the significance of a resource means the physical demolition,

destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would *materially impair* the significance of a historic resource are any actions that would demolish or adversely alter the physical characteristics that convey the property's historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of PRC 5020.1[k] and 5024.1[g].

Tribal Cultural Resources

Section 21074 of the CEQA Statute defines tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either a) included or determined to be eligible for inclusion in the California Register of Historical Resources or b) included in a local registers of historical resources. A lead agency can also identify, based on substantial evidence, that a tribal cultural resource is significant. A cultural landscape may also be considered a tribal cultural resource if it meets either criteria a) or b) above and to the extent the landscape is geographically defined in terms of the size and scope of the landscape. The assessment of tribal cultural resources in a CEQA document is subject to the conditions of the originating legislation, Assembly Bill 52 (AB 52), described below.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural and Sacred Sites Act applies to both State and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the County Coroner be notified. If the remains are of a Native American, the coroner must notify the Native American Heritage Commission (NAHC). The NAHC then notifies those persons most likely to be descended from the Native American's remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

California Health and Safety Code—Treatment of Human Remains

Under Section 8100 of the California Health and Safety Code, six or more human burials at one location constitute a cemetery. Disturbance of Native American cemeteries is a felony (Health and Safety Code Sec. 7052).

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the County Coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the Coroner must then contact the NAHC, which has jurisdiction pursuant to Section 5097 of the California Public Resources Code.

When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the County Coroner has been informed and has determined that no investigation of the cause of death is required; and, if the remains are of Native American origin, either

- ▲ the descendants of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98; or
- ▲ the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

Assembly Bill 52

AB 52, signed by Governor Brown in September of 2014, establishes a new class of resources under CEQA: "tribal cultural resources." It requires that lead agencies undertaking CEQA review must, upon written request of a California Native American tribe, begin consultation once the lead agency determines that the application for the project is complete, before the issuance of a Notice of Preparation (NOP) for an environmental impact report (EIR) or notice of intent to adopt a negative declaration or mitigated negative declaration. AB 52 also requires revision to CEQA Appendix G, the environmental checklist. This revision

would create a new category for “tribal cultural resources” (see the definition of tribal cultural resources provided above in the discussion of the California Environmental Quality Act)

AB 52 currently applies to those projects for which a lead agency has issued a NOP for an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. As the NOP for this Project was issued on October 21, 2011, the requirements of AB 52 do not apply.

LOCAL LAWS AND REGULATIONS

Yolo County Code

Chapter 8 of the Yolo County Code pertains to the treatment of local historic landmarks and historic districts. Overseen by the Historic Resources Commission, this section of the code provides for the identification, protection, enhancement, perpetuation, and use of cultural resources within the County that reflect elements of its cultural, agricultural, social economic, political, aesthetic, military, maritime, engineering, archaeological, religious, ethnic, natural, architectural and other heritage.

A building, structure, object, particular place, vegetation, or geology, may be designated a County historic landmark if it meets one or more of the following criteria:

- ▲ it exemplifies or reflects valued elements of the County’s cultural, agricultural, social, economic, political, aesthetic, military, religious, ethnic, natural vegetation, architectural, maritime, engineering, archaeological, or geological history; or
- ▲ it is identified with persons or events important in local, State, or national history; or
- ▲ it reflects significant geographical patterns, including those associated with different eras of settlement and growth and particular transportation modes; or
- ▲ it embodies distinguishing characteristics or an architectural style, type, period, or method of construction or is a valuable example of the use of indigenous materials or craftsmanship; or
- ▲ it is representative of the notable work of a builder, designer or architect; or
- ▲ it represents an important natural feature or design element that provides a visual point of reference to members of the community.

When an area includes at least two designated historic landmarks in such proximity that they create a setting historically or culturally significant to the local community, the State, or the nation, sufficiently distinguishable from other areas of the County, then a historic district may be established. Historic districts may include buildings, structures, and sites that individually do not meet criteria for landmark status, but that collectively express their historical significance. With the exception of those types of projects specified in the design review guidelines or work authorized by the Building Official upon written approval of the Planning and Public Works Department for protection of public safety, projects that would demolish, move, remove, alter the exterior appearance of, or otherwise affect a designated historic landmark or any structure located in a designated historic district must first obtain written approval from the Historic Preservation Commission.

Yolo County 2030 Countywide General Plan

The goals and policies of the Land Use and Community Character Element and the Conservation and Open Space Element of the Yolo County General Plan seek to ensure a balanced management of the County’s multiple natural and cultural resources. Goals and policies specific to cultural resources and potentially relevant to the HCP/NCCP are:

Goal CC-4 Project Design. Require project design that incorporates “smart growth” planning principles and “green” building standards that reflect the County’s commitment to sustainable development

- ▲ **Policy CC-1.5:** Significant site features, such as trees, water courses, rock outcroppings, historic structures and scenic views shall be used to guide site planning and design in new development. Where possible, these features shall become focal points of the development.
- ▲ **Policy CC-4.11:** Site specific information shall be required for each application, subject to site conditions and available technical information, as determined by the County lead department, in order to enable informed decision-making and ensure consistency with the General Plan and with the assumptions of the General Plan EIR. Technical information and surveys requested may include, but not be limited to, the following: air quality and/or greenhouse gas emissions calculations, agricultural resource assessment/agricultural and evaluation and site assessment (LESA), biological resources assessment, cultural resources assessment, fiscal impact analysis, flood risk analysis, hydrology and water quality analysis, geotechnical/soils study, land use compatibility analysis, noise analysis, Phase One environmental site assessment, sewer capacity and service analysis, storm drainage capacity and service analysis, title report, traffic and circulation study, visual simulation and lighting study, and water supply assessment. When a technical study is required, it must cover the entire acreage upon which development is being proposed including any off-site improvements (e.g. wells; pumps; force mains; new roads; dirt borrow sites; etc.) that may be necessary. Technical studies must meet CEQA standards and the standards in the applicable industry. As necessary, the technical studies shall include recommendations that are to be implemented as part of the project.
- ▲ **Policy CC-1.15:** The following features shall be protected and preserved along designated scenic roadways and routes, except where there are health and safety concerns:
 - Trees and other natural or unique vegetation
 - Landforms and natural or unique features
 - Views and vistas
 - Historic structures (where feasible), including buildings, bridges and signs

Goal CO-4 Cultural Resources. Preserve and protect cultural resources within the County.

- ▲ **Policy CO-4.1** Identify and safeguard important cultural resources.
- ▲ **Policy CO-4.11** Honor and respect local tribal heritage.
- ▲ **Policy CO-4.12** Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process
- ▲ **Policy CO-4.13** Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.
- ▲ **Policy CO-2.22:** Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.

City of Davis General Plan

Chapter 16, Historic and Archaeological Resources, of the City of Davis General Plan contains the following goals and policies related to cultural resources that are potentially relevant to the HCP/NCCP.

Goal HIS 1: Designate, preserve and protect the archaeological and historic resources within the Davis community.

- ▲ **Policy HIS 1.1** Maintain an inventory of archaeological and historic resources.
- ▲ **Policy HIS 1.2:** Incorporate measures to protect and preserve historic and archaeological resources into all planning and development.
- ▲ **Policy HIS 1.4** Preserve historic features of the core area and historic districts.

City of West Sacramento General Plan

City of West Sacramento General Plan contains the following goal and policies that relate to cultural resources that may be applicable to the analysis of the HCP/NCCP:

Natural and Cultural Resources Element

Goal NRC-9. To preserve and enhance West Sacramento's important historical, archaeological, and paleontological resources to increase awareness of the City's heritage.

- ▲ **Policy NCR-9.1. Significant Resource Preservation.** The City shall ensure the preservation of significant historical, archaeological, tribal cultural, and paleontological resources, including those recognized at the national, state, and local levels.
- ▲ **Policy NCR-9.3. Historic Districts.** The City shall establish historic districts in appropriate areas of the city, and develop standards for preservation and rehabilitation of historic structures and compatible infill development. **Policy NCR-9.4. Historic Survey.** The City shall cooperate in the expansion and updating of the Yolo County Historical Resources Survey.
- ▲ **Policy NCR-9.5. State or National Register.** The City shall work with property owners to seek listing of significant historical resources on the California Register of Historical Resources and/or the National Register of Historic Places, where appropriate.
- ▲ **Policy NRC-9.6. Maintenance, Preservation, and Renovation of Historic and Architecturally Significant Structures.** The City shall encourage the maintenance and preservation of historically- and architecturally-significant structures. Where such buildings cannot be preserved intact, the City shall encourage the preservation of character-defining features (e.g., building facades), where feasible.
- ▲ **Policy NCR-9.7. Adaptive Reuse.** The City shall, where appropriate and feasible, encourage adaptive reuse of historical resources when the original use of the resource is no longer feasible.
- ▲ **Policy NCR-9.8. Relocation.** The City shall ensure that historically- and/or architecturally-significant buildings or structures proposed for demolition are considered for relocation, where appropriate and feasible, as a means of preservation. The City shall encourage relocation within the same neighborhood, or to another compatible neighborhood or district.
- ▲ **Policy NCR-9.9. Demolition.** The City shall consider demolition of historic resources as a last resort, permitted only if adaptive reuse or relocation is not feasible and/or would pose a public safety hazard.
- ▲ **Policy NCR-9.11. Compatibility of New Development.** The City shall require that new development near designated historical resources (e.g., buildings, structures, districts) is designed to be compatible with the character of the designated historic resource.
- ▲ **Policy NCR-9.15. Early Identification of Resources.** For development and infrastructure projects, the City shall endeavor to identify sensitive resources early in project design efforts to avoid (e.g. to allow preservation in place) or minimize impacts.

City of Winters General Plan

The following goals and policies related to cultural resources from the City of Winters General Plan are potentially relevant to the HCP/NCCP.

Goal V.D: To preserve and enhance Winters' historical heritage.

- ▲ **Policy V.D.1.** Winters' historically and architecturally significant buildings and sites should be preserved and enhanced to the fullest degree possible.
- ▲ **Policy V.D.2.** The City shall continue to implement the City's Historic Preservation Ordinance and the State Historic Building Code. The Historic Preservation Ordinance and State Historic Building Code should be made applicable to all historically-significant structures in Winters.

Goal V.F: To protect Winters' Native American heritage.

- ▲ **Policy V.F.1.** The City shall refer development proposals that may adversely affect archaeological sites to the Northwest Information Center of the California Archaeological Inventory for review and comment.
- ▲ **Policy V.F.2.** The City shall undertake an archaeological sensitivity survey of the entire area within the Urban Limit Line. Such study shall classify areas as "low-sensitivity," "moderate sensitivity," and "high-sensitivity." Within areas classified as "high-sensitivity," an archeological site survey will be required in conjunction with project applications. In all other areas, no field surveys will be required. However, if archeological artifacts are discovered during grading or construction, grading or construction must stop pending an archeological investigation and identification of appropriate mitigation measures. City implementation of this policy shall be guided by Appendix K of the State CEQA Guidelines.

City of Woodland General Plan

Chapter 6, Historic Preservation, of the 2002 Woodland General Plan sets the framework for a comprehensive program to foster historic preservation efforts in Woodland. The following goals and policies are potentially relevant to the HCP/NCCP.

Goal 6.A: To preserve and maintain sites, structures, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history.

- ▲ **Policy 6.A.1.** The City shall update and expand the City's Historic Resources Inventory on a regular basis to include all historically and architecturally significant buildings, sites, landscapes, signs, and features within the city limits.
- ▲ **Policy 6.A.2.** The City shall establish historic areas to provide for the restoration and preservation of those districts, buildings, and sites in Woodland that are of historic, cultural, or architectural significance.
- ▲ **Policy 6.A.4.** The City shall require that environmental review be conducted on demolition permit applications for buildings designated as, or potentially eligible for designation as, historic structures. The City shall follow the guidelines of the California Environmental Quality Act (CEQA) in reviewing demolition requests for such structures and shall prohibit demolition without a structural and architectural analysis of the structure's ability to be rehabilitated and/or relocated.
- ▲ **Policy 6.A.6.** The City shall encourage the incorporation of natural resources such as land and water into historic sites and structures when they are important to the understanding and appreciation of the history of the site.

Goal 6.D: To integrate historic preservation more fully into Woodland’s comprehensive planning process.

- ▲ **Policy 6.D.1.** The City shall coordinate the activities of various City departments and agencies (including the Redevelopment Agency, Public Works Department, and Community Development Department) non-profit organizations, and other associations concerning historic preservation to ensure a unified approach to encourage the preservation, protection, and restoration of historic sites, properties, and public works.

Goal 6.F: To protect Woodland’s Native American heritage.

- ▲ **Policy 6.F.1.** The City shall refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory, Northwest Information Center, at Sonoma State University.
- ▲ **Policy 6.F.2.** The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the Archaeological Inventory, Northwest Information Center, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the *CEQA Guidelines*.

12.3 ENVIRONMENTAL CONSEQUENCES

12.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts to cultural resources is based on a review of the data sources identified and cited previously, above, in Section 12.1.1, *Environmental Setting*, and consultation by the lead agencies with Native Americans knowledgeable about cultural resources in the Plan Area. The impact conclusions are informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA. All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects on cultural and paleontological resources in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ cause a substantial adverse change in the significance of an historical resource as defined above in Section 15064.5 of the State CEQA Guidelines;
- ▲ cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5 of the State CEQA Guidelines;
- ▲ cause a substantial adverse change in the significance of a tribal cultural resource as defined in Section 21074 of the CEQA Statute;
- ▲ disturb any human remains, including those interred outside of formal cemeteries;
- ▲ directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- ▲ eliminate important examples of the major periods of California history or pre-history.

ISSUES NOT EVALUATED FURTHER

As described above under Section 12.2.2, *Regulatory Setting*, AB 52 (signed in September of 2014) establishes a new class of resources under CEQA: “tribal cultural resources.” AB 52 currently applies to those projects for which a lead agency has issued a NOP for an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. As the NOP for this project was issued on October 21, 2011, the requirements of AB 52 do not apply. Therefore, tribal cultural resources, in the context of AB 52, are not discussed further in this EIR. However, the lead agencies have coordinated with local tribal groups through correspondence and meetings, and continue to coordinate with these groups. To date, no group has indicated that any modifications to the Plan are needed to avoid effects on tribal cultural resources.

12.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities and agricultural economic development and open space sub-categories would occur in various locations in the

unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county. These development activities could involve demolition or alterations of buildings or structures which could change the significance of the historical resource, and ground-disturbing activities which could damage or destroy archaeological resources, human remains, or paleontological resources.

Historical resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges). As stated above in Section 12.2.1, *Environmental Setting*, which describes known cultural and paleontological resources, the County is rich in historic resources because non-native settlement dates to the 1830s. Several hundred properties within the County are listed or appear to meet the criteria for listing in state and federal historic registers.

Archaeological resources include both pre-contact and historical artifacts. Certain areas of Yolo County have been determined to be more likely to contain archaeological deposits:

Pre-Contact Archaeological Deposits

- ▲ proximity to major Sacramento Valley watercourses,
- ▲ high ground near major watercourses,
- ▲ natural levees above sloughs, and
- ▲ creeks and drainages along the eastern slopes of the Coast range.

Historical Archaeological Deposits

- ▲ proximity to transportation corridors (e.g., historical highways, railroads, and navigable sloughs);
- ▲ historical ranches;
- ▲ areas of historical rock, soil, and mineral extraction;
- ▲ defunct communities or settlements; and
- ▲ historic neighborhoods and business districts.

Paleontological resources include mineralized, partially mineralized, and unmineralized bones and teeth; soft tissues; shells; wood; leaf impressions; footprints; burrows; and microscopic remains that are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units. The geological formations that underlie Yolo County are generally considered to be paleontologically sensitive and paleontological resources are known to occur in the county.

Activities that could adversely affect archaeological and paleontological resources and human remains would typically, though not exclusively, include ground-disturbing activities in previously undisturbed sediments. Activities that could adversely affect built resources could result from a wide range of activities under the No Action Alternative (e.g., implementation of the general plan and specific plans, development projects, replacement of bridges). Based on prior implementation of these activities pursuant to the local processes and other regulatory standards (e.g., National Historic Preservation Act), it is expected that impacts to cultural resources would occur under the No Action Alternative. These impacts would be evaluated on a case-by-case basis pursuant to NEPA and CEQA, as applicable, and potentially significant impacts would be identified and mitigated pursuant to the requirements of appropriate laws and regulations. These activities are expected to be conducted in accordance with the regulatory processes described above in Section 12.2.2, *Regulatory Setting*.

The combination of federal and State regulations (e.g., NEPA, CEQA, NHPA, California Health and Safety Code, AB52) and local codes and policies (e.g., Yolo County code protecting designated historic landmarks and historic districts, various general plan policies requiring the identification and protection of cultural resources) would require as part of the implementation of projects and activities:

- ▲ the identification of potential cultural resources through both searches of available records and field investigation;

- coordination with Native American groups and the NAHC;
- the identification and implementation of measures to address the inadvertent discovery of previously unknown cultural resources;
- proper mapping, recordation, reporting, and if appropriate, archiving of newly identified cultural resources; and
- development and implementation of appropriate avoidance, protection measures, or other mitigation depending on the nature and significance of the resource.

As the development and other activities are implemented under the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing conditions (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). While retaining lands in their existing conditions would have no effect on cultural resources, habitat restoration or creation could involve ground-disturbing activities that could damage or destroy historical resources, archaeological resources, human remains, or paleontological resources.

The combination of federal and State regulations and local codes and policies identified above for development and other activities would also apply to mitigation actions. More specifically, the Yolo County General Plan contains policies that provide for the identification of archaeological deposits that qualify as historical resources and that may be subject to impacts from ground disturbance and other activities. These policies and actions require consultation with tribal entities, pre-permitting cultural resource assessments, and the development of feasible mitigation to minimize impacts in advance of project implementation. Policies CO-4.13, CC-1.15, and CC-1.5 call for the mitigation of impacts to architectural resources, encourage the retention of historical structures and trees along scenic roads and in project sites, and provide for the input from preservation professionals and descendant communities in developing mitigation strategies. Policy CC-4.11, in particular, addresses the project-specific identification of cultural resource issues by including pre-permitting resource assessments. Policy CO-2.22, in particular, provides a degree of protection for those archaeological deposits that are located within 100 feet of the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. These requirements provide an effective mechanism to ensure that potential impacts to cultural resources are appropriately addressed and mitigated.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in loss of cultural resources. Resources on the ground surface or buried near the ground surface have also likely been damaged or removed by agricultural activities. It is likely that many cultural resource sites and historic properties have been lost or significantly damaged in the Plan Area. The response to this loss includes the enactment of laws, regulations, and policies to protect cultural resources (see Section 12.2.2, *Regulatory Setting*, above). As described above, these laws, regulations, and policies prescribe actions such as detailed archaeological surveys and recordation of historic properties, and review of individual development actions by local commissions and municipal staff. Therefore, more recent projects (i.e., since enactment of the various regulations and policies) would identify potentially significant cultural and paleontological resource impacts and avoid or otherwise mitigate for these impacts.

Other foreseeable future projects and activities outside the context of the No Action development scenario (see Chapter 3, Section 3.5, *Cumulative Effects Analysis Methodology*), such as wind and solar power developments, projects implemented by Caltrans, and some flood control facilities, could further contribute to adverse cumulative effects on cultural and paleontological resources. However, these projects and activities would be subject to the same regulatory requirements related to the protection of cultural and

paleontological resources. Therefore, although past projects may have made substantial contributions to a cumulative effect on cultural and paleontological resources; more recent projects (i.e., present projects) and reasonably foreseeable future projects would typically not contribute to cumulative effects on these resources.

Under the No Action Alternative, implementation of urban projects and activities, rural projects and activities, rural public services (infrastructure and utilities, agriculture economic development and open space), and public and private operations and maintenance, in addition to possible biological mitigation measures, could adversely affect archaeological and paleontological resources and human remains through ground-disturbing activities in previously undisturbed sediments. Implementation of these projects could include physical demolition, destruction, relocation, or alteration of historical resources such that the significance of the historical resource would be materially impaired. However, laws, regulations, and policies would require avoidance of, or mitigation for significant effects. Although the potential remains for individual projects to not be able to fully avoid or mitigate significant effects, these situations would be uncommon. Therefore, projects and activities included as part of the No Action Alternative would not make a cumulatively considerable contribution to a significant cumulative impact related to cultural and paleontological resources.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Cultural resource impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program. The following impact discussions focus on the elements of the HCP/NCCP that differ from the No Action Alternative. The primary result of the neighboring landowner protection program from a cultural resources perspective would be the general preservation of existing conditions on lands adjacent to HCP/NCCP reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Because the program does not result in new or additional ground disturbance beyond what would occur without the program, or alteration of historic properties, it would not have an effect on cultural resources, and is not evaluated further in the impact discussions below.

Effect CUL-1: Change in the significance of historical resources

Under the Proposed Action Alternative, biological resource mitigation lands would be grouped into larger areas as opposed to the anticipated use of smaller and more dispersed preservation lands under the No Action Alternative. Generally, these required mitigation actions would either retain lands in their existing conditions (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). Retaining lands in their existing conditions would have no effect on historical resources. While it is unlikely that any land selected for habitat restoration or creation would contain known historical resources that are listed in the NRHP or CRHR, it is possible that unevaluated standing buildings (e.g., houses, barns, outbuildings, cabins) or intact structures (e.g., dams, bridges) would be located on the lands selected to be restored or converted. Given the regulatory and permitting requirements associated with modifying such a resource, the resource would be avoided as part of reserve development and management.

If avoidance were not undertaken, however, potential effects would be evaluated on a case-by-case basis pursuant to applicable laws and regulations such as NEPA, CEQA, and the NHPA. Potentially significant impacts would be identified and mitigated pursuant to the requirements of each law/regulation. In addition

to federal and State laws, the Yolo County General Plan contains policies that provide for the identification of cultural resources, as discussed under the No Impact Alternative. These cultural resources policies and actions require that historical resources (including important examples of the major periods of California history) are identified, evaluated, and appropriately treated.

In the context of effects on historical resources, potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not be appreciably different from those under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in a change in the significance of any existing historical resources.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect CUL-2: Disturb archaeological resources and human remains.

Under the Proposed Action Alternative, biological resource mitigation lands would be grouped into larger areas as opposed to the anticipated use of smaller and more dispersed preservation lands under the No Action Alternative. Generally, these required mitigation actions would either retain lands in their existing conditions (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). While retaining lands in their existing conditions would have no effect on cultural resources, habitat restoration or creation could involve ground-disturbing activities that could damage or destroy archaeological resources or human remains. Unknown human remains are typically identified during archaeological construction monitoring, field surveys, testing, or data recovery.

If avoidance were not undertaken, however, potential effects would be evaluated on a case-by-case basis pursuant to applicable laws and regulations such as NEPA, CEQA, and the NHPA. Potentially significant impacts would be identified and mitigated pursuant to the requirements of each law/regulation. In addition to federal and State laws, the Yolo County General Plan contains policies that provide for the identification of cultural resources, as discussed under the No Impact Alternative. These cultural resources policies and actions ensure that archaeological resources and human remains are identified, evaluated, and appropriately treated.

In the context of effects on archaeological resources (including important examples of California pre-history) and human remains, potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not be appreciably different from those under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse effects to archeological resources and human remains.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect CUL-3: Disturb a paleontological resource.

As with the No Action Alternative, as development and other activities described above are implemented as part of the Proposed Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Under the Proposed Action Alternative, biological resource

mitigation lands would be grouped into larger areas as opposed to the anticipated use of smaller and more dispersed mitigation lands under the No Action Alternative. Generally, these required mitigation actions would either retain lands in their existing conditions (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). While retaining lands in their existing conditions would have no effect on cultural resources, habitat restoration or creation could involve ground-disturbing activities that could damage or destroy paleontological resources or human remains. The geological formations that underlie Yolo County are generally considered to be paleontologically sensitive and paleontological resources are known to occur in the county.

If avoidance were not undertaken, however, potential effects would be evaluated on a case-by-case basis pursuant to applicable laws and regulations such as NEPA, CEQA, and the NHPA. Potentially significant impacts would be identified and mitigated pursuant to the requirements of each law/regulation. In addition to federal and State laws, the Yolo County General Plan contains policies which provide for the identification of cultural resources, as discussed under the No Impact Alternative. These cultural resources policies and actions ensure the application of professional standards for the recovery of scientific data from paleontological resources that may be affected.

In the context of effects paleontological resources, potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not be appreciably different from those under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse effects to paleontological resources.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past, present, and reasonably foreseeable future projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the Proposed Action Alternative to the cumulative condition for cultural resources would essentially be the same as compared to the No Action Alternative. Implementation of urban projects and activities, rural projects and activities, rural public services (infrastructure and utilities, agriculture economic development and open space), and public and private operations and maintenance receiving incidental take authorization under the Proposed Action Alternative would occur at generally the same intensity as under the No Action Alternative. There would be a similar potential to affect cultural and paleontological resources, and the same regulatory and policy requirements to identify, avoid, and mitigate for resources. This same conclusion also applies to establishment of the reserve system. Because of the regulatory requirements to avoid and mitigate for impacts, implementation of the Proposed Action Alternative would not result in a considerable adverse contribution to the combined effects of past, current, and probable future projects on paleontological and cultural resources. The Proposed Action Alternative would make roughly an equivalent contribution to cumulative impacts compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C— REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, the Reduced Take Alternative contains eight areas designated for development under the Proposed Action in which no activities that would result in take of covered species would be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. Impacts to cultural and paleontological resources as a result of implementation of the Reduced Take Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative; however, given that less development would occur, there is the potential for less disturbance to cultural and paleontological resources.

Overall, under the Reduced Take Alternative, impacts CUL-1, CUL-2, and CUL-3 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less-than-significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past, present, and reasonably foreseeable future projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on cultural resources under the Reduced Take Alternative are not substantially different from those described for the Proposed Action Alternative or the No Action Alternative, and there would be the same regulatory and policy requirements to identify, avoid, and mitigate for resources. Because of the regulatory requirements to avoid and mitigate for impacts, implementation of the Reduced Take Alternative would not result in a considerable adverse contribution to the combined effects of past, current, and probable future projects on paleontological and cultural resources. The Reduced Take Alternative would make roughly an equivalent contribution to cumulative impacts compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less-than-significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D— REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the Yolo HCP/NCCP and therefore could not be provided incidental take authorization through the Plan. See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative. Impacts to cultural resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative.

Overall, under the Reduced Development Alternative, impacts CUL-1, CUL-2, and CUL-3 would not be appreciably different from what is described for the Proposed Action Alternative. Effects would be slightly

less than under both the No Action Alternative and the Proposed Action Alternative if the two areas were not developed during the permit term.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less-than-significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past, present, and reasonably foreseeable future projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on cultural resources under the Reduced Development Alternative are not substantially different from those described for the Proposed Action Alternative or the No Action Alternative, and there would be the same regulatory and policy requirements to identify, avoid, and mitigate for resources. Because of the regulatory requirements to avoid and mitigate for impacts, implementation of the Reduced Development Alternative would not result in a considerable adverse contribution to the combined effects of past, current, and probable future projects on paleontological and cultural resources. The Reduced Development Alternative would make roughly an equivalent contribution to cumulative impacts compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less-than-significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

13 TRANSPORTATION

13.1 INTRODUCTION

This chapter provides information relevant to transportation impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

13.1.1 Data Sources

Key sources of information used to prepare this Transportation chapter include the following.

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County General Plan), Circulation Element (Yolo County 2009a);
- ▲ *Yolo County 2030 Countywide General Plan Environmental Impact Report* (Yolo County General Plan EIR) (Yolo County 2009b);
- ▲ *County of Yolo Bicycle Transportation Plan* (Yolo County 2013);
- ▲ *Yolo County Transportation Impact Study Guidelines* (Yolo County 2010);
- ▲ *City of Davis General Plan, Transportation Element* (City of Davis 2013);
- ▲ *City of Davis Transportation Implementation Plan* (City of Davis 2015);
- ▲ *City of Davis Bicycle Action Plan, Beyond Platinum* (City of Davis 2014);
- ▲ *City of West Sacramento General Plan 2035 Policy Document, Transportation Element* (City of West Sacramento 2016);
- ▲ *2013 West Sacramento Bicycle, Pedestrian and Trails Master Plan* (City of West Sacramento 2013);
- ▲ *City of Winters General Plan Policy Document, Transportation and Circulation Section* (City of Winters 1992);
- ▲ *City of Winters Bikeway System Master Plan* (City of Winters 2013);
- ▲ *City of Woodland General Plan Policy Document, Transportation and Circulation Section* (City of Woodland 2002a);
- ▲ *City of Woodland Bicycle Transportation Plan* (City of Woodland 2002b);
- ▲ Sacramento Area Council of Governments (SACOG). *Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035* (SACOG 2016);
- ▲ *SACOG Final 2015/18 Metropolitan Transportation Improvement Program (MTIP)* (SACOG 2014);
- ▲ *SACOG Public Transit and Human Services Transportation Coordinated Plan* (SACOG 2014); and
- ▲ *SACOG Regional Bicycle, Pedestrian, and Trails Master Plan (2015 Master Plan)* (SACOG 2015).

13.1.2 Definitions

The operational performance of a roadway network is commonly described with the term Level of Service (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

Peak hours are the periods when traffic is heaviest on a particular roadway or at a particular intersection. Typically, there is an a.m. peak associated with people travelling to work in the morning, and a p.m. peak associated with people returning home after work. Travel outside the peak hours is considered *off peak*.

13.2 AFFECTED ENVIRONMENT

13.2.1 Environmental Setting

ROADWAY SYSTEM

Existing Roadway System

Yolo County (County) has three Interstate routes, Interstate 5 (I-5), I-80, and I-505 (Exhibit 13-1). U.S. 50, which begins in West Sacramento, provides a freeway connection from I-80 to downtown Sacramento.

State highways in the County include State Route (SR) 16, SR 45, SR 84, SR 113 and SR 128, which are operated and maintained by the California Department of Transportation (Caltrans).

The County maintains an extensive roadway system (approximately 760 miles of roadways and 147 bridges) within the unincorporated area that provides a high level of access compared to the relatively low levels of traffic on most of these roadways. Major County roads typically provide connections to the highway and freeway system. County Roads 98 and 102 are key County roadways carrying more than 5:00 p.m. peak hour trips.

The incorporated cities of Davis, West Sacramento, Winters and Woodland maintain the city streets within their respective jurisdictional areas. The roadway networks within these cities are generally separated into the hierarchical classification system of arterials, collectors, and local streets. Arterial streets carry the highest volume of traffic, collector streets generally connect residential neighborhoods to arterials, and local streets carry low volumes of traffic and comprise the bulk of a cities road network.

Planned Transportation Improvements

The Circulation Element (or equivalent, e.g., Transportation Element, Transportation and Circulation Element) in the General Plans for each of the jurisdictions in the Plan Area (Yolo County, Davis, West Sacramento, Winters, Woodland) provide lists of roadway improvements anticipated to be needed in each jurisdiction. These elements identify a range of improvements including: intersection improvements; road widenings; “smart street” improvements that better balance roadway use between motorized vehicles, transit, bicycles, and pedestrians; added lanes; new roadways; and widening of highway segments under the jurisdiction of Caltrans. Some local roadway improvement plans also include rehabilitation, replacement, or improvement of existing bridges, and construction of new bridges.

The general intent of planned improvements typically includes one or more of the following:

- maintain or improve mobility;
- maintain or improve vehicle flow;
- maintain or improve transportation capacity;
- maintain or improvement transportation safety;
- provide or improve transportation access to a particular location;
- better accommodate multiple transportation modes (cars, transit, bicycles, pedestrians); or
- respond to anticipated future increases in trip volumes.

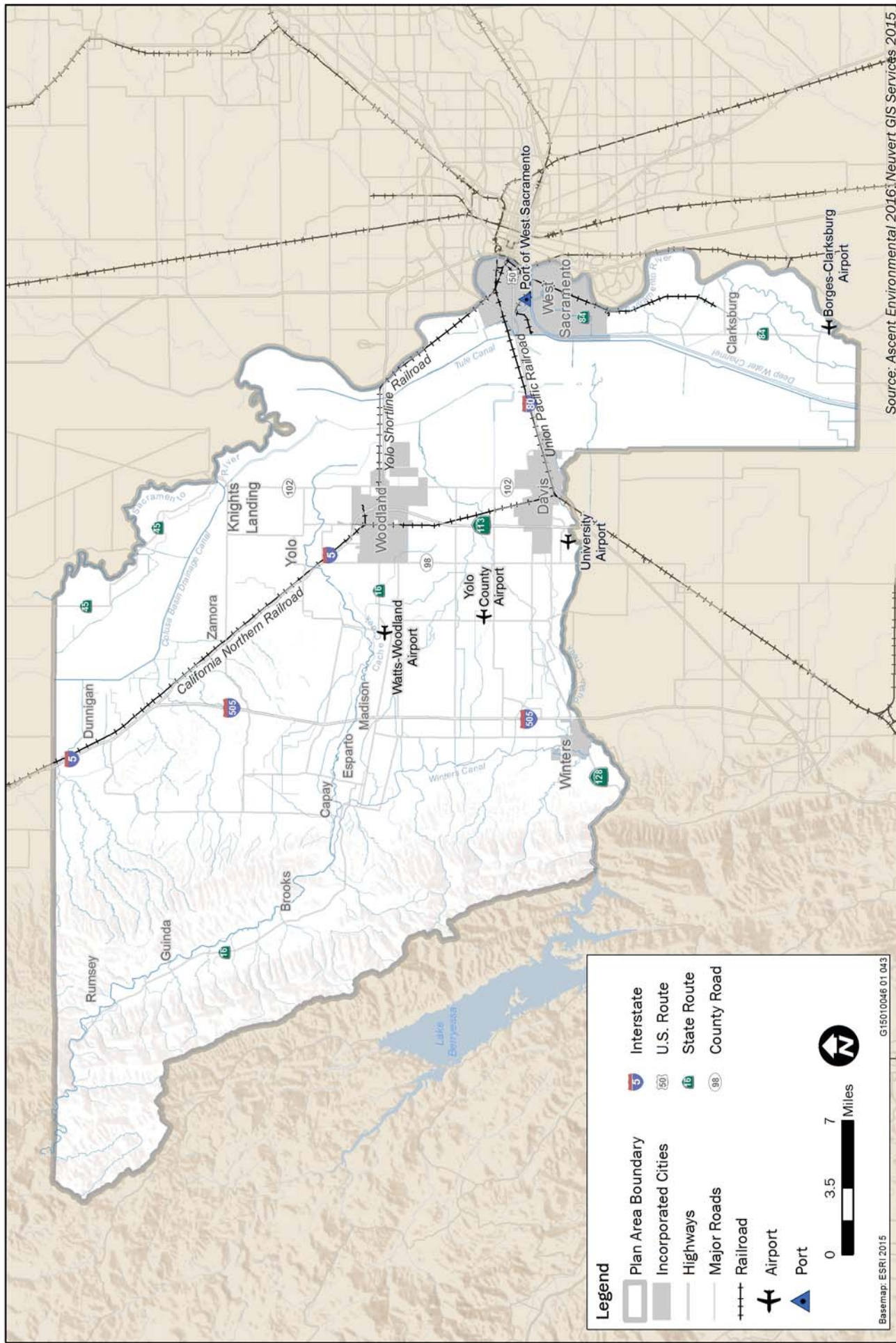


Exhibit 13-1

Transportation Infrastructure in the Plan Area

BICYCLE AND PEDESTRIAN FACILITIES

Bicycle and Pedestrian facilities have been the focus of considerable planning and development in the Plan Area in recent years. SACOG developed the *Regional Bicycle, Pedestrian, and Trails Master Plan* in 2015 (2015 Master Plan) which integrates County and City efforts to improve bicycle and pedestrian access throughout the Sacramento region. Yolo County's *Bicycle Transportation Plan* further refines plans to integrate existing and future local and regional bikeways and trails. Yolo County is a favorable area for bicycling because of its flat terrain, mild climate, and relatively short distance between cities. As a result, bicycles are widely used for commuting in the unincorporated areas and cities within Yolo County.

The City of Davis has long been a proponent of bicycle travel and has an extensive network of bikeways and trails, recently adopting a Bicycle Action Plan (2014) to further expand their system and integrate it with regional trails. The City of Winters has developed a *Bikeway System Master Plan* (2013) that highlights that City's efforts to improve bikeways and integrate trails with the County. The City of West Sacramento has similarly developed a *Bicycle, Pedestrian, and Trails Master Plan* (2013) that will assist that city to meet increased demands for bike commuters into Sacramento as well as recreational trail users. The City of Woodland has developed a *Bicycle Transportation Plan* (2002) to improve bicycle transportation and safety and encourage the use of bicycles as an alternative mode of transportation.

PUBLIC TRANSPORTATION

The Yolo County Transportation District (YCTD) operates YOLOBUS, which offers local fixed routes within Woodland and West Sacramento and intercity routes serving Davis, West Sacramento, Winters, Woodland, downtown Sacramento, Sacramento International Airport, Capay, Dunnigan, Esparto, Madison, Yolo, Knights Landing, Vacaville, and Cache Creek Casino.

YCTD also operates the following curb-to-curb Dial-a-Ride services:

- ▲ local service for persons with disabilities in Woodland;
- ▲ local service and to medical appointments in Sacramento for West Sacramento seniors and persons with disabilities;
- ▲ intercity service between the communities of Winters, Woodland, Davis, West Sacramento, Sacramento International Airport and downtown Sacramento.

Davis Community Transit operates origin-to-destination Dial-a-Ride service for persons with disabilities within the City of Davis.

Commercial bus service is provided by Greyhound through limited service bus stops in Davis and Woodland. These limited service bus stops provide connections to full-service stations located in the San Francisco Bay Area and the greater Sacramento area. Amtrak also provides commercial bus service at the downtown Davis train station.

Yolo Commute provides ridesharing information and programs that operate within Yolo County and to/from surrounding areas.

Yolo County has four park-and-ride facilities: three along I-80 and one near I-505 in the City of Winters.

PASSENGER AND FREIGHT RAIL

Passenger Rail

Amtrak offers daily round-trip train service from the downtown Davis train station to the San Francisco Bay Area and to downtown Sacramento. Trains that stop in Davis include the Coast Starlight (one daily round trip), California Zephyr (one daily round trip), and the Capitol Corridor (15 weekday round trips and 11 weekend round trips). The Capitol Corridor Joint Powers Authority is an intercity passenger train system that provides service between San Jose, Oakland/San Francisco, and Sacramento/Placer County along a 170-mile rail corridor, including stops in Davis.

Freight Rail

Yolo County is served by three freight railways including Union Pacific Railroad, Sierra Northern Railroad, and California Northern. The Union Pacific operates a railroad line connecting Davis to West Sacramento and provides services within the Port of Sacramento. The Sierra Northern Railroad operates a railroad line that runs from West Sacramento to Woodland (approximately 16 miles long) known as the Sacramento River Train. California Northern operates a 110-mile-long railroad line that runs from the City of Davis in Yolo County to the town of Tehama near Red Bluff.

AIR TRANSPORTATION

Yolo County has four general aviation airports:

- ▲ Yolo County Airport: owned and operated by the County, it is located southwest of the City of Woodland. It is the largest airport in the County in terms of runway size at 6,000 feet.
- ▲ Watts-Woodland Airport: privately owned, located west of the City of Woodland.
- ▲ Borges- Clarksburg Airport: privately owned, located north of the town of Clarksburg.
- ▲ University Airport: owned and operated by the University of California at Davis (UC Davis), it is located west of the City of Davis.

General aviation airports can support a variety of aviation operations (e.g., private, corporate, and charter planes; helicopters; flight training; sky diving; agricultural aviation), but do not provide scheduled air services. Regularly scheduled commercial flights are provided at Sacramento International Airport, in Sacramento County, approximately 6 miles east of the City of Woodland.

PORT OF WEST SACRAMENTO

The Port of West Sacramento is located in West Sacramento in the southeast part of Yolo County. Facilities and terminals located at the port include five docking bays, a rail yard that services the port, and commodity handling facilities, including bulk rice and bulk grain elevators, bulk commodities bagging facility, and dry bulk cargo warehousing.

San Francisco Bay is located approximately 79 nautical miles southwest of the Port of West Sacramento. Ship access to the port is provided from San Francisco Bay up the Sacramento River and through the Sacramento Deep Water Ship Channel, a 30-foot-deep human-made canal. This route provides a direct and unrestricted passage to the port.

13.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Transportation Improvement Program

Under 49 U.S.C. 5303(j), each metropolitan planning organization (MPO) (in the Plan Area this is SACOG, which is described further below in the discussion of Local Laws and Regulations) is required to develop a Transportation Improvement Program (TIP)—a list of upcoming transportation projects—covering a period of at least four years. The TIP must be developed in cooperation with the State and public transit providers. The TIP should include capital and non-capital surface transportation projects, bicycle and pedestrian facilities and other transportation enhancements, Federal Lands Highway projects, and safety projects included in the State's Strategic Highway Safety Plan. The TIP should include all regionally significant projects receiving Federal Highway Administration (FHWA) or Federal Transit Authority (FTA) funds, or for which FHWA or FTA approval is required, in addition to non-federally funded projects that are consistent with a Metropolitan Transportation Plan (MTP).

Congestion Management Process

The Safe Accountable Flexible Efficient Transportation Equity Act - A Legacy for the Users (SAFETEA-LU) stipulated the requirement for the use of the Congestion Management Process (CMP) in Transportation Management Areas (TMA). A CMP is required in metropolitan areas with population exceeding 200,000, known as TMAs. Federal requirements also state that in all TMAs, the CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process.

STATE LAWS AND REGULATIONS

Caltrans Route Concept Reports

Caltrans has completed transportation or route concept reports for I-5, I-80, I-505, SR 16, SR 45, SR 84, SR 113, and SR 128. These reports identify long-range improvements and establish the "concept," or desired, LOS for specific corridor segments. These reports identify long-range improvements needed to bring an existing facility up to expected standards needed to adequately serve 20-year traffic forecasts. Additionally, the reports identify the ultimate design concept for conditions beyond the immediate 20-year design period. An overview of each route concept report is provided in pages 231-232 of the Yolo County GP EIR (Yolo County 2009b) incorporated by reference.

LOCAL LAWS AND REGULATIONS

Metropolitan Transportation Plan

SACOG is an association that includes the Counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba, as well as 22 cities, including the Cities of Davis, West Sacramento, Winters, and Woodland. As a metropolitan transportation organization, SACOG is required to prepare a long-range transportation plan for all modes of transportation—including public transit, automobile, bicycles, and pedestrians—every 4 years for the six-county area. In response to this requirement, SACOG has completed the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2035. The purpose of the MTP/SCS 2035 is to establish regional access and identify mobility goals; identify present and future transportation needs, deficiencies, and constraints within the transportation system; analyze potential solutions; estimate available funding; and propose investments. On February 18, 2015, the SACOG Board of Directors adopted the 2016 update to the MTP/SCS.

The Congestion Management Process (CMP) and MTP/SCS are developed as a single integrated document. As part of the MTP/SCS, SACOG's CMP addresses the six-county Sacramento region and the transportation

network therein. The CMP focuses on travel corridors with significant congestion and critical access and mobility needs to identify projects and strategies that meet CMP objectives.

Transportation projects nominated by local agencies are analyzed against community priorities identified through public outreach as well as technical performance and financial constraints. The output of the MTP and CMP is a list of projects with identified lead agencies and completion years, contained in Appendix A-1 of the MTP/SCS. The adopted list and schedule of projects for the MTP/SCS then informs the development of the Metropolitan Transportation Improvement Program (MTIP), described in more detail in Chapter 4 of the MTP/SCS.

Metropolitan Transportation Improvement Program

As the federally designated MPO, SACOG also prepares and adopts the MTIP approximately every two. This federally required program years (see discussion of the TIP above in the section on Federal Laws and Regulations) is a short-term listing of surface transportation projects that receive federal funds, are subject to a federally required action, or are regionally significant. SACOG adopted the 2015/18 MTIP in September 2014 (SACOG 2014). The 2015/18 MTIP covers four years of programming – federal fiscal years 2014-15 through 2017-18. The project listing (Appendix 3) provides a detailed description for each individual project in the 2015/18 MTIP, including those for Yolo County. Programmed 2015/18 MTIP improvement projects in Yolo County include the following:

- ▲ **County Road 31/County Road 95:** Install left-turn lanes
- ▲ **County Road (CR) 27 Complete Streets Road Reconstruction:** CR 27, from CR 98 to CR 99, reconstruct and rehabilitate pavement, and add wider paved shoulders for bicycles, consistent with the rural character of the road.
- ▲ **Yolo Bridge Decks:** In Yolo and Colusa counties, on Routes 5, 80 and 505, at various locations - Rehabilitate bridge decks
- ▲ **Maintenance Overlay near Woodland:** Maintenance and preservation of pavement In Yolo County, from SR 505 in Madison to Pedrick Road.

Regional Bicycle, Pedestrian and Trails Master Plan

SACOG approved the *Regional Bicycle, Pedestrian, and Trails Master Plan* in April 2015. It envisions a complete transportation system that supports healthy living and active communities where bicycling and walking are viable and popular travel choices in a comprehensive, safe, and convenient network. The *Regional Bicycle, Pedestrian, and Trails Master Plan* is intended to guide the long-term decisions for the Bicycle and Pedestrian Funding Program. The projects included in this plan are regionally significant projects that require at least partial regional funding. This plan is not funding-constrained, so it contains at least 20 years' worth of projects.

Yolo County Congestion Management Program

Formerly a local responsibility, and until recently a Yolo County Program, the federal government now requires that TMAs – urbanized areas with a population over 200,000, in this case the Sacramento region – develop and implement a CMP. The federal requirements state that in all TMAs, the CMP shall be developed and implemented as part of the metropolitan planning process.

Yolo County 2030 Countywide General Plan

The Circulation Element of the Yolo County General Plan contains various policies related to transportation potentially relevant to the Plan. A summary of these policies is provided here. The full text of the policies can be found on pages 233-238 of the General Plan.

- ▲ **Policy CI-3.1** pertains to the level of service and sets LOS C as the standard in the unincorporated County. The intent of this policy is to consider level of service as a limit on the capacity of the County's

roadways. In no case shall land use be approved that would either result in worse than LOS C conditions, or require additional improvements to maintain the required level of service, except for a number of exceptions that are listed as part of this policy. Exceptions include sections of I-5, I-80, SR 16, SR 113, SR 128, Old River Road, South River Road, and County Roads 6, 32A, 99W and 102. Additional exceptions to this policy may be allowed by the Board of Supervisors on a case-by-case basis, where reducing the level of service would result in a clear public benefit.

- **Policy CI-3.2** identifies specific level of service policies within Specific Plans and Community Area Plans based on the specific conditions such as: development shall occur consistent with applicable Land Use and Community Character Element policies; development shall provide transit, bike and pedestrian facilities and amenities consistent with the applicable Circulation Element policies; new development shall utilize a grid pattern for local roadways.
- **Policy CI-3.4** defines level of service consistent with the latest edition of the Highway Capacity Manual and calculates level of service using the methodologies contained in that manual. At a minimum, weekday AM and PM peak hour traffic volumes will be used in determining compliance with the level of service standard. For recreational and other non-typical peak hour uses, weekday afternoon, weekday late evening, or weekends shall be considered.
- **Policy CI-3.6** incorporates the concept of “complete” streets which requires more complete consideration of all users of the street. In general it is intended that roadway cross-sections in the County be as narrow as possible (particularly in community areas) while still meeting recommended safety standards, the requirements of the General Plan, and the needs of users (vehicles, bicycles and pedestrians).
- **Policy CI-3.9** specifies that to the greatest feasible extent, the County will require new development to construct safety improvements consistent with current design standards on existing roadways that are anticipated to accommodate additional traffic from planned development.
- **Policy CI-3.11** requires new development to finance and construct all off-site circulation improvements necessary to mitigate a project’s transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).
- **Policy CI-3.12** specifies that the County can collect the fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).
- **Policy CI-3.13** ensures that transportation and circulation improvements (including improvements to comply with County design standards) are constructed and operational prior to or concurrent with the need, to the extent feasible.
- **Policy CI-5.2** involves the creation of a complete bikeway and sidewalk system within each community, including the completion of existing systems. It also creates walkways and bikeways that connect existing paths where feasible, and that connect to grocery stores, parks, and other community features.
- **Policy CI-5.6** establishes a network of off-street multi-purpose trails countywide and encourages their use for commute, recreational and other trips.

Yolo County Bicycle Transportation Plan

The purpose of the *Yolo County Bicycle Transportation Plan* approved in March 2013 is to formulate a long-range, comprehensive, and consistent policy guide for achieving a countywide bikeway network, and list current priorities for bicycle facility development. The plan sets forth goals and policies for bicycle facilities in the unincorporated county in response to identified needs. The plan provides a viable system of bike routes that when constructed will encourage and promote more bicycle riding. Because of the uncertainty of funding, this plan does not contain funding or construction schedules. Specific policies and suggested

actions are described and routes are prioritized as guides for future action. This plan has been reviewed for consistency with bicycle planning documents prepared by the Cities of Davis, West Sacramento, Winters, and Woodland; Solano County; and Sacramento City/County. Specific policies and suggested actions are described and routes are prioritized as guides for future action.

City of Davis General Plan

The City of Davis General Plan contains the following policies related to transportation that are potentially relevant to the Plan:

- ▲ **Policy TRANS 1.1:** Guide the relationship between land use and transportation in Davis by using the Sacramento Area Council of Governments (SACOG) Blueprint Principles.
- ▲ **Policy TRANS 1.2:** Transportation access, accommodations, and circulation should contribute to creating a supportive environment for economic development in the downtown for both residents and visitors.
- ▲ **Policy TRANS 1.3:** Encourage higher intensity residential, commercial, and mixed-use development near existing activity centers and along corridors well served by non-motorized transportation infrastructure and public transportation.
- ▲ **Policy TRANS 2.1:** Provide Complete Streets to meet the needs of drivers, public transportation vehicles and riders, bicyclists, and pedestrians of all ages and abilities in all transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. The City shall view all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in Davis, and recognizes bicycle, pedestrian, fixed-route transit, and demand-response para transit modes as integral elements of the transportation system along with motor vehicles.
- ▲ **Policy TRANS 2.2:** Implement state-of-the-art street design solutions to improve bicycle/pedestrian access, comfort, and safety.
- ▲ **Policy TRANS 2.3:** Apply best practices in sustainability to new streets and redesigns of existing streets/corridors.
- ▲ **Policy TRANS 3.1:** Facilitate the provision of convenient, reliable, safe, and attractive fixed route, commuter, and demand responsive public transportation that meets the needs of the Davis community, including exploring innovative methods to meet specialized transportation needs.
- ▲ **Policy TRANS 3.3:** Require new development to be designed to maximize transit potential.
- ▲ **Policy TRANS 4.2:** Develop a continuous trails and bikeway network for both recreation and transportation that serves the Core¹, neighborhoods, neighborhood shopping centers, employment centers, schools and other institutions; minimize conflicts between pedestrians, bicyclists, equestrians, and automobiles; and minimize impacts on wildlife. Greenbelts and separated bike paths on arterials should serve as the backbone of much of this network.
- ▲ **Policy TRANS 4.3:** Continue to build transportation improvements specifically targeted at bicycles. Refer to Bicycle Plan and Transportation Implementation Plan for list of bicycle-related projects.
- ▲ **Policy TRANS 4.6:** Provide safe and convenient pedestrian access to all areas of the city.

¹ The area covered by the City of Davis Core Area Specific Plan which is bounded on the south by First Street, on the north by Fifth Street, on the west by A Street and on the east by the Southern Pacific Railroad tracks east of G Street except between Third and Fifth Streets where it is bounded by the alley west of I Street and between G and H Streets where it is bounded to the north by Eighth Street.

- ▲ **Policy TRANS 4.7:** Develop a system of trails around the edge of the city and within the city for recreational use and to allow pedestrians and bicyclists to reach open space and natural areas.
- ▲ **Policy TRANS 4.9:** Improve intercity bicycle connectivity with Class I and Class II bicycle facilities between Davis and neighboring communities in Yolo County and Solano County.

2014 City of Davis Bicycle Action Plan

The *City of Davis Beyond Platinum Bicycle Action Plan* is designed to provide a detailed road map for implementing bike programs that will help Davis achieve its long-term emissions reductions and mode share goals. By implementing these strategies, the City will dramatically increase the safety and ease of use of active transportation options throughout Davis. The *Beyond Platinum Bicycle Action Plan* is an active transportation plan that focuses on bicycling as the primary mode, and also integrates walking and transit.

City of West Sacramento General Plan

The Mobility Element of the West Sacramento General Plan contains various policies related to transportation potentially relevant to the HCP/NCCP. The full text of the policies can be found on pages 2-52 through 2-62 of the General Plan.

2013 West Sacramento Bicycle, Pedestrian, and Trails Master Plan

The purpose of the *West Sacramento Bicycle, Pedestrian, and Trails Master Plan* (BPTMP) is to encourage the role of bicycling and walking as viable modes of transportation, and to provide well maintained facilities that promote public use. This document lays out an updated vision of connected bikeways, walkways, and trails that link together neighborhoods, places of employment, shopping centers, parks, and schools. The BPTMP establishes goals, policies, implementation actions, and priorities for the development of bicycling and walking facilities in West Sacramento, as envisioned by the General Plan. Key elements of the BPTMP include maps of existing and proposed bicycle facilities and their proximity to major activity centers. The implementation plan identifies project priorities, locations, improvement descriptions, facility types, and cost estimates and guides development of the proposed improvements.

City of Winters General Plan

The following policies from the *City of Winters General Plan* related to transportation are potentially relevant to the Plan.

- ▲ **Policy III.A.1:** The City shall endeavor to maintain a Level of Service “C” or better.
- ▲ **Policy IIIA.8:** The City shall comply with and implement the programs and policies of the Yolo County Congestion Management Plan (CMP).
- ▲ **Policy IIIA.10:** Street designs should promote pedestrian and bicycle travel and should emphasize safety over travel speed and capacity.
- ▲ **Policy IIIA.15:** The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development pays its share of the costs of circulation improvements.
- ▲ **Policy III.B.2:** The City shall consider assessing development impact fees for capital expenses for increased transit service.
- ▲ **Policy IIIE.1:** The City shall continue to participate in state, regional, and local transportation planning effort to ensure coordination of its transportation improvements with the region’s transportation system.
- ▲ **Policy IILG. I:** The City shall create and maintain a safe and convenient system of pedestrian and bicycle routes that encourages walking or bicycling as an alternative to driving. The pedestrian bicycle system shall connect all residential areas, schools, and shopping and employment areas in the city. The bicycle

system shall favor on-street bike lanes over separated bike paths. New development shall be required to pay its share of the costs for development and maintenance of this system.

- ▲ **Policy III.G.2:** The City shall require installation of sidewalks along all streets in all newly developing area.
- ▲ **Policy III.O.3:** The City shall cooperate with surrounding jurisdictions in designing and implementing an area -wide bikeway system.
- ▲ **Policy III.G.6:** The City shall require inclusion of bicycle parking facilities at all new major public and quasi - public facilities and commercial and employment sites. Major employers shall be encouraged to provide showers and lockers in their facilities to encourage biking.

City of Winters Bikeway System Master Plan

The purpose of the *City of Winters Bikeway System Master Plan* is to formulate a long-range, comprehensive, and consistent policy guidance for creating a citywide connected bikeway network that tends to the needs of its various users in a convenient, safe and inviting way. This Master Plan provides a list of potential projects that create a network of bicycle routes that will encourage and promote bicycling. The overall goal is to identify conceptual projects that will increase bicycle ridership by enhancing the safety of routes, comfort of users, and convenience of bicycle facilities.

City of Woodland General Plan

The *City of Woodland General Plan* contains the following goals and policies related to transportation that are potentially relevant to the Plan.

- ▲ **Policy 3.A.2:** The City shall develop and manage its roadway system to maintain LOS “C” or better on all roadways, except within one-half mile of state or federal highways and freeways and within the Downtown Specific Plan area. In these areas, the City shall strive to maintain LOS “D” or better. Exceptions to these level of service standards may be allowed in infill areas where the City finds that the improvements or other measures required to achieve the LOS standards are unacceptable because of the right-of-way needs, the physical impacts on surrounding properties, and/or the visual aesthetics of the required improvement and its impact on community character.
- ▲ **Policy 3.A.3:** The City shall strive to meet the level of service standards through a balanced transportation system that provides alternatives to the automobile and by promoting pedestrian, bicycle, and transit connections between industrial areas and major residential and commercial areas.
- ▲ **Policy 3.A.4:** The City shall require an analysis of the effects of traffic from proposed major development projects. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share of improvements that provide benefits to others.
- ▲ **Policy 3.A.6:** The City shall assess fees on new development sufficient to cover the fair share portion of that development’s impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits (e.g., low-income housing, primary-wage-earner employment) and alternative sources of funding for the improvements can be obtained to offset foregone revenues.
- ▲ **Policy 3.A.8:** The City shall continue to participate in the countywide Congestion Management Plan.
- ▲ **Policy 3.A.10:** The City shall continue its cooperative participation in the activities and plans of the Sacramento Area Council of Governments and Yolo County Transit Authority.
- ▲ **Policy 3.D.1:** The City shall work with YoloBus to plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand.

- ▲ **Policy 3.D.2:** The City shall consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles.
- ▲ **Policy 3.D.5:** The City shall require new development to provide sheltered public transit stops, with turnouts, where sufficient population or employment concentrations warrant an existing or future bus route.
- ▲ **Policy 3.D.6:** The City shall work with YoloBus to ensure that bus routes serve areas with a large number of persons and that bus shelters are provided to protect individuals from adverse weather conditions.
- ▲ **Policy 3.E.1:** The City shall promote the development of a comprehensive and safe system of recreational and commuter bicycle routes that provide connections between the city's major employment and housing areas, between its existing and planned bikeways, and between schools, parks, retail shopping, and residential neighborhoods.
- ▲ **Policy 3.E.4:** The City shall require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths in new development, as appropriate.
- ▲ **Policy 3.E.7:** The City shall require residential, commercial and industrial developments to include bicycle facilities in accordance with the Bikeway Master Plan.
- ▲ **Policy 3.E.11:** The City shall consider the needs of bicyclists when new roadways are constructed and existing roadways are upgraded.
- ▲ **Policy 3.E.16:** The City shall require new development to provide sufficient right-of-way widths to accommodate bikeways on new collector and arterial streets, as called for in the Bikeway Master Plan, and to install these bikeways.

City of Woodland Bicycle Transportation Plan

The purpose of the *Woodland Bicycle Transportation Plan* is to improve bicycle transportation and safety within the City of Woodland. The plan addresses the use of the bicycle as an alternative mode of transportation and is designed to provide an effective and efficient bicycle transportation network to serve future development planned for within the City's general plan. It is the goal of the *Woodland Bicycle Transportation Plan* to provide a network of bikeways between major activity centers in a safe and convenient fashion. Additionally, it proposes a set of specific policies to help reduce noise and air pollution, traffic and parking congestion, and energy consumption,

13.3 ENVIRONMENTAL CONSEQUENCES

13.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential impacts related to transportation is based on a review of existing transportation facilities and conditions, anticipated future facilities, and transportation-related plans and policies pertaining to the Plan Area described above in Section 13.2.1, *Environmental Setting*, and 13.2.2, *Regulatory Setting*. The analysis does not evaluate specific intersections or roadway segments, but addresses general expectations of traffic generation and associated environmental effects consistent with the Yolo HCP/NCCP county-wide regional planning effort.

The assessment of potential effects on transportation in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action Alternative.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- ▲ conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- ▲ result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- ▲ substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- ▲ result in inadequate emergency access; or
- ▲ conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

ISSUES NOT EVALUATED FURTHER

None of the alternatives would result in changes in location of an airport or include proposed changes in air traffic patterns. Although some development related activities under each alternative could increase demand for air travel (e.g., increased population associated with more homes, increased businesses), this demand would primarily be accommodated by regularly scheduled commercial flights at Sacramento International Airport, a large commercial airport regulated by the Federal Aviation Administration (FAA). Any increase in demand for general aviation services (e.g., additional privately owned planes, use of charter services) would be minimal and would not result in a change in traffic patterns at any of the four Yolo County general aviation

airports that would result in a substantial safety risk. The potential for establishment and management of a habitat reserve system to increase the risk of bird/aircraft strike hazards is addressed in Chapter 19, *Hazards and Hazardous Materials*. Since none of the alternatives considered would result in a change in air traffic patterns that would result in a substantial safety risk, this issue not evaluated further in this chapter.

None of the alternatives includes actions that would limit or adversely affect rail traffic or infrastructure or activities or infrastructure at the Port of West Sacramento. These classes of transportation facilities are not evaluated further.

Agencies with the responsibility for roadway design and operation, including Yolo County; the cities of Davis, West Sacramento, Winters, and Woodland; and Caltrans, all have adopted and enforce roadway design standards (e.g., Yolo County Improvement Standards available at <http://www.engineering.sacounty.net/Pages/ImprovementStandards.aspx>; City of West Sacramento Standard Specification and Details available at <http://www.cityofwestsacramento.org/city/depts/comdev/engineering/specs/default.asp>). These standards address a variety of roadway elements, including safety and hazards. The use and enforcement of these design standards prevents the development of transportation infrastructure that would substantially increase hazards because of a design feature. Therefore, this issue is not evaluated further in this chapter.

13.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban and rural projects and activities under the No Action Alternative would introduce new vehicles onto the regional and local roadway systems, and increase demand for alternative forms of transportation. Large-scale residential or commercial projects would result in the greatest impact to transportation. Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities in the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Depending on the type, volume, and location of new development, and the volume of vehicle trips generated, as well as any changes or improvements to the transportation system in response to increased demands on the system, urban and rural projects and activities could result in degradation of the performance of the circulation system that conflicts with applicable plans, policies, and ordinances; conflicts with applicable congestion management programs or standards; result in inadequate emergency access; or conflicts with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities.

However, regional and local impacts to the transportation network associated with urban and rural development projects, have been anticipated and planned for as part of regional transportation planning efforts (SACOG 2012). These regional transportation planning efforts account for the population growth associated with planned development in the applicable general plans. The impacts of individual urban and rural development projects on the local roadway system would be addressed on the project level through

local studies. Mitigation of traffic impacts would occur as a result of projects implemented by SACOG and its participating municipalities, on the regional level. Additionally, under the No Action Alternative, plans and policies (described above in “Local Laws and Regulations”) to address traffic impacts would continue to be implemented. Development would be subject to approval by the presiding local jurisdiction and would be consistent with the transportation goals and policies of the applicable general plan. The traffic impacts to local roads because of the development and activities detailed above would be addressed by local studies (e.g., CEQA review). As necessary, under No Action Alternative, project applicants would be required to implement mitigation measures to reduce potentially significant and significant transportation impacts.

A wide range of activities are included under the rural public services, infrastructure, and utilities category (see Chapter 2, *Proposed Action and Alternatives*). The traffic impacts associated with many of the activities, such as road and bridge improvements, water and wastewater facilities, energy facilities, and flood control facilities, would be primarily confined to short-term construction impacts as they would not generate large numbers of operations related vehicular trips, thus resulting in minimal long-term transportation effects. Many of the activities, such as road and bridge improvements, bikeways, and multi-use trails would improve the capacity and/or performance of the transportation system. Other planned activities, such as expansion of or improvement to the existing landfills and the Yolo County Airport could potentially generate a greater number of vehicular trips and adversely affect the performance of the circulation system, as well as potentially increase exposure to hazards by introducing a higher percentage of heavy trucks associated with shipping to the local roadway network. However, these projects would be subject to the same plans, policies, regulations, and mitigation requirements identified above for urban and rural projects and activities.

Activities under the agricultural economic development category include relatively large scale crop storage and processing operations. The construction of such facilities could result in short-term construction related transportation impacts, and operation of these facilities would add trucks and employee vehicle trips to the local roadway system. However, these facilities would be located in rural agricultural areas, with low existing traffic volumes on the local roadways. The resulting vehicle and truck trips would be appropriately accommodated by planned improvements on the regional roadway system as already addressed in local general plans and general plan EIRs.

Under the No Action Alternative, development in rural and urban areas within the Plan Area would occur as planned by the plan participants, and would result in the need for expanded and additional public services and utilities infrastructure. New parks would contain facilities to support open space-related activities (e.g., camp sites, picnic areas). Such areas would require supporting infrastructure (e.g., roads, support buildings) and could result in an increase in vehicular trips attributable to operations and maintenance of these areas as well as new trips of users of the open space, park, and recreation land uses. However, these types of facilities typically do not generate large numbers of trips (relative to many urban land uses), and often the highest visitation is during the weekends and other off peak hours. In addition, these projects would be subject to the same plans, policies, regulations, and mitigation requirements identified above for urban and rural projects and activities.

Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county. These activities would typically be of a relatively small scale and would generate minimal amounts of vehicle traffic, such as a single truck or a combination of several trucks and other vehicles. These activities are also temporary and would only generate vehicle trips on a particular location for a limited period of time. Therefore, these activities generally would not result in adverse effects on the performance of the circulation system.

Under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue, thus not altering transportation/traffic conditions in or around the expanded Plan Area.

As the development and other activities described above are implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur,

requiring mitigation. Where mitigation consists of the preservation of lands, this activity would have no impact on transportation given that the land use would remain the same and no new traffic would be generated as a result. Where mitigation also includes the enhancement, restoration, or creation of habitat, these activities have the potential to result in limited transportation impacts. Depending on the specifics of the habitat enhancement/restoration/creation activity, several pieces of heavy equipment and the associated crews may use local roadways. These activities could result in localized, temporary increases in vehicle trips on the local roadway system. However, because of the low number of maintenance vehicles needed for habitat enhancement/restoration/creation activities, and because these activities would be short term, temporary, dispersed throughout various portions of the Plan Area, there would not be substantial adverse effects to the performance of the circulation system.

Protected mitigation lands management could include a variety of activities that generate vehicle trips, such as regular maintenance and monitoring visits. However, these vehicle trips would be infrequent and intermittent, would occur throughout the day, and would not be focused on peak traffic periods.

Cumulative Effects

Past and present development in the region has shaped the existing transportation network of freeways, highways, local arterials roadways, and other local streets. Typically, as development that increases vehicle trips is constructed, projects that increase the capacity of the transportation system are implemented in response. Although significant effort and resources are dedicated to trying to maintain a balance between trip generation and transportation system capacity, there are areas in the County with significant congestion during peak hours, such as portions of I-80, I-5, and some roadways in the incorporated cities. Projects and activities included within the categories of urban and rural development and rural public services, infrastructure, and utilities would continue this trend of some projects generating additional vehicle trips and other projects improving roadway system capacity and performance.

Additional foreseeable future development in the county beyond those activities included under the No Action Alternative would include activities such as solar and wind energy development, Caltrans infrastructure projects, and additional flood control activities. These additional development activities would have similar impacts to transportation as projects under the No Action Alternative, with some activities primarily generating construction trips (e.g., flood control), other also generating some level of operational trips (e.g., solar and wind energy), and others increasing the capacity of the transportation system (e.g., Caltrans infrastructure projects).

To manage transportation and circulation effects attributed to the overall cumulative land development in the region, numerous agencies actively participate in the planning and implementation of improvements to the transportation system. Within the Plan Area, the Cities of Davis, West Sacramento, Winters, and Woodland preside over their respective local roadways, Yolo County manages the transportation network for the unincorporated areas, SACOG heads the regional transportation planning efforts, and Caltrans presides over the state transportation facilities. These agencies have formulated and continue to implement plans for transportation improvements in the Plan Area, and will continue to do so into the future.

This analysis assumes that future development will comply with the policies set forth in city and County General Plans. Additionally, in the 2016 MTP/SCS, SACOG identifies a list of transportation improvement projects to meet the needs of the region's transportation system as a whole. These projects include road and highway capital improvement, transit investments, bike and pedestrian improvements, and system management and operations improvements. Additionally, Caltrans has identified and would implement future projects to improve safety, increase capacity and improve the overall cumulative traffic conditions on state facilities. The continued implementation of the regional transportation planning process currently in place, along with the future Caltrans projects to be implemented, is an effective strategy in reducing cumulative transportation impacts under the No Action Alternative. However, even with these actions, the cumulative outcome would continue to be an overall increase in intensity of congestion and in the number of intersections and roadway segments experiencing congestion.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Transportation impacts as a result of these activities would be the same as described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. However, the primary result of the neighboring landowner protection program, from a transportation perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Since the program would not change conditions related to transportation (e.g., trips generated, safety, bicycle and pedestrian access), it would not have an effect relative to this issue area and is not evaluated further in the impact discussions below.

Effect TRAN-1: Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

Implementation of the Yolo HCP/NCCP and associated conservation strategy would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks. Where these activities consist of the continuation of existing agricultural operations and the preservation of existing open space, they would have no impact on transportation given that the land use would remain the same and no new traffic would be generated as a result. The enhancement, restoration, or creation of habitat included as part of the Plan's conservation strategy has the potential to result in limited transportation impacts. Depending on the specifics of the habitat enhancement/restoration/creation, several pieces of heavy equipment and the associated crews may use local roadways. These activities could result in localized, temporary increases in vehicle trips on the local roadway system. However, because of the low number of maintenance vehicles needed for these activities, and because these activities would be short term, temporary, and dispersed throughout various portions of the Plan Area, there would not be substantial adverse effects to the performance of the circulation system.

Reserve management could include a variety of activities that generate vehicle trips, such as regular maintenance and monitoring visits. However, these vehicle trips would be infrequent and intermittent, would occur throughout the day, and would not be focused on peak traffic periods. Trips associated with reserve management could be less under the Proposed Action Alternative compared to the No Action Alternative because under the No Action Alternative it is assumed that multiple entities would be establishing and managing reserve system lands as mitigation for individual projects is implemented on a project by project basis. Under the Proposed Action Alternative, a single entity would be overseeing management of the overall preserve system, potentially allowing for consolidation of trips to various reserve system lands and an overall reduction in vehicle miles travelled.

Overall, implementation of the conservation strategy included in the Proposed Action Alternative would generate a very limited number of vehicle trips that would be dispersed over various locations and various times. This minor increase in trips would not be sufficient to result in a conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. This same conclusion applies to the implementation of habitat mitigation under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in an increase in trips that would conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect TRAN-2: Conflict with an applicable congestion management program.

For the same reasons described above for Effect TRAN-1, implementation of the Yolo HCP/NCCP and associated conservation strategy would not add sufficient vehicle trips to the roadway system to result in a conflict with an applicable congestion management program. This same conclusion applies to the implementation of habitat mitigation under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action would not result in significant adverse effects that would conflict with an applicable congestion management program.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect TRAN-3: Result in a substantial increase in hazards because of incompatible uses.

Where implementation of the Yolo HCP/NCCP conservation strategy consists of the continuation of existing agricultural operations and the preservation of existing open space, these activities would have no impact on transportation given that the land use would remain the same and no new traffic, or traffic hazards, would be generated as a result. Habitat enhancement/restoration/creation within the reserve system could generate a limited number of heavy truck and other maintenance related trips. The limited number of truck trips would not result in a substantial change in traffic patterns or in the types of vehicles found on local roadways because the activities generating the additional truck trips would be geographically and temporally dispersed and would be of relatively short duration. It is common for roadways to be used on a temporary and infrequent basis for the transport of reserve maintenance materials and equipment and this is not an unusual occurrence generating a particular traffic hazard. In addition, habitat enhancement/restoration/creation activities are likely to be implemented in rural or lightly developed areas where conditions are suitable for the long-term ecological success of reserve system lands. Existing traffic volumes in these areas would be limited, further reducing the potential for the transport materials and equipment to result in conflicts with existing traffic and potential hazards. This same conclusion applies to the implementation of habitat mitigation under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action would not result in a substantial in a substantial increase in hazards because of incompatible uses.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect TRAN-4: Result in inadequate emergency access.

For the reasons described above in Effects TRAN-1 and TRAN-3, implementation of the Yolo HCP/NCCP and associated conservation strategy would not add sufficient vehicle trips, or otherwise obstruct roadways in a

manner that would result in inadequate emergency access. There would also be no temporary road closures or other activities in roadways that could obstruct emergency vehicles. Similar to the No Action Alternative, transportation infrastructure improvements are considered covered activities within the Proposed Action Alternative and to be developed according to adopted plans. Therefore, the Proposed Action Alternative would not adversely affect emergency access. This same conclusion applies to the implementation of habitat mitigation under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action would not result in inadequate emergency access.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect TRAN-5: Conflict with adopted policies, plans, or programs supporting public transit, bicycle or pedestrian facilities.

For the reasons described above in Effects TRAN-1 and TRAN-3, implementation of the Yolo HCP/NCCP and associated conservation strategy would not add sufficient vehicle trips, or otherwise obstruct or disrupt transportation rights of way in a manner that would conflict with public transit, bicycle, or pedestrian facilities that might be present in the vicinity of reserve system lands. The establishment of reserves would not conflict with any existing public transit, bicycle, or pedestrian facilities as it would be cost prohibitive to establish reserves that required the relocation or replacement of these facilities. There are no plans to place reserves in locations where public transit, bicycle, or pedestrian facilities are currently planned by local jurisdictions. Therefore, the Proposed Action Alternative would not conflict with adopted policies, plans, or programs supporting public transit, bicycle or pedestrian facilities. This same conclusion applies to the implementation of habitat mitigation under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action would not result in significant adverse effects that would conflict with adopted policies, plans, or programs supporting public transit, bicycle or pedestrian facilities.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

As described above for individual impacts, the contribution of the Proposed Action Alternative to the cumulative traffic condition would be minimal and implementation of the alternative would not result in conflicts with transportation related plans, ordinance, or policies. Therefore, implementation of the Proposed Action Alternative would not result in a considerable adverse contribution to the combined effects of past, current, and probable future projects on transportation. The Proposed Action Alternative would make roughly an equivalent contribution to a significant cumulative impact compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of development related activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative where activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

If the prohibition on take of covered species in the eight designated areas resulted in less overall vehicle trip generating development in the Plan Area, transportation impacts from the take associated with development related activities could be slightly less under the Reduced Take Alternative. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new location were farther from development centers, this could result in more frequent and longer vehicle trips and an increase in transportation impacts from the take associated with development related activities.

The Reduced Take Alternative includes implementation of the Yolo HCP/NCCP and associated conservation strategy and AMMs; however, with reduced take, there would also be reduced mitigation requirements compared to the Proposed Action Alternative. Therefore, there would be incrementally less overall preservation and habitat enhancement and establishment/re-establishment activities in the Plan Area. This would reduce the transportation impacts associated with habitat establishment/re-establishment activities necessitating the use of maintenance equipment and adding additional reserve maintenance related trips to the local roadway network. Additionally, the incremental reduction in overall preservation would slightly reduce the number of trips associated with reserve system management and operations, as well as the trips generated by recreational and education uses within the reserve system. However, the trip generation and associated transportation impacts from implementation of the conservation strategy are minimal; therefore, a further reduction would not make a change to the level of effect.

Overall, under the Reduced Take Alternative, Effects TRAN-1 through TRAN-5 would not be appreciably different from what is described for the Proposed Action Alternative or No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on transportation under the Reduced Take Alternative are not appreciably different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Take Alternative, like the Proposed Action Alternative, would not result in a considerable adverse contribution to a significant cumulative impact on transportation.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of development related activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP and therefore could not be provided incidental take authorization through the Plan. Any development that resulted in take of listed species in these locations would be required to obtain FESA and CESA authorization on a project by project basis (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Impacts related to transportation as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. Because the two areas that would not be covered by the HCP/NCCP could still be developed, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Although any development in the two identified areas would not be covered activities under the HCP/NCCP, mitigation for effects on covered species would still be required, which would likely result in some level of habitat reserve establishment.

Overall, under the Reduced Development Alternative, Effects TRAN-1 through TRAN-5 would not be appreciably different from what is described for the Proposed Action Alternative or No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on transportation under the Reduced Development Alternative are not appreciably different from those described for the Proposed Action Alternative. Therefore, implementation of the Reduced Development Alternative, like the Proposed Action Alternative, would not result in a considerable adverse contribution to a significant cumulative impact on transportation.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

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14 NOISE

14.1 INTRODUCTION

This chapter provides information relevant noise (and vibration) impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

14.1.1 Data Sources

Key sources of information used for this chapter include the following:

- ▲ FHWA roadway construction noise model user's guide (Federal Highway Administration [FTA] 2006);
- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County 2009);
- ▲ *City of Davis General Plan* (City of Davis 2007);
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016);
- ▲ *City of Winters General Plan* (City of Winters 1992);
- ▲ *City of Woodland General Plan* (City of Woodland 1996); and
- ▲ Yolo County and the Cities of Davis, West Sacramento, Winters, and Woodland Municipal Codes.

14.1.2 Definitions

Brief definitions of noise terminology used in this analysis are listed below.

Sound is a vibratory disturbance created by a vibrating object that, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism such as the human ear or a microphone.

Noise is sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Ambient noise is the composite of noise from all sources near and far in a given environment exclusive of particular noise sources to be measured.

Vibration is the periodic oscillation of a medium or object with respect to a given reference point.

A *decibel (dB)* is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-Pascals.

A-weighted decibel (dBA) is the overall frequency-weighted sound level in dB that approximates the frequency response of the human ear.

The *day-night level (L_{dn})* is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10 p.m. to 7 a.m.

The *community noise equivalent level (CNEL)* is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring during the period from 7 p.m. to 10 p.m., and 10 dB added for the period from 10 p.m. to 7 a.m.

Maximum sound level (L_{max}) is the maximum sound level measured during a measurement period.

Minimum sound level (L_{min}) is the minimum sound level measured during a measurement period.

Equivalent sound level (L_{eq}) is the equivalent steady-state sound level that, in a stated period of time, would contain the same acoustical energy as the time-varying noise level during the same period (i.e., average noise level).

Percentile-exceeded sound level (L_x) is the sound level exceeded “x” percent of a specific time period. For example, L_{10} is the sound level exceeded 10 percent of the time.

Sensitive receptors are land uses where people reside or locations where the presence of unwanted noise could adversely affect the use of the land. Noise-sensitive land uses are defined in the Yolo County General Plan as residentially designated land uses; hospitals, nursing/convalescent homes, and similar board and care facilities; hotels and lodging; schools and day care centers; and neighborhood parks (Yolo County 2009). Noise-sensitive land uses occur throughout the Plan Area.

In typical environments (i.e., outside a laboratory), changes in noise of 1–2 dBA are generally not perceptible to the human ear. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dBA in typical acoustical environments. Further, a 5-dBA increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase or decrease in sound level is perceived as a doubling or halving of sound level (California Department of Transportation [Caltrans] 2011:6).

14.2 AFFECTED ENVIRONMENT

14.2.1 Environmental Setting

The dominant sources of ambient noise in Yolo County and the cities are mobile, including automobile and truck traffic, aircraft, and train transportation. The predominant stationary sources of noise in the cities include residential subdivisions, commercial and industrial facilities, and construction activities. Stationary sources within the unincorporated county include farming and mining activities.

FREEWAYS AND ARTERIAL ROADWAYS

Ambient noise from freeways and roads can be significant contributors to the noise environment in the vicinity of these transportation facilities. The Plan Area contains three Interstate routes (I-5, I-80, and I-505). A segment of United States Highway (U.S.) 50 is located in West Sacramento and provides a connection from I-80 to downtown Sacramento. State highways in the County include freeways, expressways, and conventional highways, which are operated and maintained by Caltrans: State Route (SR) 16, SR 45, SR 84, SR 113 and SR 128. A map of transportation facilities in the Plan Area can be found in Chapter 13, *Transportation*, as shown in Exhibit 13-1.

In addition to the freeways and highways, a number of arterials and County roads are heavily traveled and generate relatively high noise levels along some or all of their length (Yolo County 2009).

AIRCRAFT

Aircraft operations in the vicinity of airports can be a significant source of noise. There are four airports located within Yolo County (Exhibit 13-1). The Yolo County Airport is located about six miles from Davis, Winters, and Woodland. The Watts-Woodland Airport is located approximately 5 miles west of Woodland. The University Airport is located two miles south of Davis. The Borges-Clarksburg Airport is located north of Clarksburg and is located on privately-owned property. In addition to these four airports, aircraft activity associated with the

Sacramento International Airport exposes some areas of Yolo County to noise. This airport is located in Sacramento County approximately one mile east of the Yolo County line (Yolo County 2009).

RAILROADS

Three railroads travel through Yolo County (Exhibit 13-1). The Union Pacific Railroad (UPRR) maintains a rail line that runs through Yolo County from West Sacramento to Davis. Approximately 35 daily freight trains and 31 passenger trains pass along this line each day (Yolo County 2009; Amtrak 2015). The estimated combined railroad noise level at 100 feet from the railroad centerline is approximately 89 dBA L_{dn} (Yolo County 2009).

The California Northern rail line is a freight line that runs through Davis and Woodland, and along I-5 past Dunnigan. The rail line carries an average of two trains daily. The estimated railroad noise level at 100 feet from the railroad centerline is 45 dBA L_{dn} (Yolo County 2009).

The Sacramento River Train is operated by the Sierra Northern Railroad Company that runs freight trains and an entertainment passenger train from Woodland to West Sacramento on the Yolo Shortline Railroad. Typically, one round trip runs per day. The estimated railroad noise level at 100 feet from the railroad centerline is approximately 44 dBA L_{dn} (Yolo County 2009).

POINT SOURCES

Point sources of noise in Yolo County include farming activities, mining activities, commercial/industrial facilities and plants, and construction sites (Yolo County 2009).

14.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

Noise Control Act of 1972

The federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. The U.S. Environmental Protection Agency (EPA) was given the responsibility for:

- ▲ providing information to the public regarding identifiable effects of noise on public health and welfare,
- ▲ publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety,
- ▲ coordinating federal research and activities related to noise control, and
- ▲ establishing federal noise emission standards for selected products distributed in interstate commerce.

U.S. Environmental Protection Agency

In 1974, in response to the requirements of the federal Noise Control Act, EPA identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor L_{dn} limits of 55 dB and indoor L_{dn} limits of 45 dB were identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas included a 24-hour L_{eq} value of 70 dB (both outdoors and indoors).

The Noise Control Act also directed all federal agencies to comply with applicable federal, State, interstate, and local noise control regulations. Although EPA was given a major role in disseminating information to the public and coordinating federal agencies, each federal agency retains authority to adopt noise regulations

pertaining to agency programs. EPA can, however, require other federal agencies to justify their noise regulations in terms of Noise Control Act policy requirements. Key federal agencies that have adopted noise regulations and standards include:

- ▲ Housing and Urban Development (HUD): Noise standards for federally funded housing projects
- ▲ Federal Aviation Administration (FAA): Noise standards for aircraft noise
- ▲ Federal Highway Administration (FHWA): Noise standards for federally funded highway projects
- ▲ Federal Transit Administration (FTA): Noise standards for federally funded transit projects
- ▲ Federal Railroad Administration (FRA): Noise standards for federally funded rail projects

Federal Highway Administration

The FHWA has developed methods for evaluating construction noise. FHWA methods are discussed in the document entitled “Roadway Noise Construction Model User’s Guide” (FHWA 2006.) FHWA does not recommend specific noise level criteria for construction-type activities.

Federal Transit Administration

The FTA has developed methods for evaluating construction noise. FTA methods are discussed in the document entitled “Transit Noise and Vibration Impact Assessment” (FTA 2006.) The FTA Noise Impact Criteria categorizes noise sensitive land uses into the following:

- ▲ **Category 1:** Buildings or parks where quiet is an essential element of their purpose.
- ▲ **Category 2:** Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost important.
- ▲ **Category 3:** Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

In addition, FTA recommends the following noise criteria for residential uses exposed to construction noise:

Table 14-1 FTA Recommended Construction Noise Criteria for Residential Uses

One-hour L_{eq} (day)	One-hour L_{eq} (night)	8-hour L_{eq} (day)	8-hour L_{eq} (night)	L_{dn} (30-day average)
90	80	80	70	75

Note: All values are A-weighted decibels. Day: 7:00 a.m. to 10:00 p.m. Night: 10:00 to 7:00 a.m.

Source: FTA 2006

Federal Railroad Administration

The FRA noise standards are the same as those specified by FTA.

STATE LAWS AND REGULATIONS

California requires each local government to implement a noise element as part of its general plan. California Administrative Code, Title 4, has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure.

Title 24 of the California Code of Regulations

California’s noise insulation standards became effective in 1974. In 1988, the Building Standards Commission approved revisions to these standards (Title 24, Part 2, California Code of Regulations). The ruling established that interior noise levels attributable to exterior sources shall not exceed 45 dBA in any habitable room. The noise metric is measured in either CNEL and L_{dn} , consistent with the noise element of the local general plan. The commission also specifies that residential buildings or structures proposed to be located within exterior L_{dn} contours of 60 dBA or greater, generated by an existing or planned freeway,

expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior L_{dn} of 45 dBA.

State Office of Noise Control Guidelines

The State Office of Noise Control has developed guidelines showing the compatibility of a range of noise levels for various land use categories. The noise standards are intended to provide guidelines for the development of noise elements. These basic guidelines may be tailored to reflect the existing noise and land use characteristics of a particular community. The Noise Compatibility Guidelines in Table 14-2 show the exterior noise standards recommended by the State for new development projects according to land use.

Table 14-2 State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (db)						
	50	55	60	65	70	75	80
Residential - Low-Density Single Family, Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging - Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							
Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.						
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.						
Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.						
Clearly Unacceptable	New construction or development generally should not be undertaken.						

Source: California Governor's Office of Planning and Research 2003

Traffic Noise Analysis Protocol

In May 2011, Caltrans adopted the Traffic Noise Analysis Protocol (Protocol) for New Highway Construction, Reconstruction, and Retrofit Barrier Projects pursuant to Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772). The Protocol applies to any highway projects or multimodal project that: 1) require FHWA approval regardless of funding sources, or 2) is funded with federal-aid highway funds. Application of the Protocol and the procedures it provides ensures compliance with FHWA noise standards (Caltrans 2011).

LOCAL LAWS AND REGULATIONS

Yolo County General Plan

The Yolo County General Plan (2009) Health and Safety Element identifies noise sources such as roadways, rails, and airports within the County. The noise sub-element of the Health and Safety Element contains the following policies that may pertain to the Plan:

- ▲ **Policy HS-7.1:** Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds, and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan, these greater noise levels are acknowledged and accepted
- ▲ **Policy HS-7.2:** Ensure the compatibility of permitted land use activities within the Primary Delta Zone with applicable noise policies of the Land Use and Resource Management Plan of the Delta Protection Commission.
- ▲ **Policy HS-7.3:** Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.
- ▲ **Policy HS-7.4:** For proposed new discretionary development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, greater exterior noise levels may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.
- ▲ **Policy HS-7.5:** Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.
- ▲ **Policy HS-7.7:** Encourage railroad companies to adopt operational strategies that reduce the potential for noise and interrupted traffic flow.
- ▲ **Policy HS-7.8:** Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization or retrofits, use of alternative fuel vehicles and installation of mufflers or other noise reducing equipment.

Yolo County Code

Title 6 of the Yolo County Code, "Sanitation and Health," Chapter 1, Section 6-1.403 prohibits owners from permitting their animals, except domestic cats, from habitually making loud noises, which constitutes a public nuisance. Title 8, "Land Development and Zoning," Chapter 2, Section 8-2.1602 describes the uses permitted within the M-1 and M-2 zoning areas provided the use is consistent with the intent of the zoning area and not objectionable by reason of adverse noise. Title 10, "Cache Creek Area Plan In-Channel Maintenance Mining Ordinance," Chapter 3, Section 10-3.411 establishes noise thresholds of an average L_{eq} of 80 dBA measured at the outermost boundaries of parcels being excavated. For parcels located near residences or other sensitive receptors, noise levels may not exceed an average L_{eq} of 60 dBA, except in cases of emergency.

City of Davis General Plan

The City of Davis General Plan (2007) Community Safety Element identifies major noise sources in the area. These include roadway noise from I-80, SR 113, and arterial streets; railroad noise from Union Pacific and California Northern Railroad; airport noise from the University of California, Davis Airport; and stationary sources such as industrial and agricultural operations near sensitive receptors. The noise sub-element of the Community Safety Element contains the following policies that may be relevant to the Plan:

- ▲ **Policy NOISE 1.1:** Minimize vehicular and stationary noise sources, and noise emanating from temporary activities.
- ▲ **Policy NOISE 1.2:** Discourage the use of sound walls whenever alternative mitigation measures are feasible, while also facilitating the construction of sound walls where desired by the neighborhood and there is no other way to reduce noise to acceptable exterior levels shown in Table 19.
- ▲ **Policy NOISE 1.3:** Develop and implement procedures for the accurate measurement and prediction of noise levels in Davis.
- ▲ **Policy NOISE 1.4:** Take a proactive role in State law-making regarding noise regulation.

Tables 14-3 and 14-4 show the interior and exterior noise levels set forth in Chapter 21, "Noise," of the City of Davis's General Plan.

Table 14-3 City of Davis Interior Noise Level Standards

Land Use	Noise Level (L_{dn} or CNEL dBA)
Residences, schools through grade 12, and churches	45
Offices	55

Source: City of Davis 2007.

Table 14-4 City of Davis Standards for Exterior Noise Exposure

Land Use	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential	Under 60	60-70*	70-75	Above 75
Transient Lodging-Motels, Hotels	Under 60	60-75	75-80	Above 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Under 60	60-70	70-80	Above 80
Auditoriums, Concert Halls, Amphitheaters	Under 50	50-70	N/A	Above 70
Sports Arenas, Outdoor Spectator Sports	N/A	Under 75	N/A	Above 75
Playgrounds, Neighborhood Parks	Under 70	N/A	70-75	Above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Under 70	N/A	70-80	Above 80
Office Buildings, Business Commercial and Professional	Under 65	65-75	Above 75	N/A
Industrial, Manufacturing, Utilities, Agriculture	Under 65	70-80	Above 80	N/A

Source: City of Davis 2007

City of Davis Municipal Code

Section 24.02.030 of the City of Davis's Municipal Code states that no person shall produce, suffer or allow to be produced in any location a noise level of more than 20 dBA above the limit, but not greater than 80 dBA, on Table 14-5 measured at the property plane.

Table 14-5 City of Davis Maximum Noise Levels by Land Use

Land Use	Time	Maximum Noise Levels (dBA)
Residential	9:00 a.m. to 7:00 a.m.	50
	7:00 a.m. to 9:00 p.m.	55
Commercial/Industrial/Corp Commercial	10:00 p.m. to 7:00 a.m.	55
	7:00 a.m. to 10:00 p.m.	60
High Noise Traffic Corridor	Anytime	65

City of West Sacramento General Plan

The criteria for evaluating noise impacts in the City of West Sacramento are set forth in the Safety Element of the City of West Sacramento General Plan (2016). The City of West Sacramento General Plan contains the following goals and policies that relate to noise that may be applicable to the analysis of the HCP/NCCP:

Safety Element

Goal S-7. To protect city residents from the harmful effects of excessive noise and vibration.

- Policy S-7.7. Design Mitigation Measures.** The City shall require new development to use site planning and project design to mitigate noise impacts to achieve the standards of Tables S-7.1 (Table 14-6) and S-7.3 (Table 14-7). The use of noise barriers shall be used to achieve the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

Table 14-6 Noise Compatibility Standards

	Land Use	Exterior Noise Level Standard for Outdoor Activity Areas ^a	Interior Noise Level Standard
	L _{dn} /C _{NEL} , dB	L _{dn} /C _{NEL} , dB	Leq, dB _b
Residential (Low Density Residential, Duplex, Mobile Homes)	60 ^c	45	N/A
Residential (Multi Family)	65 ^d	45	N/A
Transient Lodging (Motels/Hotels)	65 ^d	45	N/A
Mixed-Use Developments	70	45	N/A
Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums	70	45	N/A
Theaters, Auditoriums	70	N/A	35
Playgrounds, Neighborhood Parks	70	N/A	N/A
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	N/A
Office Buildings, Business Commercial and Professional	70	N/A	45
Industrial, Manufacturing, Utilities, and Agriculture	75	N/A	45

a. Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multi-family development.

Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas.

Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.

b. As determined for a typical worst-case hour during periods of use.

c. Where it is not possible to reduce noise in outdoor activity areas to 60 dB, L_{dn}/C_{NEL} or less using a practical application of the best-available noise reduction measures, an exterior level of up to 65 dB, L_{dn}/C_{NEL} may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

d. Where it is not possible to reduce noise in outdoor activity areas to 65 dB, L_{dn}/C_{NEL} or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, L_{dn}/C_{NEL} may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Community Development Department.

Table 14-7 Noise Level Standards from Stationary Sources

Noise Level Descriptor	Daytime (7:00 A.M. to 10:00 P.M.)	Night-time (10:00 P.M. to 7:00 A.M.)
Hourly L_{eq} , dB	55	45
Maximum level, dB	70	65

Noise levels are measured at the property line of the noise-sensitive use.

City of West Sacramento Municipal Code

The City of West Sacramento's noise level performance standards are contained in Section 17.32.030 of the City's municipal code. These performance standards are found in Table II-4 and Table II-6, and are identical to noise standards established in the General Plan Health and Safety Element (Table 14-8, respectively).

Table 14-8 City of West Sacramento Maximum Allowable Noise Exposure for Transportation Noise Sources (Table II-6 of the City of West Sacramento General Plan)

Land Uses	Outdoor Activity Areas L_{dn} /CNEL, dBA	Interior Spaces	
		L_{dn} /CNEL, dBA	L_{eq} , dBA
Residential	60	45	-
Transient Lodging	60	45	-
Hospitals, nursing homes	60	45	-
Theatres, auditoriums, music halls	-	-	35
Churches, meeting halls	60	-	40
Office Buildings	-	-	45
Schools libraries, museums	-	-	45
Playgrounds, neighborhood parks	70	-	45

Note:

1. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
2. As determined for a typical worst-case hour during period of use.
3. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} /CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} /CNEL may be allowed, provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this table. An exterior noise level of 70 dB L_{dn} /CNEL shall be allowed in the Triangle Specific Plan area and the Washington Specific Plan Area.

Source: City of West Sacramento 2004

City of Winters General Plan

The City of Winters General Plan (1994) Health and Safety Element contains the following goals and policies that may be relevant to the Plan.

- ▲ **Policy VII.E.1:** The City shall evaluate the compatibility of various land uses with nearby noise sources.
- ▲ **Policy VII.E.2:** The City shall require new residential development to comply with applicable provisions of the California State Noise Insulation Standards and the Uniform Building Code, and updates thereof.
- ▲ **Policy VII.E.3:** L_{dn} values above 45 dBA due to exterior noise sources shall be prohibited inside habitable rooms of all new dwellings.

- ▲ **Policy VII.E.4:** Non-transportation noise sources which are potentially intrusive shall be evaluated in terms of the noise level limits in Tables II-4 (Table 14-9) and II-5 (Table 14-10).
- ▲ **Policy VII.E.5:** The City shall require preparation of a noise study for all residential projects proposed in areas where L_{dn} levels exceed 60 dBA according to the contour locations [identified in the general plan].
- ▲ **Policy VII.E.6:** Any project that would cause existing traffic-related noise levels in existing residential area to increase more than 3 dBA shall be required to evaluate the feasibility of noise mitigation measures.
- ▲ **Policy VII.E.7:** The City may also require preparation of a noise study when L_{dn} standards are met or inapplicable, but 1) a potentially intrusive noise source is proposed near a noise sensitive area, or 2) a noise sensitive land use is proposed near a potentially intrusive noise source.
- ▲ **Policy VII.E.8:** Required noise studies shall be the responsibility of the project applicant, and shall be consistent with the State guidelines for noise study reports.
- ▲ **Policy VII.E.9:** The City shall encourage county, State, and federal agencies to actively enforce regulations dealing with noise.
- ▲ **Policy VII.E.10:** Vehicles and other equipment operated by or on behalf of the City shall comply with all applicable noise performance standards. Noise emission shall be a consideration in the purchase of any new equipment or vehicles.
- ▲ **Policy VII.E.12:** Deviations from City noise standards may be approved only in extreme and/or unusual circumstances. Deviations from the California State Noise Insulation Standards shall not be permitted.

City of Winters Municipal Code

The City of Winters Municipal Code section 8.20 contains limits for interior and exterior noise. These limits are described in Tables 14-9 and 14-10 below, respectively.

Table 14-9 City of Winters Interior Noise Level Standards

Type of Zone	Time Interval	Allowable Interior Noise Level (dBA)
Any Residential Zone	7:00 a.m. to 7:00 p.m.	45
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	35

Table 14-10 City of Winters Exterior Noise Level Standards

Type of Zone	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Rural (OS)	50	40
Residential	50	45
Parks and Recreation (P-R)	50	45
Commercial (C-1, C-2, NC, CH, CS)	63	45
Manufacturing/industrial (M-1, M-2, PI)	73	70

Construction noise is exempt in the City of Winters between the weekday hours of 7:00 a.m. and 7:00 p.m.

City of Woodland General Plan

The City of Woodland's General Plan (1996) Health and Safety Element has policies to protect noise-sensitive uses from excessive noise. Noise level performance standards are described in Table 14-11. The following goals and policies may be relevant to the Plan.

- ▲ **Policy 8.G.1:** The City shall prohibit development of new noise-sensitive uses where the noise level due to non-transportation noise sources will exceed the noise level standard of Table 8-1 [Table 14-11] as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards set out in Table 8-1 [Table 14-11].
- ▲ **Policy 8.G.2:** The City shall require that noise created by new non-transportation sources be mitigated so as not to exceed the noise level standard of Table 8-1 [Table 14-11] as measured immediately within the property line of lands designated for noise-sensitive users.
- ▲ **Policy 8.G.4:** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 8-1 [Table 14-11] at existing or planned noise-sensitive uses, the City shall require an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design.
- ▲ **Policy 8.G.5:** The City shall evaluate the general feasibility of proposed projects with respect to existing and future transportation noise levels.
- ▲ **Policy 8.G.6:** The City shall prohibit new development of noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels set out in Table 8-2, unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels set out in Table 8-2 [Table 14-12]. Exceptions to this standard will be permitted within the Southeast Area Specific Plan Area, where a 5 dB increase in outdoor activity areas will be permitted.

Table 14-11 City of Woodland Noise Level Performance Standards (Table 8-1 of the City of Woodland General Plan)

New Projects Affected by or Including Non-transportation Sources*		
Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq} , dB	50	45
Maximum Level, dB	70	65

Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

* For the purposes of compliance with the provisions of this section, the City defines transportation noise sources as traffic on public roadways, railroad line operations, and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, and loading docks.

Source: City of Woodland 1996.

Table 14-12 City of Woodland Maximum Allowable Noise Exposure from Transportation Noise Sources (Table 8-2 of the City of Woodland General Plan)

Land Uses	Outdoor Activity Areas L _{dn} /CNEL, dBA	Interior Spaces	
		L _{dn} /CNEL, dBA	L _{eq} , dBA
Residential	60	45	-
Transient Lodging	60	45	-
Hospitals, nursing homes	60	45	-
Theatres, auditoriums, music halls	-	-	35
Churches, meeting halls	60	-	40
Office Buildings	-	-	45
Schools libraries, museums	-	-	45
Playgrounds, neighborhood parks	70	-	-

Note:

1. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB L_{dn} shall be applied at the building façade, in addition to a 60 dB L_{dn} criterion at the outdoor activity area.
2. As determined for a typical worst-case hour during period of use.
3. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed, provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this table.

Source: City of Woodland 1996

City of Woodland Municipal Code

Section 15-26, "Noise Ordinance," of the City of Woodland Municipal Code identified noises that may annoy, disturb, injure, or endanger the comfort, repose, health, peace, or safety of others, and indicates hours wherein such noises must be prohibited. These include, but are not limited to, motor noises, yelling and shouting, blowers, power tools, and pets. The Code also contains Construction Noise Guidelines which establishes acceptable hours for construction activity to be performed. Construction is allowable Monday through Saturday between the hours of 7:00 a.m. and 6:00 p.m. and on Sunday between the hours of 9:00 a.m. and 6:00 p.m.

14.3 ENVIRONMENTAL CONSEQUENCES

14.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

Evaluation of the potential effects that may result from each alternative is based on a review of the anticipated changes in land cover/land use as described in the Yolo HCP/NCCP; review of the Yolo County General Plan, and the planning documents from the cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative would comply with the applicable local, State, and federal regulations and general plan policies.

The assessment of potential effects on noise in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation

of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- ▲ exposure of persons to or generate excessive groundborne vibration or groundborne noise levels;
- ▲ a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- ▲ a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- ▲ for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project to excessive noise levels; or
- ▲ for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

14.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (i.e., Clarksburg, Dunnigan, Esparto, Elkhorn, Knights Landing, and Madison). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in Yolo County and the cities.

Urban and rural projects under the No Action Alternative could generate sufficient noise to result in violations of noise standards; however, projects and activities would be subject to various noise related laws and regulations including the provisions of the Noise Control Act and the standards established by FHWA, FTA, and FRA, as discussed above in Section 14.2.2, *Regulatory Setting*. These activities would also be subject to the applicable general plan policies that target excessive noise generation.

General urban and rural development activities under the No Action Alternative could result in an increase of unacceptable ambient noise levels from the introduction of new mobile sources. Buildout under the applicable general plans could result in traffic-related noise on highways and roadways throughout various parts of the County that could increase permanent ambient noise levels of 5 dBA or more. However, activities under the No Action Alternative would be implemented according to the provisions of the Yolo County General Plan and applicable City general plans transportation-related noise standards (County of Yolo 2009). Projects would undergo environmental review on a project-by-project basis, and projects found to exceed the applicable noise standards for sensitive land uses (e.g., residential development) would incorporate feasible mitigation measures to reduce traffic-related ambient noise effects.

Urban projects and activities would occur within the planning areas of the cities of Davis, West Sacramento, Winters, and Woodland, each of which has an adopted general plan containing goals and policies that address noise. Construction-related activities would occur with the implementation of urban development covered under the No Action Alternative. Heavy duty equipment (e.g., backhoes, dozers, graders), with varying levels of noise generation, would be used for construction activities. Although noise typically diminishes by 6 dBA for each doubling of distance from this type of source, construction activities may be performed at a distance wherein noise levels exceed applicable thresholds of significance. Adverse effects related to construction-generated noise could be reduced through restricting the hours allowed for construction to occur. Projects would comply with local ordinances that target construction-related noise; however, implementation of urban projects and activities could introduce substantial temporary noise in the Plan Area. Further, build-out of urban projects would produce new point sources of noise (e.g., subdivisions) that could result in an increase in permanent ambient noise in the Plan Area.

Rural projects and activities would be focused in Dunnigan, Esparto, Knights Landing, Madison, Elkhorn, and around highway interchanges. In each of these locations, projects and activities would be required under environmental review to comply with all applicable noise-related ordinances of the County Code and the policies of the General Plan. Maximum noise levels from construction activities due to build-out under the No Action Alternative could result in a substantial periodic increase in ambient noise levels. The County General Plan instructs the County to adopt a comprehensive Noise Ordinance that specifically addresses construction noise. Noise ordinances typically restrict construction activities to certain timeframes during the week. However, construction noise would still result in effects on nearby sensitive receptors.

Activities covered in the agricultural economic development category under the No Action Alternative could introduce new stationary agricultural-industrial and agricultural-commercial uses (e.g., grain operations, feed stores, and wineries). In accordance with the applicable planning documents, agricultural activities would increase over the course of the next 50 years; therefore, increases in permanent ambient noise levels from farming noise sources could occur. Yolo County and the four cities have right-to-farm ordinances that protect farming as an industry from encroachment by incompatible uses. Also, based on general plan policies in all five jurisdictions, this analysis assumes that zoning would occur consistent with the applicable planning documents, which would avoid placing significant new noise sensitive land uses in proximity of existing or planned commercial, industrial, or agricultural uses containing substantial mobile and point sources of noise.

Under the No Action Alternative, it is assumed that there would be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue, thus not resulting in changes to the ambient noise levels in or around the expanded Plan Area.

The construction phase for projects and activities under the No Action Alternative could expose sensitive receptors to levels of groundborne vibration. Construction-related pile-driving, operation of heavy-duty equipment, and potentially blasting would likely occur from implementation of development related activities. Further, urban buildout could include the construction and operation of new transit systems (e.g., trains, trolleys) that could expose people to adverse levels of operational groundborne vibration. Such projects would be subject to environmental review, and effects related to excessive groundborne vibration would be reduced if feasible.

As discussed in Section 14.2.1, *Environmental Setting*, Yolo County contains four airports: the Yolo County Airport, the Watts-Woodland Airport, the University Airport, and the Borges-Clarksburg Airport. Additionally, the Sacramento International Airport in adjacent Sacramento County is located 1 mile from the Plan Area boundary, and also produces sources of noise for the Plan Area. Implementation of the development related activities under the No Action Alternative could expose workers or residents to noise related to air traffic.

As the development and other activities described above are implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). Retaining lands in their existing condition would not substantially alter noise generation, or introduce new sensitive receptors. Habitat restoration activities and installation of preserve infrastructure (e.g., fences, gates) would have the potential to generate noise through the use of various pieces of mobile and stationary construction equipment. However, noise generation would be temporary and relatively minor, and protected mitigation lands would typically be established in open space areas with few, if any, sensitive receptors in the vicinity.

Cumulative Effects

Expansion of development in urban and rural areas (e.g., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in the amount of agricultural and natural landscapes converted to residential, commercial, and other uses. This past development has altered the character of sound in the Plan Area such that human-related sources of noise have been introduced and have replaced natural sources. Development in the Plan Area has resulted in the addition of mobile (e.g., automobiles, airplanes) and point sources (e.g., mining operations, agriculture) of noise. Overall, development will produce sources of noise not previously found in the Plan Area. This could result in a cumulatively considerable contribution to existing ambient noise conditions.

Additional foreseeable future projects and activities in the Plan Area beyond those discussed in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative would likely include activities such as solar and wind energy development, Caltrans infrastructure projects, and additional flood control activities. These additional development activities would have similar impacts on the noise environment as projects under the No Action Alternative.

These additional foreseeable projects and activities and those included under the No Action Alternative would be implemented under the same existing federal, State, and local policies and regulations as described in Section 14.2.2, *Regulatory Setting*. These regulations are expected to result in reduced noise impacts as compared to past development. Although impacts may be less than those from past development, when combined with additional development projects within the County, activities under the

No Action Alternative could make a cumulatively considerable contribution to a significant cumulative impact related to noise impacts within the Plan Area.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Noise impacts as a result of these activities would be the same as described under the No Action Alternative; therefore, effects associated with such activities are not discussed further in the impact discussion below. Further, while lands in the expanded Plan Area may be added to the reserve system, because no other activities related to the HCP/NCCP would occur in this corridor, the potential effect in this area would not differ from reserves established in the Plan Area.

Where the Proposed Action Alternative differs from the No Action Alternative is the implementation of the Yolo HCP/HCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. The following impact discussion focuses on these elements of the HCP/NCCP that differ from the No Action Alternative. However, the primary result of the neighboring landowner protection program, from a noise perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Because the program does not change noise conditions, it would not have an effect on noise, and is not evaluated further in the impact discussion below.

All covered activities implemented under the Proposed Action Alternative, including both take associated with development as well as conservation actions, would be subject to AMMs required by the HCP/NCCP that would reduce noise effects. The AMMs that would reduce the likelihood of noise effects are shown in Table 14-13 and are discussed in detail in Appendix C.

Table 14-13 Yolo HCP/NCCP Avoidance and Minimization Measures Applicable to Noise

General Project Design
AMM1, Establish Buffers
AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces
General Construction and Operations and Maintenance
AMM3, Confine and Delineate Work Area
AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas

Effect NOISE-1: Expose people to excessive groundborne vibration or noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Under the Proposed Action Alternative, implementation of the conservation strategy would include management activities that entail the construction, maintenance, repair, replacement, and use of facilities required to manage the reserve system, including maintenance sheds, shade structures, roads, culverts, fences, gates, wells, stock tanks, and stock ponds. Although facilities existing at the time of land acquisition will be used whenever feasible, new facilities may be constructed. These activities may occur in the vicinity of sensitive receptors, such as residential subdivisions and parks. Any noise or groundborne vibration generated from the construction and ongoing maintenance of reserve system-related structures would be

minimal and not be expected to exceed local standards. Further, with regards to reserve system activities performed on unincorporated lands, the County has not adopted a comprehensive construction noise or groundborne vibration ordinance. At present, the County has adopted noise standards for off-channel mining for the Lower Cache Creek; however, reserve system activities would not include mining and; therefore, would not be subject to such standards.

Implementation of the Proposed Action Alternative would differ from the No Action Alternative in that the resulting reserve system under the Proposed Action Alternative would be a consolidated, contiguous system. The preserves formed under the No Action Alternative would occur on a project-by-project basis, which would result in more discrete reserves. Under the No Action Alternative, it is also more likely that preserves would be included within project sites, resulting in more preserves in proximity to development and preserve activities be conducted being conducted closer to sensitive receptors. Although the construction- and operation-related activities related to reserve system implementation and maintenance would be similar under the two alternatives, the consolidated reserve system under the Proposed Action Alternative would result in fewer vehicle miles traveled (VMT) throughout the Plan Area. A reduction in reserve system-related VMT from these activities would subsequently reduce noise generated from mobile source emissions, which could lower levels of mobile-source ambient noise in the Plan Area.

Additionally, as discussed above, covered actions which require ground disturbance and the potential to generate adverse levels of noise implemented as part of the conservation strategy under the Proposed Action Alternative would be subject to AMMs as required by the Yolo HCP/NCCP. For of these AMMs, as identified in Table 14-3, would result in reductions in potential noise effects to sensitive land uses and receptors by either placing noise generating activities farther from potential sensitive receptors, or reducing the noise generating potential of preserve activities.

Although implementation of the Proposed Action Alternative, compared to the No Action Alternative, could potentially result in benefits associated with the noise reductions and placing noise generating activities further from sensitive receptors, these benefits are relatively minor and overall noise effects would remain similar to the No Action Alternative. Effects associated with exposing persons to levels of noise that exceed local standards as a result of implementation of the Proposed Action Alternative would not be appreciably different from those under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative relative to an existing conditions baseline would result in increased levels of ambient noise associated with reserve establishment and maintenance. However, the implementation of AMM's and the minor nature of the increase in mobile source noise emissions would not result in substantial adverse effects to levels of ambient noise.

No mitigation is required.

Effect NOISE-2: Create a substantial permanent increase in ambient noise levels in the project vicinity as compared to without the project.

Under the Proposed Action Alternative, a reserve system would be established and would require the use of various types of motorized equipment for reserve establishment and maintenance. Permanent ambient noise generated from the use of heavy duty equipment (e.g., graders, dozers) for establishment and maintenance of the reserve system would be similar for both the Proposed Action Alternative and the No Action Alternative. However, any increases in ambient noise from these activities would be temporary, occur over short periods (hours or days), and would not generate significant increases in noise levels. The reserve system under the Proposed Action Alternative would be more consolidated and contiguous than under the No Action Alternative; therefore, maintenance- and recreational-related VMT would be lower under the Proposed Action Alternative as compared to the No Action Alternative, thus, reducing noise generated from

mobile source emissions. Maintenance of the discrete reserve system established under the No Action Alternative could entail trips of greater distance because they would generally be smaller and more fragmented across the Plan Area and, thus, more VMT would be generated. The more consolidated nature of the reserve system under the Proposed Action Alternative could improve accessibility and reduce the travel distance required for maintenance and recreational activities. Mobile sources comprise the dominant source of ambient noise in the Plan Area; therefore, a reduction in vehicular trips could reduce levels of ambient noise associated with automobiles and trucks. However, trip generation from preserve/reserve system establishment and maintenance under both alternatives is minor and neither would result in significant increase in ambient noise relative to existing conditions.

Although implementation of the Proposed Action Alternative relative to the No Action Alternative could potentially result in benefits associated with the noise reduction from mobile source emissions, due to the relatively minor nature of these benefits, noise effects would remain similar to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative relative to an existing conditions baseline would result in increased levels of ambient noise associated with reserve establishment and maintenance. However, the minor nature of the increase in noise emissions would not result in substantial adverse effects to levels of permanent ambient noise.

No mitigation is required.

Effect NOISE-3: Create a substantial temporary increase in ambient noise levels in the project vicinity as compared to without the project.

For the same reasons described above under Effect NOISE-2 indicating why the Proposed Action Alternative would not result in a substantial permanent increase in ambient noise levels, it would also not result in a substantial temporary increase in ambient noise levels. Activities associated with preserve system establishment and maintenance are of a relatively small scale and do not require large numbers of noise generating equipment, and therefore do not generate substantial noise on either a temporary or permanent basis. The Proposed Action Alternative would result in reduced generation of temporary increases in ambient noise levels relative to the No Action Alternative for the same reasons described above for Effect Noise-2. The differences between the two alternatives would remain minor.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect NOISE-4: Expose people to excessive noise associated with air travel.

As discussed in Section 14.2.1, *Environmental Setting*, the Plan Area contains four airports: Yolo County Airport, Watts-Woodland Airport, University Airport, and Borges-Clarksburg Airport. Additionally, the Sacramento International Airport in adjacent Sacramento County is located 1 mile from the Plan Area border, and also produces sources of noise for the Plan Area. Implementation of the Proposed Action Alternative would entail the same development related activities as the No Action Alternative; however, the conservation strategy contained in the Proposed Action Alternative would expand on existing conservation areas to produce a more consolidated and connected reserve system as compared to the No Action Alternative. As discussed in Section 2.3.2, *Alternative B-Proposed Action Alternative*, a total of 33,362 acres would be included in the reserve system. It is likely at least some element of the reserve system would be located within 2 miles of a private or public airstrip. Although some recreational activity could be allowed under the conservation strategy, the reserve system would typically be unoccupied and would not have structures or uses that would support human habitation or a long-term human presence. Therefore, implementation of the

Proposed Action Alternative would not expose people living or working near the vicinity of a private or public airstrip to excessive noise associated with air travel as compared to the No Action Alternative. This same conclusion applies to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present project is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

Establishment and management of a reserve system as part of the implementation of the conservation strategy would add relatively minor amounts of noise, typically in locations distant from potential sensitive receptors. Also, implementation of the AMMs listed in Table 14-13 above, and discussed in detail in Appendix C, would further reduce the potential effects from noise during reserve establishment and maintenance activities. The potential noise impact reduction benefits of the Proposed Action Alternative compared to the No Action Alternative, described above in the discussions of Effects NOISE-1, NOISE-2, and NOISE-3 would be minor, thus, contributions to cumulative effects under the Proposed Action Alternative would remain similar to the No Action Alternative.

Implementation of the conservation strategy under the Proposed Action Alternative would not make a cumulatively considerable contribution to a significant cumulative impact related to noise.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of development related activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Effects to noise as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and Proposed Action alternatives; however, activities that could result in take (e.g., development) would be reduced by approximately 1,335 acres within the Plan Area. If the prohibition on take of covered species under the Reduced Take Alternative resulted in less overall take development in the Plan Area, noise effects from development related activities could be slightly less under the Reduced Take Alternative. However, the prohibition on take under the Reduced Take Alternative could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new location were farther from development centers, this could result in more frequent and longer vehicle trips and an increase in noise effects. Therefore, noise associated with this alternative would be similar to noise associated with the No Action Alternative.

The Reduced Take Alternative includes implementation of the Yolo HCP/NCCP and associated conservation strategy and AMMs for development related activities. This would further reduce any potential for some noise effects when compared to the No Action Alternative as discussed for the Proposed Action Alternative above.

Overall, under the Reduced Take Alternative, Effect NOISE-1, NOISE-2, NOISE-3, and NOISE-4 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on noise in the Plan Area from the Reduced Take Alternative, and therefore, contributions to cumulative effects, would be similar to those under the Proposed Action Alternative and No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D-REDUCED DEVELOPMENT ALTERNATIVE

The Reduced Development Alternative (Alternative D) would include the same categories of development related activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development that resulted in take of listed species in these locations would be required to obtain FESA and CESA authorization on a project by project basis (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Effects related to noise as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative. If the inability to obtain coverage using the Plan in the two identified areas under the Reduced Development Alternative resulted in less overall development in the Plan Area, noise effects from take associated with development could be slightly less under the Reduced Development Alternative. However, the limitation on use of the Plan under the Reduced Development Alternative could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new location were farther from development centers, this could result in more frequent and longer vehicle trips and thus an increase in noise effects. It should be noted that if the two identified areas were developed in the future, effects on noise would be the same as those for the Proposed Action Alternative, although AMMs included in the Plan would not be applied to these locations.

Overall, under the Reduced Development Alternative, Effect NOISE-1, NOISE-2, NOISE-3, and NOISE-4 would not be appreciably different from what is described for the Proposed Action Alternative and the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on noise in the Plan Area from the Reduced Development Alternative, and therefore, contributions to cumulative effects, would be similar to those under the Proposed Action Alternative and No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

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15 AIR QUALITY

15.1 INTRODUCTION

This chapter provides information relevant to air quality impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

15.1.1 Data Sources

Key sources of information used for this chapter include the following:

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County 2009a),
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016),
- ▲ *City of Winters General Plan* (City of Winters 1994),
- ▲ *City of Woodland General Plan* (City of Winters 1992), and
- ▲ *Yolo-Solano Air Quality Management District (YSAQMD) Handbook for Assessing and Mitigating Air Quality Effects* (YSAQMD 2007).

15.1.2 Definitions

Criteria air pollutants consist of ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), and lead. The federal and State governments have established ambient air quality standards for criteria air pollutants. A brief description of each criteria air pollutant is provided below, including emission source types and health effects. For descriptions of health effects, *acute* refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations whereas *chronic* refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Ozone is a photochemical oxidant (a molecule whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x) in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Emissions of the ozone precursors ROG and NO_x have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Acute health effects include increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation. Chronic health effects include permeability of respiratory epithelia, possibility of permanent lung impairment.

Carbon monoxide (CO) is a colorless, odorless gas produced by incomplete combustion of fuels (i.e., motor vehicle exhaust). Acute health effects include headache, dizziness, fatigue, nausea, vomiting, and eventually

death. Chronic health effects include permanent heart and brain damage. However, CO dissipates quickly and unhealthy CO concentrations resulting from vehicle exhaust only occur at intersections experiencing extreme delays and congestion.

Nitrogen dioxide (NO₂) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary internal combustion engines. Combustion devices emit primarily nitrogen oxide (NO), which reacts through oxidation in the atmosphere to form NO₂. The combined emissions of NO and NO₂ are referred to as NO_x and are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local sources of NO_x emissions (EPA 2012). Acute health effects include coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis (inflammation of the lung tissue) or pulmonary edema (fluid accumulation in the lungs), breathing abnormalities, cough, chest pain, rapid heartbeat, and ultimately death. Chronic health effects include chronic bronchitis and decreased lung function.

Sulfur dioxide (SO₂) is a gaseous compound of sulfur and oxygen. Sources of SO₂ include coal and oil combustion, refineries, and pulp and paper mills. Acute health effects include irritation of upper respiratory tract and increased asthma symptoms. There is insufficient evidence linking SO₂ exposure to chronic health effects.

Particulate matter (PM) with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. This size particle is of concern because it is small enough to reach deep into the lungs. PM₁₀ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (ARB 2013). PM_{2.5} includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. Acute health risks include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic effects include alterations to the immune system and cancer formation.

Lead is a relatively soft and chemically resistant metal. Lead is present in the air as small particles as a result of a variety of industrial activities. Acute effects include developmental disruptions in fetuses and children. Chronic effects include neurological, endocrine, and cardiovascular damage.

Toxic air contaminants (TACs) are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. Toxic air contaminants are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to the California Almanac of Emissions and Air Quality (ARB 2013), the majority of the estimated health risks from TACs in California can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists; however, the California Air Resource Board (ARB) has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs that pose the greatest existing ambient risk in California for which data are available are benzene, 1- and 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. However, diesel PM poses the greatest health risk among these TACs mentioned. Based on receptor modeling techniques, ARB estimated the health risk of diesel PM to be 360 excess cancer cases per million people in the Sacramento Valley Air Basin (SVAB) in the year 2000. Since 1990, the health risk associated with diesel PM in California has been reduced by 52 percent. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (ARB 2013).

15.2 AFFECTED ENVIRONMENT

15.2.1 Environmental Setting

The area potentially affected by the Plan is located within the SVAB. This section describes the existing air quality conditions in the SVAB, as well as existing pollutant concentrations in Yolo County.

EXISTING AIR QUALITY CONDITIONS

Regional Climate and Topography

The Plan Area is located within Yolo County, California, which is within the southwestern portion of the SVAB. The SVAB also includes all of Sacramento, Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba Counties; the western portion of Placer County; and the northeastern portion of Solano County (thereby encompassing the extended Plan Area). The ambient concentrations of air pollutants are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include climate and topography.

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type in the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50° Fahrenheit (F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which is most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains bordering the east and west sides of the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable meteorological conditions. Surface concentrations of air pollutants are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_x, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating ambient-air quality standards.

Local Air Quality

The local meteorology of the Plan Area is represented by measurements recorded at the Western Regional Climate Center (WRCC) Davis 1 WSW station. The normal annual precipitation is approximately 17.5 inches. January temperatures range from a normal minimum of 46°F to a normal maximum of 74.5°F. July temperatures range from a normal minimum of 55.3°F to a normal maximum of 94.1°F (WRCC 2016). The predominant wind direction is from the south (WRCC 2002).

Existing air quality conditions in the Plan Area can be characterized in terms of the federal and State air quality standards, and by monitoring data collected in the region. The Environmental Protection Agency (EPA), ARB, and local air districts maintain an extensive network of monitoring stations throughout California. Table 15-1 presents pollutant concentrations for Yolo County measured at the Woodland-Gibson Road Monitoring Station for the past 3 years (2013-2015).

Table 15-1 Monitored Pollutant Concentrations in Yolo County, 2013-2015

Pollutant Standards	2013	2014	2015
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.080	0.082	0.086
1-hour California designation value	0.09	0.09	0.09
1-hour expected peak day concentration	0.088	0.085	0.082
Number of days standard exceeded^a			
CAAQS 1-hour (>0.09 ppm)	0	0	0
eight-hour Ozone			
National maximum eight-hour concentration (ppm)	0.067	0.071	0.071
National second-highest eight-hour concentration (ppm)	0.066	0.067	0.071
State maximum eight-hour concentration (ppm)	0.067	0.072	0.072
State second-highest eight-hour concentration (ppm)	0.067	0.068	0.072
eight-hour national designation value	0.069	0.068	0.067
eight-hour California designation value	0.080	0.076	0.072
eight-hour expected peak day concentration	0.080	0.079	0.076
Number of days standard exceeded^a			
NAAQS eight-hour (>0.075 ppm)	0	0	0
CAAQS eight-hour (>0.070 ppm)	0	1	4
Particulate Matter (PM₁₀)^d			
National ^b maximum 24-hour concentration (µg/m ³)	60.3	45.0	70.8
National ^b second-highest 24-hour concentration (µg/m ³)	59.2	37.5	56.7
State ^c maximum 24-hour concentration (µg/m ³)	61.5	47.5	69.4
State ^c second-highest 24-hour concentration (µg/m ³)	61.1	37.9	58.0
State annual average concentration (µg/m ³) ^e	22.9	17.4	21.5
Number of days standard exceeded^a			
NAAQS 24-hour (>150 µg/m ³) ^f	0	0	0
CAAQS 24-hour (>50 µg/m ³) ^f	4	0	2

Table 15-1 Monitored Pollutant Concentrations in Yolo County, 2013-2015

Pollutant Standards	2013	2014	2015
Particulate Matter (PM_{2.5})^d			
National ^b maximum 24-hour concentration (µg/m ³)	22.0	14.6	29.4
National ^b second-highest 24-hour concentration (µg/m ³)	22.0	13.2	20.8
State ^c maximum 24-hour concentration (µg/m ³)	22.0	14.6	29.4
State ^c second-highest 24-hour concentration (µg/m ³)	22.0	14.6	20.8
National annual designation value (µg/m ³)	-	6.6	7.0
National annual average concentration (µg/m ³)	7.4	5.9	7.5
State annual designation value (µg/m ³)	6	6	8
State annual average concentration (µg/m ³) ^e	-	-	7.6
Number of days standard exceeded^a			
NAAQS 24-hour (>35 µg/m ³) ^f	0	0	0

Notes:

CAAQS = California ambient air quality standards.

NAAQS = national ambient air quality standards.

- = insufficient data available to determine the value.

^a An exceedance is not necessarily a violation.^b National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.^c State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.^d Measurements usually are collected every six days.^e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.^f Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: ARB 2016

ATTAINMENT STATUS

Local monitoring data (see Table 15-1) is used to designate areas as nonattainment, maintenance, attainment, or unclassified for the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS). The four designations are further defined as follows:

- ▲ Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question;
- ▲ Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard;
- ▲ Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time; and
- ▲ Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 15-2 summarizes the attainment status of Yolo County and the broader southwestern portion of the SVAB (thereby encompassing the extended Plan Area) with regard to the federal and State standards.

Table 15-2 Federal and State Attainment Status for Yolo County

Pollutant	Yolo County		Southwestern SVAB ^a	
	Federal Standard	State Standard	Federal Standard	State Standard
O ₃ , one hour	No Standard	Attainment	No Standard	Attainment
O ₃ , eight-hour	Nonattainment ^b	Nonattainment	Nonattainment ^b	Nonattainment
PM ₁₀	Attainment	Nonattainment	Attainment	Nonattainment
PM _{2.5}	Attainment	Unclassified	Nonattainment	Unclassified
CO	Moderate Maintenance ^c	Attainment	Attainment	Attainment
NO ₂	Attainment	Attainment	Attainment	Attainment
SO ₂	Attainment	Attainment	Attainment	Attainment

^a Based on overview of nonattainment maps. Area evaluated includes the County of Yolo.

^b Level of nonattainment is considered "severe."

Source: EPA 2015; ARB 2014

SENSITIVE RECEPTORS

Sensitive receptors relative to air quality conditions are locations where human populations, especially children, seniors, and sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for ambient air quality standards. Sensitive receptors defined by the County General Plan (Yolo County 2009a) include residentially designated land uses, hospitals, schools, hotels and lodgings, and neighborhood parks. In general, these sensitive receptors are concentrated in the incorporated cities and unincorporated communities in the County; however, scattered rural residences are also located throughout the undeveloped or rural lands.

15.2.2 Regulatory Setting

The regulatory structure for air quality planning in California includes federal, State, and local agencies. These agencies either have regulatory authority or are responsible for the development and implementation of programs and plans designed to reduce air pollution levels.

FEDERAL LAWS AND REGULATIONS

EPA has been charged with implementing national air quality programs. EPA air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

Criteria Air Pollutants

The CAA required EPA to establish NAAQS. As shown in Table 15-3, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a SIP, for areas that do not attain the NAAQS. The Clean Air Act Amendments (CAAA) of 1990 added requirements for states with areas that are not in attainment of all NAAQSs to revise their state implementation plans (SIPs) to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures

may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and permitting of stationary air pollution sources in the nonattainment air basin.

Table 15-3 Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
			California	National	California	National	California	National
Ozone*	O ₃	one hour	0.09	NA	180	NA	If exceeded	NA
		eight hours	0.070	0.075	137	147	If exceeded	If fourth highest eight-hour concentration in a year, averaged over three years, is exceeded at each monitor within an area
Carbon monoxide	CO	eight hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than one day per year
		one hour	20	35	23,000	40,000	If exceeded	If exceeded on more than one day per year
(Lake Tahoe only)		eight hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO ₂	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than one day per year
		one hour	0.18	0.100	339	188	If exceeded	NA
Sulfur dioxide	SO ₂	Annual arithmetic mean	NA	0.030	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than one day per year
		one hour	0.25	0.075	655	196	If exceeded	NA
Hydrogen sulfide	H ₂ S	one hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C ₂ H ₃ Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Respirable Particulate matter	PM ₁₀	Annual arithmetic mean	NA	NA	20	NA	NA	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than one day per year
Fine Particulate matter	PM _{2.5}	Annual arithmetic mean	NA	NA	12	12	NA	If three-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If three-year average of 98 th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO ₄	24 hours	NA	NA	25	NA	If equaled or exceeded	NA

Table 15-3 Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
			California	National	California	National	California	National
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than one day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA
		Rolling 3-month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

NA = not available

Source: California Air Resource Board 2013

Hazardous Air Pollutants

EPA and ARB regulate hazardous air pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for TACs to limit emissions. These, in conjunction with additional rules set forth by the YSAQMD, described below, establish the regulatory framework for TACs.

EPA has programs for identifying and regulating HAPs. Title III of the CAA directed EPA to promulgate National Emissions Standards for HAPs (NESHAPs). The NESHAPs may differ for major sources and for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 TPY of any HAP or more than 25 tons per year (TPY) of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two ways. First, EPA has technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. Second, EPA also has health risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, the CAA required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

General Conformity

The CAA requires that federal actions conform to the appropriate SIP so that they do not interfere with strategies employed to attain the NAAQS. The rule applies to federal actions in areas designated as nonattainment areas for any of the six criteria pollutants and in some areas designated as maintenance areas. Project level conformance with the SIP is demonstrated through a general conformity applicability analysis as a first step. A general conformity determination would be required if a proposed action's total direct and indirect emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards are above the *de minimis* levels established by the conformity rule. If the condition above is not met, a general conformity determination must be performed to demonstrate that total direct and indirect emissions for each affected pollutant for which the region is classified as maintenance or nonattainment for the national standards would conform to the applicable SIP.

STATE LAWS AND REGULATIONS

ARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). California law authorizes ARB to set ambient (outdoor) air pollution standards (California Health and Safety Code section 39606) in consideration of public health, safety, and welfare (Table 15-3).

Criteria Air Pollutants

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air district compliance with federal and State laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs, including diesel PM, and adopted EPA's list of HAPs as TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold standard exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold standard. If no safe threshold standard exists, the measure must incorporate best available control technology for toxics to minimize emissions.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011). Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced substantially over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., low emission vehicle/clean fuels and Phase II reformulated-gasoline regulations) and control technologies.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

LOCAL LAWS AND REGULATIONS

Yolo Solano Air Quality Management District

The Plan Area encompasses all of Yolo County and the extended Plan Area includes a small portion of northern Solano County. Both areas are located within the jurisdiction of the YSAQMD. As discussed above, under the CCAA, YSAQMD is required to develop an air quality attainment plan for nonattainment criteria pollutants within the air district. A discussion of the applicable regional air quality management plans is provided on pages 277-288 of the Yolo County General Plan EIR and is hereby incorporated by reference (Yolo County 2009:277-228). The following is a summary of the air quality plans and actions that have been, or are currently being undertaken by the YSAQMD:

- ▲ **1991 Air Quality Attainment Plan:** Submitted to the ARB by the YSAQMD, in coordination with other air districts in the Sacramento region to address ozone.
- ▲ **1994 Ozone Attainment Plan:** Revised and updated the 1991 Air Quality Attainment Plan.
- ▲ **2006 and 2008 Rate-of-Progress Plans:** Submitted by the Sacramento regional air districts to present strategies to reduce ROG, NO_x, and PM₁₀ emissions.
- ▲ **Updated Clean Air Plan and Progress Plan:** Air districts in the Sacramento Region developed an updated Clean Air Plan to address ozone nonattainment. The “Sacramento Regional eight-hour Ozone Attainment and Reasonable Further Progress Plan” was approved in 2009 and updated in 2011 and 2013. This plan demonstrates how the region will reach attainment with the eight-hour ozone standard by 2018.

Projects and activities in the Plan Area may be subject to various YSAQMD rules and regulations. These rules have been adopted by the YSAQMD to reduce emissions throughout the district. Failure to comply with any applicable district rule would be a violation subject to district enforcement action. The following are examples of rules that could apply to activities implemented as part of the Plan:

- ▲ **Rule 2.5, Nuisance:** Restricts discharge from any source quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.
- ▲ **Rule 2.8, Open Burning:** Limits emissions to the atmosphere from open burning.
- ▲ **Rule 2.11, Particulate Matter Concentration:** Limits release or discharge into the atmosphere, from any source, particulate matter in excess of 0.3 grains per cubic foot of exhaust volume as calculated standard conditions.
- ▲ **Rule 3.1, General Permit Requirements:** Provides an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits.

Yolo County General Plan

The *County of Yolo 2030 Countywide General Plan* (2009a) contains the following policies related to air quality that may be relevant to the Plan:

- ▲ **Policy CO-6.1** Improve air quality through land use planning decisions.
- ▲ **Policy CO-6.2** Support local and regional air quality improvement efforts.
- ▲ **Policy CO-6.6** Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities:

- Water all active construction areas at least twice daily.
- Haul trucks shall maintain at least two feet of freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6 to 12 inch layer of wood chips or mulch.
- Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel. (DEIR MM AIR-1)

- ▲ **Policy CO-6.7** Pursue legislation to assist farming operations with permitting bioenergy operations

City of Davis General Plan

The City of *Davis General Plan* (2007) contains the following policies related to air quality that may be relevant to the Plan:

- ▲ **Policy AIR 1.1** Take appropriate measures to meet the AQMD's goal for improved air quality.
- ▲ **Policy AIR 2.1** Develop a program to monitor and publicize air quality parameters.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policies that relate to air quality that may be applicable to the analysis of the HCP/NCCP:

Safety Element

Goal S-3. To prevent loss of life, injury, and property damage due to geologic and seismic hazards.

- ▲ **Policy S-5.1 Local and Regional Programs.** The City shall support and participate in local and regional air quality planning programs to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.
- ▲ **Policy S-5.3. New Development.** The City shall utilize the CEQA process to ensure development projects incorporate feasible mitigation measures to reduce construction and operational air quality emissions, and consult with the Yolo-Solano Air Quality Maintenance District (AQMD) early in the development process.
- ▲ **Policy S-5.4. Sensitive Land Uses.** The City shall ensure maintenance of adequate separation between sensitive land uses and facilities or operations that may produce toxic or hazardous air pollutants or substantial odors, consistent with California Air Resources Board recommendations.

- ▲ **Policy S-5.6. Early Coordination with YSAQMD.** The City shall notify and coordinate with the Yolo-Solano Air Quality Maintenance District when industrial developments are proposed within the city to ensure applicants comply with applicable air quality regulations and incorporate design features and technologies to reduce air pollution.

City of Winters General Plan

The *City of Winters General Plan* (1994) Transportation and Circulation, and Environmental Resources elements contain the following policies related to air quality that may be relevant to the Plan:

- ▲ **Policy III.D.1:** To the extent feasible, the City shall provide for separation of residential and other noise-sensitive land uses from major roadways to reduce noise and air pollution effects.
- ▲ **Policy VI.E.1.** The City shall cooperate with the Yolo-Solano Air Pollution Control District in an effort to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.
- ▲ **Policy VI.E.2.** The City shall utilize the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall also be utilized to ensure early consultation with the Yolo-Solano Air Pollution Control District concerning air quality issues associated with specific development proposals.
- ▲ **Policy VI.E.3.** The City shall notify and coordinate with the Yolo-Solano Air Pollution Control District when industrial developments are proposed. Such coordination will assist applicants in complying with applicable air quality regulations and will assist the City in promptly identifying and resolving potential air quality problems.
- ▲ **Policy VI.E.4.** Major intersections shall be designed to minimize long vehicle delays which result in carbon dioxide (CO) “hot spots.”
- ▲ **Policy VI.E.5.** The City shall, to the extent practicable, separate sensitive land uses from significant sources of air pollutants or odor emissions.
- ▲ **Policy VI.E.6.** The City shall require for both public and private projects that construction-related dust be minimized. Larger projects that create a potential for generating a significant amount of construction-related dust shall be required to include dust control measures as part of their construction mitigation plans.
- ▲ **Policy VI.E.8.** The City shall attempt through careful land use and site planning to reduce automobile use.
- ▲ **Policy VI.E.II.** In granting development entitlement, the City shall require all new industrial and commercial developments within the city projected to generate more than 500 trips per day (based on typical generation rates) to develop an air quality mitigation plan. This plan shall include an analysis of how the project would utilize site planning, mixed land uses, transportation systems management measures (e.g., carpooling, van pooling, shuttle bus service, transit incentives, etc.) to reduce by 25 percent the number of trips that would typically be projected for such development. Where this goal cannot be met by these methods, the plan shall provide for off-site mitigation through funding of air quality improvements such as new park-and-ride lots, sidewalks, bike paths, and support of transit, as deemed acceptable to the City.

City of Woodland General Plan

The *City of Woodland General Plan* (2002) Environmental Resources Element includes the following policies related to the protection of air quality that may be relevant to the Plan:

- ▲ **Policy 7.E.1:** The City shall cooperate with other agencies to develop a consistent and effective approach to regional air quality planning and management.
- ▲ **Policy 7.E.2:** The City shall support YSAQMD in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality effects of new development.
- ▲ **Policy 7.E.3:** The City shall continue its active participation in the activities of the Yolo County Air Quality Management Board.
- ▲ **Policy 7.E.4:** The City shall require major new development projects to submit an air quality analysis for review and approval. Based on this analysis, the City shall require appropriate mitigation measures.
- ▲ **Policy 7.E.5:** In cooperation with YSAQMD, the City shall develop emission thresholds to serve as the basis for requiring air quality analysis and mitigation.
- ▲ **Policy 7.E.6:** The City shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality. The City shall submit development proposals to YSAQMD for review and comment in compliance with CEQA prior to consideration by the City.
- ▲ **Policy 7.E.7:** The City shall require project level environmental review to include identification of potential air quality effects and to include design and other appropriate mitigation measures or offset fees to reduce effects. The City shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.
- ▲ **Policy 7.E.8:** The City shall require development where feasible to be located and designed to minimize direct and indirect air pollutants.
- ▲ **Policy 7.E.9:** In reviewing project application, the City shall require consideration of alternative or amendments that reduce emissions of air pollutants.
- ▲ **Policy 7.F.3:** The City shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in City transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.
- ▲ **Policy 7.F.5:** The City shall promote the use of clean alternative fuel vehicles.

15.3 ENVIRONMENTAL EFFECTS

15.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of the potential effects to air quality that may result from each alternative is based on a review of the activities included in each alternative described in Chapter 2, *Proposed Action and Alternatives*; review of the Yolo County General Plan, and the planning documents from the cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative would comply with the applicable federal, State, and local regulations and general plan policies.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

For the purposes of this analysis, a qualitative discussion of air quality impacts associated with the covered activities is provided. The physical effects of the covered activities would be expected to continue consistent with the projections of the County and city general plans without the implementation of the Yolo HCP/NCCP, as would subsequent mitigation in the case of the take of an endangered or covered species under the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). Conservation easements or reserves would be constructed to mitigate for these impacts. With respect to these reserves, the activity with the greatest potential for emissions would be where grading or earth moving is completed as part of habitat restoration or creation; therefore, a quantitative discussion of emissions associated with the establishment and maintenance is provided.

Each alternative evaluated herein would involve the establishment of habitat reserves following the take of a listed species pursuant to the FESA and the CESA. Reserves that place easements on lands to continue the existing use would not alter air emissions. However, reserves that included habitat enhancement, restoration, or creation could generate air emissions from these activities. To evaluate the emissions associated with these reserve establishment activities, construction- and operational-related activities were quantified using the California Emissions Estimate Model (CalEEMod). Modeling was for an estimated high activity day implementing habitat restoration/creation and used conservative assumptions (i.e., assumptions that would lead to higher emissions), so as not to underestimate emissions from this activity. The modelling included the use of heavy-duty equipment for earth movement and grading, as well as operational-related vehicle use. Model assumptions and parameters are included in Appendix F. This level of activity would exceed any future reserve operations and maintenance activity; therefore, the impact analysis for reserve establishment would provide a maximum level of daily emissions for the life of the reserve.

The assessment of potential effects on air quality in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

Federal Conformity Analysis

A non-transportation project located in a nonattainment or maintenance area must undergo a general conformity analysis in accordance with 40 Code of Federal Regulations (CFR) 93 to ensure that the project does not:

- ▲ cause or contribute to new violations or any standard in any area;
- ▲ increase the frequency or severity of an existing violation of any standard; or
- ▲ delay timely attainment of any standard requiring interim emission reduction, or other milestones.

As a part of the general conformity process, a conformity analysis is required if a federal action satisfies one of the following two conditions:

- ▲ The action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at or above emission rates shown in Table 15-4.
- ▲ The action's direct and indirect emissions of any criteria pollutant represent 10 percent of a nonattainment or maintenance area's total emissions inventory for that pollutant.

Table 15-4 Federal *De Minimis* Levels for Yolo County

Pollutant	Federal Attainment Classification	De Minimis Levels (tons/year)
O ₃ , (VOC)	Severe Nonattainment	25
O ₃ , (NO _x)	Severe Nonattainment	25
PM ₁₀	Attainment	N/A
PM _{2.5}	Attainment	N/A
CO	Attainment	N/A
Lead (Pb)	Attainment	N/A

If the total direct emissions associated with the action are below the *de minimis* levels indicated in Table 15-4, general conformity requirements do not apply; the action is considered in conformity and would not result in an adverse effect. Since the air basin encompassing the Plan Area is in attainment (based on federal standards) for the criteria pollutants indicated in Table 15-4 except for ozone (severe nonattainment status), a conformity analysis for ozone must be completed for the alternatives.

SIGNIFICANCE CRITERIA

Impacts would be significant if an alternative would result in the following:

- ▲ conflict with or obstruct implementation of the applicable air quality plan;
- ▲ violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- ▲ result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard;
- ▲ expose sensitive receptors to pollutant concentrations in excess of standards; or
- ▲ create objectionable odors affecting a substantial number of people.

In 2007, the YSAQMD published more detailed CEQA thresholds of significance based on numeric criteria utilized by YSAQMD. Exceedance of these numeric criteria would be considered to obstruct implementation of an applicable air quality plan and/or contribute substantially to an existing or projected air quality violation. Based on numeric criteria utilized by YSAQMD, a significant effect would occur if an alternative would:

- ▲ cause construction-generated criteria air pollutants or precursor emissions to exceed YSAQMD-recommended thresholds of 10 tons/year for NO_x and ROG, and 80 pounds per day (lb/day) for PM₁₀;
- ▲ result in a net increase in long-term operational criteria air pollutants or precursor emissions that exceed YSAQMD-recommended thresholds of 10 lb/year for ROG and NO_x, and 80 lb/day for PM₁₀;

- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 ppm or the eight-hour CAAQS of 9 ppm; or
- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater.

Issues Not Evaluated Further

There are no activities proposed in the Plan Area as part of the proposed action and alternatives that would be considered emitters of lead. Therefore, this criteria area pollutant is not considered further.

Controlled burns may be used in some habitat reserves under any of the alternatives as a vegetation management tool. Open burns are regulated through YSAQMD by Rule 2.8. Controlled burns would be infrequent, typically up to once annually at a particular preserve and not implemented every year, and before initiating a controlled burn an open burn permit must be obtained from YSAQMD and burn implementation must comply with all permit requirements to limit air emissions. Further, controlled burns would not be a primary vegetation management method, with other options such as managed grazing available. This issue is not discussed further.

15.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. All categories of development and related activities would result in construction related activities using heavy construction equipment and causing ground disturbance that would generate pollutant emissions. Larger development related activities, such as those associated with the urban projects and activities and rural projects and activities categories would generate the greatest construction emissions, while categories with a smaller footprint or lesser overall activity, such as public and private operations and maintenance, would generate fewer construction emissions. Emissions of criteria air pollutants, TACs, and odors could all result from construction activities. Specifically, use of heavy-duty diesel construction equipment would generate ozone precursors (NO_x and ROG), TACs associated with diesel exhaust (i.e., PM₁₀), and odors. Fugitive dust emissions of PM₁₀ and PM_{2.5} would occur as a result of demolition, land clearing, grading activities, earth movement, and vehicle movement on unpaved surfaces. Construction-related emissions would vary greatly depending on the level of activity, the specific operations taking place, the equipment operated, local soils, and weather conditions. Construction projects with higher levels of emissions have the potential to exceed YSAQMD-recommended thresholds of 10 tons/year for NO_x and ROG, and 80 lb/day for PM₁₀.

However, construction activities in the Plan Area would be subject to various air quality-related laws and regulations, including the provisions of the CAA, CCAA, the Tanner Air Toxics Act, Air Toxics Hot Spots, and other

regulations and statutes discussed above in section 15.2.2. Further, projects would be subject to the numeric thresholds established by YSAQMD. Under the No Action Alternative, projects large enough to exceed construction emissions thresholds would typically undergo CEQA review, whereby emissions of air pollutants would be assessed on a project-by-project basis. Projects found to exceed the thresholds for construction emissions would be required to implement feasible mitigation. The YSAQMD *Handbook for Assessing and Mitigating Air Quality Impacts* recommends mitigation measures to be applied during construction activities, including methods to control fugitive dust and limit emissions of pollutants from equipment.

Operations associated with future development would also result in emissions of criteria air pollutants, TACs, and odors. Emissions of criteria air pollutants would be associated with mobile (on-road and off-road vehicles), area-wide, and stationary sources. TAC and odor emissions would be associated with operational-related mobile and stationary sources (e.g., diesel exhaust on roadways; emissions from various land use development such as dry cleaners, gas stations, and other industrial or commercial development). As described for construction emissions, all categories of development and related activities would result in some level of operational related emissions. Larger development related activities, such as those associated with the urban projects and activities and rural projects and activities categories would generate the greatest operational emissions, by including land uses that would generate mobile, stationary, and area-wide emissions and including these land uses in higher volumes than other development categories. The remaining categories of development and related activities; rural public services, infrastructure, and utilities; agricultural economic development and open space; and public and private operations and maintenance; would generate fewer vehicle trips, have fewer facilities, and/or generally have less overall activity and therefore would likely have less operational emissions.

Agricultural activities would continue to occur and vary depending on future conditions. Replanting or appropriating agricultural land based on demand, environmental conditions, and land-use changes would result in emissions of ROG, NO_x, PM₁₀, and PM_{2.5} from the use of agricultural equipment (e.g., plows). Further, emissions of TACs associated with the use of fertilizers, pesticides, herbicides, and fungicides, as well as air pollutants from manure, would likely continue to occur as consistent with the County and city general plans.

As mentioned previously in Chapter 2, *Proposed Action and Alternatives*, the Yolo HCP/NCCP includes a corridor along the south bank of Putah Creek, in Solano County, where lands can be added to the protected mitigation lands system. Under the No Action Alternative, it is assumed that there would primarily be continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek. The land is primarily used for agriculture and this land would continue. The area also contains valley foothill riparian, which would be expected to continue to be protected via various laws and regulations (see Chapter 4, *Biological Resources*) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee.

Operation of new facilities and agricultural lands in the Plan Area would be subject to various air quality-related laws, regulations, and standards, including those enforced by EPA, ARB, and YSAQMD, and general plan policies as described above in section 15.2.2. Further, project operations would be subject to the numeric thresholds established by YSAQMD. As described for construction emissions, under the No Action Alternative, projects large enough to exceed operational emissions thresholds would typically undergo CEQA review, whereby emissions of air pollutants would be assessed on a project-by-project basis. Projects found to exceed the thresholds for operational emissions would be required to implement feasible mitigation. The YSAQMD *Handbook for Assessing and Mitigating Air Quality Impacts* recommends mitigation measures to be applied to operational emissions.

With regards to emissions of local mobile-CO, effects only occur at intersections experiencing extreme delays and congestion, typically those supporting over 30,000 vehicles per hour. In addition, mobile-CO emissions per vehicle will continue the trend of decreasing over time due to cleaner burning fuels and improved vehicle engine technology. It is only in very limited instances, in highly urbanized areas with severe traffic congestion that conditions arise where mobile source CO concentrations exceed standards. It is highly unlikely that these conditions would occur anywhere in the Plan Area over the 50-year study period.

As the development and other activities described above are implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation).

Activities associated with the establishment of protected mitigation lands would vary depending on the type of protected mitigation lands. Protected mitigation lands intended solely to protect existing habitat might require very little work to shift the existing use to reserve; however, protected mitigation land that includes habitat enhancement, restoration, or creation could include construction activities such as earth movement and grading. Both examples of protected mitigation lands could require fence installation, installation of interpretive features, and other physical changes. The use of heavy equipment for grading and earth moving could result in exhaust (e.g., ROG, NO_x, PM, CO) and fugitive dust (i.e., PM₁₀ and PM_{2.5}).

Although specific details regarding the size of protected mitigation lands and types of construction activities under the No Action Alternative are unknown at this time, an estimate of emissions was conducted based on conservative assumptions of protected mitigation land size and likely construction equipment that would be used (e.g., trucks, loaders, backhoes) for protected mitigation lands involving habitat restoration/creation. Refer to Appendix F for detailed assumptions. Based on the modeling conducted, protected mitigation land establishment could result in approximately 59 lbs/day of PM₁₀ daily from the use of heavy equipment, worker commute trips, and vendor haul trips (e.g., movement of goods). Modeled annual emissions of ROG and NO_x from construction-related activities were 0.5 tons/year and 5.5 tons/year, respectively. This level of emissions would not exceed applicable YSAQMD thresholds of significance of 80 lbs/day for PM₁₀ and 10 tons/year for ROG and NO_x. Emissions of PM_{2.5} would be 17 lbs/day; however, YSAQMD does not have an established threshold for PM_{2.5}. Table 15-5 summarizes the projected emissions for each pollutant and their respective YSAQMD thresholds.

Table 15-5 Estimated Emissions of Air Pollutants from Protected Mitigation Lands Establishment

Pollutant	YSAQMD Threshold	Emissions	Exceeds Thresholds?
ROG	10 tons/year	0.5 tons/year	No
NO _x	10 tons/year	5.5 tons/year	No
PM ₁₀	80 lbs/day	59 lbs/day	No
PM _{2.5}	N/A	17 lbs/day	N/A

Notes: YSAQMD = Yolo-Solano Air Quality Management District; tons/year = tons per year; lbs/day = pounds per day; N/A = not applicable

With regard to PM₁₀, YSAQMD requires incorporation of all available emissions and dust control measures a mitigation measure for all projects subject to CEQA review (YSAQMD 2007). Although development triggering the need for establishment of protected mitigation lands is likely to undergo CEQA review, establishment of protected mitigation lands itself is unlikely to trigger CEQA review. Therefore, protected mitigation land establishment may not be required to include all available dust control measures. However, based on the conservative emissions modeling, dust emissions would be relatively minor and therefore would not contribute significantly to the existing nonattainment status of the SVAB. Further, if any relatively large scale grading or earth work were proposed, grading permits would be required from local regulatory agencies that would require dust control measures, if applicable. Thus, based on the relatively low emissions of PM₁₀ and PM_{2.5} and that any relatively large scale potential grading or earth moving would be regulated through local permits, construction related emissions associated with protected mitigation lands establishment would not result in exceedances of any air quality standards.

With regard to exposure of sensitive receptors to TACs, odors, and local CO, construction activities associated with protected mitigation lands establishment would be relatively minor and temporary. As such, exposure would be minimal and would not result in excessive exposure at any one receptor for an extended period of time. With respect to TACs and CO, abbreviated exposure at low levels would not result in adverse health effects to sensitive receptors. As protected mitigation lands related construction and maintenance would be short term in nature, sensitive receptors within the vicinity of protected mitigation lands would not be exposed to TACs, odors, or CO in levels or over a period of time that would result in health impacts.

Operational emissions associated with protected mitigation lands management include mobile-source exhaust emissions (i.e., vehicle trips) associated with visits by protected mitigation lands managers/crews for maintenance and monitoring. Additionally, depending on the specifics of the activities associated with protected mitigation lands monitoring, protected mitigation lands workers may use local roadways, resulting in on- and off-site exhaust emissions (e.g., ROG, NO_x, PM₁₀, PM_{2.5}) as well as fugitive dust. These activities could result in localized, temporary emissions.

Although specific details regarding the specific activities or operational/maintenance trip number are unknown at this time, an estimate of emissions was conducted based on conservative assumptions of protected mitigation lands size, equipment that would be used, and activities that would take place (e.g., cars, trucks, maintenance equipment). Refer to Appendix F for detailed assumptions. Based on the modeling conducted, protected mitigation lands maintenance and operations would result in approximately 49.5 lbs/day and 5.5 lbs/day of PM₁₀ and PM_{2.5}, respectively. Emissions of ROG and NO_x would be less than 1 ton/year and 1.6 tons/year, respectively. This level of ROG and NO_x emissions would not exceed the applicable YSAQMD threshold of significance of 10 tons/year of ROG and NO_x. With regard to PM₁₀, most protected mitigation lands operations and maintenance activities would not trigger YSAQMD review. However, emission-generating activities (e.g., fence repair, mowing, grazing) would be minor. As shown by the modeling conducted, fugitive dust emissions would be minimal and would likely not exceed 5 lbs/day. Operational-related activities would not result in substantial dust emissions that would contribute to the existing nonattainment status of the SVAB. No additional effects would occur from operation activities associated with protected mitigation lands. Table 15-6 shows the estimated emissions of air pollutants from protected mitigation lands maintenance and monitoring.

Table 15-6 Estimated Emissions of Air Pollutants from Protected Mitigation Lands Maintenance and Monitoring

Pollutant	YSAQMD Threshold	Emissions	Exceeds Thresholds?
ROG	10 tons/year	<1 ton/year	No
NO _x	10 tons/year	1.6 tons/year	No
PM ₁₀	80 lbs/day	49.5 lbs/day	No
PM _{2.5}	N/A	5.5 lbs/day	N/A

Notes: YSAQMD = Yolo-Solano Air Quality Management District; tons/year = tons per year; lbs/day = pounds per day; N/A = not applicable

With regard to exposure of sensitive receptors to TACs, odors, and local CO, operational activities associated with protected mitigation lands management would be relatively minor and temporary. As such, exposure would be minimal and would not result in excessive exposure at any one receptor for an extended period of time. With respect to TACs and CO, abbreviated exposure at low levels would not result in adverse health effects to sensitive receptors. As protected mitigation lands related construction and maintenance would be short term in nature, sensitive receptors within the vicinity of protected mitigation lands would not be exposed to TACs, odors, or CO in levels or over a period of time that would result in health impacts.

Cumulative Effects

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland) over the past century has resulted in an increase in the amount of agricultural and natural landscapes converted

to residential, commercial, and other uses. This past development has produced emissions of air pollutants in the Plan Area such that human-related sources of pollution have depleted air quality as compared to pre-development conditions. Development in the Plan Area has resulted in the addition of mobile (e.g., automobiles, heavy-duty trucks) and stationary sources (e.g., wastewater treatment plants, factories) of air pollutants, with the Yolo County portion of the SVAB is in non-attainment for ozone and PM₁₀. This indicates that there is currently an adverse cumulative effect on air quality within the Plan Area.

Given the stringent regulatory environment in the SVAB, as well as various federal, State, and local policies and programs that result in emission reductions (e.g., clean fuel standards, improved vehicle emission standards, greenhouse gas reduction measures that also result in criteria pollutant reductions), further development in Yolo County included within the No Action Alternative would not necessarily contribute to a continuing reduction in air quality.

Elements of the additional foreseeable future development in the Plan Area, such as solar and wind energy development, could result in a net improvement in air quality in the SVAB by supplying electricity with less pollutant emissions per kilowatt hour produced. Past and present projects in the Plan Area have typically relied on electricity derived from fossil fuels, which emit air pollutants during combustion. Solar and wind energy sources would not require combustion and would, therefore, not produce air pollutants to a similar degree. Other foreseeable future projects, such as Caltrans infrastructure projects and additional flood control activities, would contribute construction emissions, but direct operational emissions would be minimal. All of the foreseeable future development projects would be subject to the same regulations, policies, and programs as the projects included as part of the No Action Alternative.

In addition, over the 50-year project study period, it is likely that advances in technology and cleaner fuels will continue through this timeframe that would result in reduced emissions of criteria air pollutants. This could have a net-positive cumulative effect on air quality in the Plan Area.

ALTERNATIVE B - PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Air quality impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is the implementation of the Yolo HCP/HCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussion focuses on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; monitoring; and control of invasive, nonnative species. However, the primary result of the neighboring landowner protection program, from an air quality perspective, would be the general preservation of existing conditions on lands adjacent to the Plan reserve system, and therefore, little to no change in air emissions associated with those lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Because the program does not change land uses or air emissions, it would not have an effect on air quality, and is not evaluated further in the impact discussion below.

All covered actions implemented under the Proposed Action Alternative, including both development and conservation actions, would be subject to AMMs required by the HCP/NCCP, some of which would reduce air quality effects. The AMMs that would reduce the likelihood of air quality effects are shown in Table 15-7 and are discussed in detail in Appendix C. AMM3, *Confine and Delineate Work Area* would reduce the ground

disturbance footprint associated with covered activities and thereby reduce PM₁₀ and PM_{2.5} emissions. AMM 5, *Control Fugitive Dust*, would reduce dust mobilization, and therefore also reduce PM₁₀ and PM_{2.5} emissions.

Table 15-7 Yolo HCP/NCCP Avoidance and Minimization Measures Applicable to Air Quality

General Construction and Operations and Maintenance
AMM3, Confine and Delineate Work Area.
AMM5, Control Fugitive Dust

Effect AQ-1: Conflict with or obstruct implementation of an applicable air quality plan.

Under the Proposed Action Alternative, implementation of the conservation strategy would include management activities that entail the construction, maintenance, repair, replacement, and use of facilities required to manage the reserve system, including maintenance sheds, shade structures, roads, culverts, fences, gates, wells, stock tanks, and stock ponds. All reserve system management structures will be constructed to minimize adverse effects on covered species and natural communities. Facilities existing at the time of land acquisition would be used whenever feasible. Habitat enhancement, restoration, creation, management, and monitoring would also be conducted. Implementation of these activities would result in emissions of air pollutants, similar to those described under the No Action Alternative.

The conservation strategy under the Proposed Action Alternative would also include the acquisition of agricultural land. Although agricultural use would be restricted (i.e., not converting the lands to orchards or vineyards), agriculture-related activity would continue to occur. Use of agriculture-related equipment (e.g., heavy-duty plows) would result in emissions of ROG, NO_x, PM₁₀, and PM_{2.5}; however, such emissions would occur similar to agricultural activity included in the covered activities. Therefore, emissions of air pollutants associated with agricultural preservation under Proposed Action Alternative would be similar to that discussed under the No Action Alternative.

As mentioned previously in Chapter 2, *Proposed Action and Alternatives*, the Yolo HCP/NCCP includes a corridor along the south bank of Putah Creek, in Solano County, where lands can be added to the reserve system. No other activities related to the HCP/NCCP would occur in this corridor, which is referred to as the expanded Plan Area. The expanded Plan Area would supplement the reserve system, and may undergo establishment and monitoring that could result in emissions of air pollutants.

As discussed under the No Action Alternative, construction- and operational-related emissions of ROG, NO_x, PM₁₀, and PM_{2.5} related to reserve system establishment and management activities would not exceed YSAQMD numeric standards and therefore would not conflict with or obstruct implementation of air quality plans applicable to Yolo County. It should be noted that reserves established under the No Action Alternative would likely be isolated in smaller in area than the reserve system, which would cover approximately 24,000 acres; however, establishment of the reserve system would occur over the 50-year study period. Therefore, emissions would be similar in amount to those produced from establishment of a reserve of smaller size (e.g., 500 acres) under the No Action Alternative.

Emissions would differ under the Proposed Action Alternative as compared to the No Action Alternative in that the conservation strategy in the Proposed Action Alternative would result in a reserve system that is consolidated and more contiguous and managed by a single entity. As a single entity would be overseeing the management of the reserve system, reserve system management would be more coordinated. This would support more efficient reserve system operations, such as allowing a single vehicle trip to be used to conduct reserve system management and monitoring on multiple reserves, as opposed to multiple reserve management entities each making separate trips to conduct management and monitoring on individual preserves. Reduced vehicle trips, and associated reductions in VMT, would also result in slightly reduced mobile source emissions from reserve operations and maintenance as compared to the No Action Alternative.

Further, construction of the covered activities under the Proposed Action Alternative would be subject to AMMs as required by the Yolo HCP/NCCP. These AMMs would provide an additional mechanism for impact reduction and oversight beyond existing regulations to reduce air quality effects associated with PM₁₀ and PM_{2.5}. Although neither the Proposed Action Alternative nor the No Action Alternative would result in conflicts with, or obstruction of, implementation of an applicable air quality plan from reserve system establishment and operation, overall emissions from these activities are anticipated to be slightly less or similar under the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not conflict or obstruct an air quality management plan.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

For the same reasons described above for Effect AQ-1, establishment and management of reserves under both the Proposed Action Alternative and the No Action Alternative would not violate an air quality standard or contribute substantially to an existing projected air quality violation. Overall emissions from these activities are anticipated to be slightly less or similar under the Proposed Action Alternative compared to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in a violation of an air quality standard.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard

For the same reasons described above for Effect AQ-1, establishment and management of a reserve system under both the Proposed Action Alternative and the No Action Alternative would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not contribute a cumulatively considerable net increase of air pollutants to the Plan Area.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect AQ-4: Expose sensitive receptors to substantial pollutant concentrations.

Activities associated with reserve system establishment and management that would generate pollutants would be short-term, temporary, and relatively minor. The activity with the greatest potential for emissions would be where grading or earth moving is completed as part of habitat restoration or creation. This would typically be a one-time activity at each reserve where it is conducted. As such, any exposure of nearby sensitive receptors to construction emissions would be minimal. More common reserve system

establishment and management activities, such as installing and maintaining fences and habitat monitoring, would result in little to no pollutant emissions. Because reserves would most frequently be established in existing rural or open space areas most suitable for providing habitat value to covered species, there would typically be few, to no sensitive receptors in close proximity to reserve system establishment and management activities.

Under the Proposed Action Alternative, agricultural land would also be preserved as a component of the conservation strategy. Agricultural practices such as tilling and plowing would continue to occur similar to existing conditions and would have similar impacts to those discussed under the No Action Alternative.

Given these conditions, like for the No Action Alternative, the establishment and management of the reserve system under the Proposed Action Alternative would not expose sensitive receptors to substantial pollutant concentrations. The level of emissions that could affect sensitive receptors is not appreciably different under the two alternatives, and an assessment of the overall proximity of preserves to sensitive receptors cannot be determined. Therefore, for this analysis, there is no difference in this effect between the Proposed Action Alternative and the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not expose sensitive receptors to substantial concentrations of pollutants.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect AQ-5: Create objectionable odors affecting a substantial number of people.

The small scale of reserve system establishment and management activities, the short-term and temporary nature of these activities, and the anticipated low density of potential sensitive receptors in the vicinity of reserves would prevent any odors generated by these activities from affecting a substantial number of people. Although exhaust from heavy-duty diesel construction equipment can be considered to provide an objectionable odor, the smell of the exhaust dissipates rapidly with distance and would not be discernable to a substantial number of people even if higher than anticipated numbers of diesel equipment were operating simultaneously in the reserve system. There are no other proposed reserve system activities that would generate objectionable odors that would cross the reserve boundary. The potential for generating odors that could affect people outside the reserve system would not be appreciably different between the Proposed Action Alternative and the No Action Alternative, and an assessment of the overall proximity of the reserve system to sensitive receptors cannot be determined.

As discussed previously, the conservation strategy under the Proposed Action Alternative would include emphasis on preserving agricultural land use. Agricultural activities that may produce odors such as deployment of manure and chemical compounds (e.g., pesticides, fungicides) would continue to occur. Odor impacts associated with agricultural activity would be similar to those discussed under the No Action Alternative.

Therefore, for this analysis, there is no difference in this effect between the Proposed Action Alternative and the No Action Alternative. Therefore, compared to No Action Alternative, this impact would be less than significant.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not expose sensitive receptors to objectionable odors.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

General Conformity

With regards to General Conformity *de minimis* levels, the net change in peak annual emissions between the Proposed Action Alternative and the No Action Alternative would be subject to the General Conformity Rule. These emissions include construction-related mobile sources (construction equipment, earth movement, construction vehicle trips) and operational-related mobile, stationary, and area-wide sources, as described above for the Proposed Action Alternative.

As discussed above, construction and operational emissions associated with the Proposed Action Alternative (for both urban development and reserve system activities) would be similar as compared to the No Action Alternative. As such, implementation of the Proposed Action Alternative would not result in a net increase in emissions that would be subject to General Conformity. Therefore, the Proposed Action Alternative Conformity would be exempt from general conformity (i.e., assumed to conform).

Cumulative Effects of the Proposed Action Alternative

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative. Cumulative air quality effects under the Proposed Action Alternative would generally be the same as those described previously for the No Action Alternative. Therefore, implementation of the conservation strategy under the Proposed Action Alternative would result in slightly reduced or similar cumulatively considerable contribution to the combined effects of past, present, and future projects on air quality in the Plan Area.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action (Alternative B); however, under the Reduced Take Alternative, there are eight areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

If the prohibition on take of covered species in the eight designated areas resulted in less overall vehicle trip generating development in the Plan Area, effects from mobile and area source emissions from development related activities could be slightly less under the Reduced Take Alternative. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new locations were farther from development centers, this could result in more frequent and longer vehicle trips and an increase in mobile source emissions from development related activities.

The Reduced Take Alternative includes implementation of the Yolo HCP/NCCP and associated conservation strategy and AMMs; however, with reduced take, there would also be reduced mitigation requirements compared to the Proposed Action Alternative. Therefore, there would be incrementally less overall preservation and habitat enhancement, restoration, and creation activities in the Plan Area. This would reduce the emissions associated with reserve system establishment and management activities. However, air quality effects from implementation of the conservation strategy are minimal; therefore, a further reduction would not make a change to the level of effect.

Overall, under the Reduced Take Alternative, Effects AQ-1 through AQ-5 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. Cumulative air quality effects under the Reduced Take Alternative would generally be the same as those described previously for the No Action Alternative. However, similar to the Proposed Action Alternative, because of the various elements of the Reduced Take Alternative that would reduce emissions (e.g., implementation of AMMs, coordinated management of a reserve system with larger and connected preserves), the Reduced Take Alternative would make a slightly smaller or similar contribution to any cumulative air quality effects.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D-REDUCED DEVELOPMENT ALTERNATIVE

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development resulting in take of listed species in these locations would be required to obtain ESA and CESA authorization on a project by project basis (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Impacts related to air quality as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action alternatives. Since the two areas that would not be covered by the HCP/NCCP could still be developed, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Although any development in the two identified areas would not be covered activities under the HCP/NCCP, mitigation for effects on covered species would still be required, which would likely result in some level of habitat reserve establishment.

Overall, under the Reduced Development Alternative, Effects AQ-1 through AQ-5 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required

Cumulative Effects of the Reduced Development Alternative

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. Cumulative air quality effects under the Reduced Development Alternative would generally be the same as those described previously for the No Action Alternative. However, similar to the Proposed Action Alternative,

because of the various elements of the Reduced Development Alternative that would reduce emissions (e.g., implementation of AMMs, coordinated management of a reserve system with larger and connected preserves), the Reduced Development Alternative would make a slightly smaller or similar contribution to any cumulative air quality effects.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

16 CLIMATE CHANGE

16.1 INTRODUCTION

This chapter provides information relevant to climate change impacts under NEPA and CEQA in connection with the proposed action and alternatives. This chapter includes an introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. Criteria air pollutants (e.g. ozone, carbon monoxide [CO], particulate matter [PM₁₀], and PM_{2.5}) are addressed in Chapter 15, *Air Quality*, of this document.

16.2 DATA SOURCES

Key sources of information used to prepare this Climate Change chapter include the following:

- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County 2009a),
- ▲ *Yolo County 2030 Countywide General Plan Draft Environmental Impact Report* (Yolo County 2009b),
- ▲ *Yolo County Climate Action Plan* (Yolo County 2011),
- ▲ *City of Davis General Plan* (City of Davis 2007),
- ▲ *City of Davis Climate Action and Adaption Plan* (City of Davis 2010),
- ▲ *City of West Sacramento General Plan 2035 Policy Document* (City of West Sacramento 2016),
- ▲ *City of West Sacramento Draft Climate Action Plan* (City of West Sacramento 2010),
- ▲ *City of Winters General Plan* (City of Winters 1994),
- ▲ *City of Woodland General Plan* (City of Woodland 2007),
- ▲ *City of Woodland Preliminary 2020 Climate Action Plan* (City of Woodland 2014), and
- ▲ *Yolo-Solano Air Quality Management District (YSAQMD) Handbook for Assessing and Mitigating Air Quality Effects* (YSAQMD 2007).

16.2.1 Definitions

Brief definitions of terminology used in this analysis are listed below.

Global climate change is the observed long-term increase in the temperature of Earth's atmosphere, as well as, shifts in the Earth's average climate (e.g. precipitation, occurrence of storms). In the past 100 years (1906 to 2005), global surface temperatures have risen by 1.3°F ± 0.32°F (0.74°C ± 0.18°C) (IPCC 2014). While natural climatic shifts are common in Earth's history, scientific consensus concludes that recent global climate change is caused in large part by anthropogenic (man-made) emissions of greenhouse gases (GHGs) released into the atmosphere through the combustion of fossil fuels and by other activities that affect the global GHG budget (e.g. deforestation and land-use change) (IPCC 2014).

Greenhouse gases (GHGs) that are widely seen as the principal contributors to human-induced global climate change are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Human activities in the past 100 years have caused substantial quantities of these GHGs to be released into the atmosphere, thereby enhancing the natural greenhouse gas effect. These gases can vary drastically in terms of their global warming potential (GWP).

Global warming potential (GWP) is defined as the relative measure of how much heat a GHG traps in the atmosphere. GWP is measured over a specific time interval that represents the lifetime of a GHG in the atmosphere (e.g., 20, 50, 200 years). The Intergovernmental Panel on Climate Change (IPCC) defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalent (CO_{2e}), which compares the gas in question to that of the same mass of CO₂ (CO₂ has a GWP of one by definition). A high GWP therefore represents high infrared absorption and long atmospheric lifetime when compared to CO₂.

Carbon dioxide (CO₂) is the most abundant GHG. Natural sources include respiration (breathing), volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. In 2013, CO₂ emissions accounted for approximately 84 percent of California's overall GHG emissions, with the majority of emission originating from the transportation sector (ARB 2015). CO₂ has a GWP of one.

Methane (CH₄) is a potent GHG. Natural sources include wetlands, termites, and oceans. Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion. In 2013, CH₄ emissions accounted for approximately nine percent of gross GHG emissions in California (ARB 2015). CH₄ has a GWP of 28.

Nitrous Oxide (N₂O) is a very potent GHG. It is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Human activities emit N₂O during fuel combustion, with the quantity emitted varying according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. In 2013, N₂O emissions accounted for approximately three percent of man-made GHG emissions in California (ARB 2015). N₂O has a GWP of 265.

Hydrofluorocarbons (HFCs) are primarily used as substitutes for ozone-depleting substances. PFCs and sulfur hexafluoride (SF₆) are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. In 2013, HFCs, PFCs, and SF₆ emissions accounted for approximately four percent of man-made GHG emissions in California (ARB 2015). GWPs of HFCs range from four to 23,500, with SF₆ having the highest GWP.

16.3 AFFECTED ENVIRONMENT

16.3.1 Environmental Setting

The primary effect of global climate change has been a rise in average global temperatures. Global climate modeling shows that further warming could induce the following additional climate effects:

- ▲ rises in sea levels along coastlines due to ocean expansion;
- ▲ changes in extreme-heat conditions, such as heat waves and very high temperatures;
- ▲ increases in wildfire frequency and intensity;
- ▲ increases in heat-related human deaths, infectious diseases, and risk of respiratory problems caused by deteriorating air quality;

- ▲ increased percentages of winter precipitation as rain rather than snow;
- ▲ decreases in snow pack and stream flow, affecting winter recreation and water supplies;
- ▲ increases in the severity of winter storms, affecting peak stream flows and flooding;
- ▲ changes in growing season conditions that could affect agriculture, causing variations in crop quality and yield;
- ▲ changes in the distribution of plant and wildlife species; and
- ▲ changes in precipitation levels, including increasing precipitation in some areas of the world and decreasing precipitation in others.

Cal-Adapt is a climate change scenario planning tool developed by the California Energy Commission (CEC) that downscales global climate model data to local and regional resolution under two emissions scenarios: the A-2 scenario represents a business-as-usual future emissions scenario, and the B-1 scenario represents a lower GHG emissions future. According to Cal-Adapt, annual average temperatures in the Plan area are projected to rise by 3.8-6.5 °F by 2100, with the range based on low and high emissions scenarios (Cal-Adapt 2014).

GREENHOUSE GAS EMISSIONS INVENTORIES

A GHG inventory is a quantification of all GHG emissions sources and sinks (i.e., mechanisms that absorb GHGs from the atmosphere and fix it in another form, such as trees removing CO₂ and using it to form wood) within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). Table 16-2 details the results of multiple inventories applicable to all, or portions of the Plan Area.

Table 16-1 Summary of Global, Federal, State, Yolo County, and Local GHG Emissions Inventories¹

GHG Inventory	Total Emissions	% of 2004 Global Emissions
2004 Global Emissions Inventory	27 billion metric tons	N/A
2013 National Emissions Inventory	6.7 billion metric tons	24.8.0%
2013 Statewide Emissions Inventory	459.3 million metric tons	1.7%
2008 Unincorporated Yolo County Emissions Inventory	651,470 metric tons	0.000024%
2006 City of Davis Emissions Inventory	309,367 metric tons	0.000011%
2007 City of West Sacramento Emissions Inventory	410,682 metric tons	0.000015%
2005 City of Woodland Emissions Inventory	544,000 metric tons	0.000020%
1990 City of Winters Emissions Inventory	42,800 metric tons	0.0000016%

Source: EPA 2013, ARB 2013, Yolo County 2011, City of Davis 2008, City of West Sacramento 2010, City of Woodland 2014

A baseline GHG inventory was prepared for Yolo County as part of a Climate Action Plan (CAP) prepared in 2011 (Yolo County 2011). The CAP estimates that in 2008, the unincorporated area produced 651,470 metric tons of GHGs. Approximately 48 percent of those emissions were generated by agriculture while transportation and energy account for an additional 47 percent. In 2006, County staff conducted an inventory of municipal government operations and reported that these operations generated approximately 12 percent of total GHGs (Yolo County 2011). Energy use, including electricity and natural gas, comprised 22 percent of total GHG emissions (Yolo County 2009b).

In 2008, the City of Davis reported that community-wide emissions totaled 309,367 metric tons for the year 2006 (City of Davis 2008). The City of West Sacramento's Draft Climate Action Plan reported that community-wide GHG emissions in 2007 were 410,682 metric tons (City of West Sacramento 2010). In 2008, the City of West Sacramento reported that municipal operations generated 18,000 metric tons of GHGs. The City of Woodland's preliminary 2020 CAP reported that community-wide GHG emissions in 2005 were 544,000 metric tons (City of Woodland 2014). At the time of writing this Draft EIR/EIS, the City of Winters has not completed a CAP; however, Winters completed a GHG inventory which estimates that Winters GHG emissions in 2005 were approximately 59,100 metric tons (City of Winters 2012).

16.3.2 Regulatory Setting

Climate change is widely recognized as a threat to the global climate, economy, and population. Covering actions by multiple jurisdiction and agencies, the climate change regulatory setting—nationally, statewide, and locally—is complex and continues to evolve. The following section identifies key legislation and executive orders relevant to the environmental assessment of project GHG emissions. The courts have, and continue to play a key role in the interpretation and implementation of climate change regulations; therefore, key court cases are also referenced.

FEDERAL LAWS AND REGULATIONS

George W. Bush's Climate Change Policy Plan

In February 2002, the United States government announced a comprehensive strategy to reduce the GHG intensity of the American economy by 18 percent over the 10-year period from 2002 to 2012. This strategy had three basic components: (1) slowing the growth of emissions, (2) strengthening science, technology and institutions, and (3) enhancing international cooperation. To accomplish these goals, the government created the Climate Change Science Program (CCSP) and Climate Change Technology Program (CCTP) to investigate natural and human-induced changes to the global climate, as well as accelerate the development of technologies capable of reducing GHG emissions.

Massachusetts v. Environmental Protection Agency

On April 2, 2007, the United States Supreme Court ruled that the U.S. Environmental Protection Agency (EPA) has the authority to regulate CO₂ emissions under the federal CAA. Two years later, in December 2009, the EPA Administrator found that current and projected concentrations of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ threaten the public health and welfare of current and future generations. Additionally, the Administrator found that combined emissions of CO₂, CH₄, N₂O, and HFCs from motor vehicles contribute to the atmospheric concentrations and thus to the threat of climate change. Although the Endangerment Finding in itself does not place requirements on industry, it is an important step in the EPA's process to develop regulation of GHGs.

While no specific GHG thresholds have been published by the federal government, the following regulations have been adopted and represent milestones in the development of a threshold:

EPA Mandatory GHG Reporting

Under this rule, suppliers of fossil fuels or industrial GHGs (e.g., PFCs), manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHGs are required to report annual emissions to the EPA.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (EISA) requires an increase in the Corporate Average Fuel Economy (CAFE) vehicle gas mileage standard to 35 miles per gallon for the combined fleet of cars and

light trucks by model year 2020. The act also includes several other provisions for renewable energy and energy efficiency.

Updated CAFE Standard

On May 19, 2009 President Obama issued a requirement to automakers to increase fuel efficiency of the combined fleet of cars manufactured in the United States to 35.5 mpg by 2016, four years ahead of the schedule set by the EISA. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent.

STATE LAWS AND REGULATIONS

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

As described below, legislation was passed in 2006 (Assembly Bill [AB] 32) to limit GHG emissions to 1990 levels by 2020 with continued "reductions in emissions" beyond 2020, but no specific additional reductions were enumerated in the legislation. Further, Senate Bill (SB) 375 (sustainable community strategies/transportation) established goals for emissions from light duty truck and automobiles for 2020 and 2035.

A recent California Appellate Court decision, *Cleveland National Forest Foundation v. San Diego Association of Governments* (November 24, 2014), further examined the executive order and whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. The case has been accepted for review by the California Supreme Court, and therefore is not currently considered a precedent. Thus, as executive orders cannot establish policy without legislative support, the State does not currently have a mandated GHG reduction target for 2030 or 2050. It should be noted, however, that language contained in AB 32 (see below) sets the trajectory for the State to continue reductions of GHGs past 2020.

AB 32, the Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (AB 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that these reductions "...shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide GHG limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020. (c) The (Air Resources Board) shall make recommendations to the Governor and the Legislature on how to continue reductions of GHG emissions beyond 2020." [California Health and Safety Code, Division 25.5, Part 3, Section 38551]

The AB 32 Scoping Plan

In December 2008, the California Air Resources Board (ARB) adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of CO₂e (CO₂e is further explained below in Section 15.1.2) emissions, or approximately 21.7 percent from the State's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO₂e, but the current 545 MMT CO₂e 2020 projection takes into account the economic downturn that occurred in 2008 and associated reductions in statewide GHG emissions (ARB 2011).

The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by 2020 will be by implementing the following measures and standards (ARB 2011):

- ▲ improved emissions standards for light-duty vehicles (estimated reductions of 26.1 MMT CO₂e);
- ▲ the Low-Carbon Fuel Standard (15.0 MMT CO₂e);
- ▲ energy efficiency measures in buildings and appliances (11.9 MMT CO₂e); and
- ▲ a renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e), and the Cap-and-Trade Regulation for certain types of stationary emission sources (e.g., power plants).

In May 2014, ARB released, and has since adopted, the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012 (ARB 2014). According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 (ARB 2014). The update also reports the trends in GHG emissions from various emission sectors.

The update summarizes sector-specific actions needed to stay on the path toward the Executive Order S-3-05 2050 target. While the update acknowledges certain reduction targets by others (such as in the Copenhagen Accord), it stops short of recommending a specific target for California, instead acknowledging that mid-term targets need to be set “consistent with the level of reduction needed [by 2050] in the developed world to stabilize warming at 2 °C (3.6 °F) [above pre-industrial levels].”

Actions are recommended for the energy sector, transportation (clean cars, expanded zero-emission vehicle program, fuels policies, etc.), land use (compliance with regional sustainability planning targets), agriculture, water use (more stringent efficiency and conservation standards, runoff capture, etc.), waste (elimination of organic material disposal, expanded recycling, use of Cap and Trade program, etc.), green building (strengthen Green Building Standards), and other sectors. Many of the actions that result in meeting targets will need to be driven by new or modified regulations.

Executive Order B-30-15

On April 20, 2015 Governor Edmund G. Brown Jr. signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. California is on track to meet or exceed the current target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (Assembly Bill 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050.

SB 32 and AB 197, Statutes of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize ARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

SB 32 is contingent upon AB 197, which grants the State Legislature stronger oversight over ARB's implementation of its GHG reduction programs. AB 197 amended the existing Health and Safety Code sections and established new statutory directions, including the following provisions. Section 9147.10 establishes a six-member Joint Legislative Committee on Climate Change Policies to ascertain facts and

make recommendations to the Legislature. ARB is required to appear before this committee annually to present information on GHG emissions, criteria pollutants, and toxic air contaminants from sectors covered by the Scoping Plan. Section 38562.5 requires that ARB consider social cost when adopting rules and regulations to achieve emissions reductions, and prioritize reductions at large stationary sources and from mobile sources. Section 38562.7 requires that each Scoping Plan update identify the range of projected GHG and air pollution reductions and the cost-effectiveness of each emissions reduction measure.

SB 375 (Steinberg), Statutes of 2008

SB 375, signed into law by Governor Schwarzenegger in 2008, requires regional transportation plans, developed by metropolitan planning organizations (MPOs), to incorporate a “sustainable communities strategy (SCS)” in their regional transportation plans (RTPs) that will achieve GHG emission reduction targets set by ARB.

The Sacramento Area Council of Governments (SACOG) serves as the MPO for Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo counties, excluding those lands located in the Lake Tahoe Basin. The Plan Area is located within Yolo County and includes the cities of Davis, West Sacramento, Winters, and Woodland. SACOG adopted its Metropolitan Transportation Plan (MTP)/SCS 2035 in 2016. SACOG was tasked by ARB to achieve a nine percent per capita reduction compared to 2012 emissions by 2020 and a 16 percent per capita reduction by 2035, which ARB confirmed the region would achieve by implementing its SCS (ARB 2016:172). The MTP/SCS forecasts land use development by community types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period.

A portion of the RTP/SCS covers the Plan Area (i.e., Yolo County, the City of Davis, the City of West Sacramento, the City of Winters, and the City of Woodland); all jurisdictions with areas slated for development in the SCS growth projections.

California Code of Regulations, Energy Efficiency Standards

Energy consumption of new buildings in California is regulated by State Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 2, Chapter 2-53. Title 24 applies to all new construction of both residential and nonresidential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The 2013 Building Energy Efficiency Standards have improved efficiency requirements from previous codes and the updated standards are expected to result in a statewide energy consumption reduction.

Effective January 1, 2011, CALGreen became California’s first green building standards code. It is formally known as the California Green Building Standards Code, Title 24, Part 11, of the California Code of Regulations. CALGreen establishes mandatory minimum green building standards and includes more stringent optional provisions known as Tier 1 and Tier 2. Cities and counties, at their discretion, may adopt Tier 1 or Tier 2 as mandatory or adopt and enforce other standards that are more stringent than the CALGreen Code.

Center for Biological Diversity v. California Department of Fish and Wildlife

In November 2015, the California Supreme Court issued its decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming* 62 Cal.App. 4th 204 (referred to as the Newhall Ranch decision hereafter). The case involved a challenge to the GHG analysis prepared in the EIR for the proposed Newhall Ranch development project in Southern California. The court ruled that the business-as-usual (BAU) methodology in the EIR did not provide sufficient evidence to conclude that the project’s GHG emissions would be consistent with the statewide reductions in the Scoping Plan. The court provided general guidance regarding the potential alternative approaches to GHG impact assessment that agencies may follow. In light of the Newhall Ranch decision, the BAU-based methodology is no longer a recommended approach for GHG analysis under CEQA; lead agencies must use their discretion on a project-by-project basis.

LOCAL LAWS AND REGULATIONS

Yolo-Solano Air Quality Management District

The YSAQMD has not adopted specific thresholds of significance for analyzing GHG emissions under CEQA. YSAQMD has developed thresholds concepts for land use and stationary source projects in collaboration with the Sacramento Metropolitan Air Quality Management District and other air districts in the region. The threshold concepts recommend use of 1,100 metric tons of CO₂e per year (MT CO₂e/year) screening level for evaluating whether a project is consistent with the goal of reducing statewide GHG emissions to 1990 levels by 2020. Prior to the Newhall Ranch decision (discussed above) YSAQMD recommended that projects that would exceed the screening level would need to demonstrate a 21.7 percent reduction in GHG emissions from a “No Action Taken” (NAT) scenario which represents a scenario in which no GHG reduction regulations or measures are implemented. In light of the Newhall Ranch decision, YSAQMD now provides recommendations for GHG impact assessment on a project-by-project basis. In the case that GHG impacts are found to be significant, YSAQMD recommends that lead agencies require project-specific mitigation measures such as building code restrictions, increased public transportation, alternative fuels, or other actions that reduce CO₂.

Cool Counties Climate Stabilization Program

On September 11, 2007, Yolo County joined the Cool Counties Climate Stabilization Program. Under this program, Yolo County works with regional jurisdictions to achieve a fair-share reduction in regional GHG emissions of 80 percent by the year 2050. To achieve this goal, Yolo County has committed to the following: developing a GHG emissions inventory, adopting proactive short-, mid-, and long-term GHG reduction goals, and urging Congress to enact more stringent GHG regulations.

Yolo County 2030 General Plan

The Conservation and Open Space Element of the general plan contains the following goals and policies that may be relevant to the Plan:

- ▲ **Policy CO-7.1:** Encourage conservation of natural gas, oil and electricity, and management of peak loads in existing land uses.
- ▲ **Policy CO-7.3:** Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.
- ▲ **Policy CO-7.6:** Encourage the use of building material and methods that increase energy efficiency a minimum of 15 percent beyond State Title-24 standards for residential buildings and 20 percent beyond State Title-24 standards for commercial buildings.
- ▲ **Policy CO-7.7:** Support farmers and landowners in their efforts to maximize the efficiency of agricultural end uses.
- ▲ **Policy CO-7.9:** Require that new site and structure designs maximize energy efficiency.
- ▲ **Policy CO-7.11:** Strongly encourage LEED certification or equivalent for all public, private and existing buildings and strongly encourage LEED Neighborhood Design (ND) certification or equivalent for other applicable projects, particularly within the Specific Plan areas.
- ▲ **Policy CO-8.1:** Assess current GHG emission levels and adopt strategies based on scientific analysis to reduce global climate change impacts.
- ▲ **Policy CO-8.2:** Use the development review process to achieve measurable reductions in GHG emissions.

- ▲ **Policy CO-8.3:** Prepare appropriate strategies to adapt to climate change based on sound scientific understanding of the potential impacts.
- ▲ **Policy CO-8.4:** Encourage all businesses to take the following actions, where feasible: replace high mileage fleet vehicles with hybrid and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.
- ▲ **Policy CO-8.5:** Promote GHG emission reductions by supporting carbon efficient farming methods (e.g. methane capture systems, no-till farming, crop rotation, cover cropping); installation of renewable energy technologies; protection of grasslands, open space, oak woodlands, riparian forest and farmlands from conversion to other uses; and development of energy-efficient structures.
- ▲ **Policy CO-8.6:** Undertake an integrated and comprehensive approach to planning for climate change by collaborating with international, national, State, regional, and local organizations and entities
- ▲ **Policy CO-8.7:** Integrate climate change planning and program implementation into County decision making.
- ▲ **Policy CO-8.8:** Increase public awareness about climate change and encourage county residents and businesses to become involved in activities and lifestyle changes that will aid in reduction of greenhouse gas emissions.
- ▲ **Policy CO-8.9:** Work with local, regional, State, and Federal jurisdictions, as well as private and non-profit organizations, to develop a regional GHG emissions inventory and emissions reduction plan.

Yolo County 2030 Climate Action Plan

Yolo County adopted a CAP in March 2011. The CAP established a target to reduce the 2008 level of emissions back to the levels estimated for 1990, or 613,651 metric tons. To achieve this target, 15 programs were proposed, including such measures as increasing renewable energy production, enhancing energy and water conservation, expanding alternative transportation, planting trees, and reducing fertilizer application. In order to meet the reductions envisioned in the Cool Counties Initiative and State legislation, the CAP also includes voluntary goals to reduce GHG emissions to 447,965 metric tons by 2030, and 122,730 metric tons by 2050.

City of Davis General Plan

The Community Resource Conservation Element of the general plan contains the following goals and policies that may be relevant to the Plan:

- ▲ **Policy ENERGY 1.1.:** Develop programs to increase energy conservation on the household and business level.
- ▲ **Policy ENERGY 1.2:** Develop a comprehensive program to reduce City government energy consumption.
- ▲ **Policy ENERGY 1.3:** Promote the development and use of advanced energy technology and building materials in Davis.
- ▲ **Policy ENERGY 1.4:** Continue to enforce landscaping requirements that facilitate efficient energy use or conservation.
- ▲ **Policy ENERGY 1.5:** Encourage the development of energy-efficient subdivisions and buildings.

City of Davis Climate Action and Adaptation Plan

The City of Davis adopted the Davis Climate Action and Adaptation Plan in June 2010. The Plan is designed to place the community on a path to achieve the local GHG emission reduction targets adopted by the City Council in November 2008. Those targets were based on a range that uses the State of California targets as a minimum goal and deeper reductions as the desired outcome. The City adopted this range in recognition that emission reductions are not precise and that many scientists believe that a reduction of 80 percent below 1990 levels by 2050 may not be adequate. The City adopted a series of “Phase One” actions to achieve reductions; setting an interim target for the year 2015, with 22 “Priority One” action proposals, in six general categories, that include mobility, energy, waste and consumption, food and agriculture, community engagement, and government operations.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policies that relate to climate change that may be applicable to the analysis of the HCP/NCCP:

Safety Element

Goal S-4. To alleviate the effects of climate change by reducing greenhouse gas emissions and adapting to expected climate change impacts.

- ▲ **Policy S-4.3. Climate Action Policies.** The City shall, in collaboration with the stakeholders from the community, implement policies and measures to reduce greenhouse gas emissions from community, business, and municipal activities consistent with the targets described in Policies HS-5.1 and 5.2.
- ▲ **Policy S-4.5. State and Federal Action.** The City shall support State and Federal actions to reduce greenhouse gas emissions.
- ▲ **Policy S-4.7. Climate Change Monitoring and Adaptation.** The City shall monitor the local and regional impacts of climate change, and use adaptive management techniques and the latest climate change science to implement, and/or revise if necessary, strategies to respond to the expected impacts of climate change.

City of West Sacramento Draft Climate Action Plan

The City of West Sacramento prepared a Draft CAP in 2010. The Draft CAP sets a municipal goal to reduce emissions 15 percent from current levels by 2020. The City is also committed to reducing community-wide GHG emissions by 30 percent below a “Business as Usual” level based on a 2007 base year by 2020. Business as Usual assumes that emissions per resident and per employee continue at the same rate as in 2007 as the City grows. The Draft CAP proposes specific measures to reduce emissions from municipal and community-wide sources. At the time of writing this DEIS/DEIR, West Sacramento has yet to approve the Draft CAP; therefore, GHG targets established by the document are not yet enforceable.

City of Winters General Plan

The Natural Resources Element of the general plan contains the following goals and policies that may be relevant to the Plan:

- ▲ **Policy VI.F.1:** In approved new residential subdivisions, the City shall promote the maximum feasible east-west alignment of lots for southern solar exposure, as required by the State Subdivision Act.
- ▲ **Policy VI.F.2:** The City shall encourage and promote examples of energy efficient design and operation of new residential, commercial, and industrial development projects.
- ▲ **Policy VI.F.3:** For projects involving rehabilitation or modification of existing developments, the City shall promote the incorporation of energy-efficient features beyond state Title 24 requirements through fast-track processing and other incentives.

- ▲ **Policy VI.F.4:** The City shall provide for the dedication of sunlight easements in connection with land divisions, pursuant to Government Code Section 66475.3.
- ▲ **Policy VI.F.5:** Through its operation and management of existing municipal facilities, as well as planned new facilities, the City shall utilize energy efficient technologies to the maximum feasible extent.

The City of Winters is currently in the process of developing a CAP; however, at the time of writing of this DEIR/DEIS, a Draft CAP has not been released.

City of Woodland Preliminary 2020 Climate Action Plan

The City of Woodland adopted a Preliminary¹ 2020 CAP in July 2014. The Preliminary 2020 CAP presents a set of community-generated strategies to guide the City, its residents, and local businesses in reducing GHG emissions consistent with State goals for addressing California's contributions to rapid climate change. The CAP strategies aim to reduce Woodland's GHG emissions 15 percent below 2005 levels by 2020 and providing tools for addressing GHG emissions of future development. An important element of the CAP is a mid-point (2017) assessment of progress towards meeting the 2020 GHG reduction goals. If the assessment determines that adequate progress has not been made, new strategies and additional actions would need to be taken. Further, given that the targets extend to the year 2020, the CAP will need updating following the passage of 2020 and when the City next updates their general plan.

The City of Woodland General Plan does not contain policies related to GHGs and climate change; however, the City is undergoing an update to their General Plan which will incorporate such policies.

16.4 ENVIRONMENTAL CONSEQUENCES

16.4.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

GHG emissions are typically categorized as direct (e.g., emissions directly emitted from a source such as vehicle tailpipe emissions) and indirect (i.e., emissions that occur associated with energy consumption from a local utility). The alternatives were evaluated in the context of the existing and planned development, land use patterns within the Plan Area, and emissions sources associated with them (e.g., stationary, mobile). Effects are identified where the actions or projects associated with the alternative would result in new or additional GHG emissions.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

¹ The planning horizon for the City of Woodland 2020 CAP ends in 2020. The CAP is being updated for later horizon years as part of the City's General Plan Update.

Whether GHG emissions associated with individual development projects would contribute to substantial increases GHGs is discussed qualitatively based on whether GHGs associated with those projects could conflict with a plan, policy, or regulation adopted to reduce GHG emissions.

One mechanism by which alternatives could increase GHG emissions would be by increasing regional vehicle miles traveled (VMT), and thus, mobile-source CO₂. This could occur during both construction and operations. Construction and operations could also result in the use of heavy duty equipment which would be a source of exhaust.

GHG emissions associated with implementation of the Plan's conservation strategy are assessed quantitatively. More specifically, construction- and operational-related emissions from reserve system establishment and management were quantified using the California Emissions Estimate Model (CalEEMod). Modeling was conducted to estimate the level of GHGs associated with the implementation of habitat restoration or creation using conservative assumptions (i.e., assumptions that would lead to higher emissions). The modelling includes the use of heavy-duty equipment for earth movement and grading as well as operational-related vehicle use. Detailed model assumptions and parameters are included in Appendix E.

The assessment of potential effects on climate change is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action Alternative. Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ generate GHG emissions, either directly or indirectly, that may have a significant effect on the environment;
- ▲ conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; or
- ▲ result in inefficient and wasteful consumption of energy during construction or operations, or require new or expanded energy facilities that could cause significant environmental effects.

The following numeric thresholds provided by federal and local entities are used to assist in determining whether the thresholds above are exceeded.

Local Thresholds

- ▲ YSAQMD has not formally adopted quantitative thresholds that apply to the construction and operation phases of a project. However, YSAQMD has developed thresholds concepts for land use and stationary source projects in collaboration with the Sacramento Metropolitan Air Quality Management District, the air district and other air districts in the region. These include the following mass emission thresholds for evaluating the construction and operational phases of a proposed project: Construction phase of projects: 1,100 MT CO₂e/year; and
- ▲ Operational phase of projects: 1,100 MT CO₂e/year.

YSAQMD also recommends a mass emission threshold of 10,000 MT CO₂e/year for evaluating new stationary sources; however, this threshold is not applicable to the Plan because it would not result in any new large stationary sources of GHG emissions.

The mass emission threshold of 1,100 MT CO₂e/year for evaluating the construction and operational phases of projects is recommended for determining whether a project's construction and operational activities would be consistent with AB 32 and ARB's Climate Change Scoping Plan goal to reduce statewide GHG emissions to 1990 levels by 2020. Because the Plan is designed to protect species and their habitats beyond 2020, and some GHG emissions associated with construction and operational activities performed under the Plan would occur after 2020, these thresholds are adjusted to be more consistent with the goal established by SB 32 to reduce statewide GHG emission levels to 40 percent below 1990 levels by 2030. YSAQMD has not released a recommended threshold to reflect this reduction goal; however, as the 1,100 MT CO₂e/year threshold was developed to ensure a project's consistency with AB 32's goal of 1990 levels of GHGs by 2020, it is assumed that a 40 percent reduction in the 1,100 MT CO₂e/year threshold would be consistent with the SB 32 goal of 40 percent of 1990 GHG levels by 2030. Therefore, for the purposes of this analysis, the thresholds recommended by YSAQMD are reduced by 40 percent to the following levels:

- ▲ Construction phase of projects: 660 MT CO₂e/year, and
- ▲ Operational phase of projects: 660 MT CO₂e/year.

16.4.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Construction associated with any of the categories of development and related activities would result in GHG emissions from the use of heavy-duty construction equipment and from construction equipment and vehicle exhaust (i.e., worker commute vehicles and haul truck trips). Operational-related emissions associated with incidental take authorization and related activities would include mobile sources and stationary sources. Urban and rural development projects would result in direct and indirect GHG emissions during operation (e.g., electricity usage, wastewater treatment). Infrastructure (e.g., roads and any airport) built under the No Action Alternative would contribute to increases in mobile-source emissions of GHGs throughout the Plan Area. Operational emissions of GHGs from mobile and stationary sources associated with individual ground disturbance and other related activities could exceed applicable local thresholds of 660 MT CO₂e /year for operation and applicable thresholds for stationary point sources could also be exceeded, and thus would cause a considerable contribution to climate change. Further, these operational GHG emissions could conflict with an applicable plan, policy, or regulation adopted to achieve local, regional, or statewide GHG reduction goals. However, both construction and operational GHG emissions associated with ground disturbance and other related activities would be reduced through successful implementation of applicable CAPs and/or GHG reduction policies in applicable general plans. Also, individual projects reviewed under CEQA that would generate GHG emissions in exceedance of applicable thresholds would be required to implement feasible GHG reduction measures.

As the development and other activities described above would be implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur,

requiring mitigation. Mitigation measures would likely include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., reserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation).

Establishment of protected mitigation lands under the No Action Alternative would include minor maintenance activities such as earth movement and grading, fence installation. The use of heavy equipment for grading and earth moving would generate exhaust emissions of GHGs. Annual levels of construction-related GHGs were estimated using CalEEMod. These estimates were based on conservative assumptions of protected mitigation lands system size and likely maintenance equipment that would be used (e.g., trucks, loaders, backhoes). Refer to Appendix E for detailed assumptions about the types and sizes of heavy-duty maintenance equipment (e.g., horsepower rating, load factors, engine model year). Based on the modeling conducted, establishment of protected mitigation lands that include habitat restoration or creation could result in up to 472 MT CO₂/year from the use of heavy-duty equipment, worker commute trips, and material haul trips. This level of emissions would not exceed the applicable significance criterion of 660 MT CO₂e/year; therefore, construction-related GHG emissions would not further contribute considerably to already existing significant and unavoidable, cumulative GHG impacts.

Operational emissions associated with construction and protected mitigation lands system management would include mobile-source exhaust emissions associated with visits by protected mitigation lands system managers/crews for maintenance and monitoring and similar activities. Although details regarding the specific activities or operational/maintenance-related VMT are not known at this time, an estimate of emissions was conducted based on conservative assumptions about protected mitigation lands system size, equipment that would be used, and activities that would take place (e.g., trucks, loaders, backhoes). Refer to Appendix E for detailed assumptions. Based on the modeling conducted, protected mitigation lands system maintenance and operational activities could result in emissions of up to 442 MT CO₂/year. This estimation is also conservative because it does not account for any of the carbon sequestration-related benefits that would result from new trees or vegetation planted as part of restoration or protected mitigation lands system maintenance efforts. This level of emissions would not exceed the applicable significance criterion of 660 MT CO₂e/year. Therefore, operational GHG levels associated with protected mitigation lands system management would not result in substantial GHG emissions.

Construction and development related activities anticipated to occur under the No Action Alternative would result in more energy use than under existing conditions. Energy consumption would generally occur in four forms: (1) the fuel energy consumed by construction vehicles; (2) bound energy in construction materials; (3) ongoing energy required for interior and exterior lighting, heating/ventilating/air conditioning, computer and electronics systems; and (4) the consumption of transportation energy.

Construction Vehicles. Fossil fuels would be used by heavy duty equipment and vehicles and other energy-consuming equipment during construction. Standard criteria pollutant emission reduction practices discourage unnecessary idling and the operation of poorly maintained equipment.

Construction Materials. The incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, or pipes, and manufactured or processed materials such as lumber and gas would not substantially increase demand for energy compared to overall regional demand for such materials. Construction materials would not be used in a wasteful manner in large part because such waste would increase construction costs.

Operational Energy Requirements. Compliance with California's Title 24 Energy Efficiency Standards would generally promote operational energy efficiency of structures. All new buildings in California must meet the standards contained in Title 24 on the date a building permit application is made, and energy efficiency requirements are enforced by local governments through the building permit process. Minimum efficiency standards, including those for household appliances, water and space

heating and cooling equipment and insulation for doors, pipes, walls and ceilings would ensure that the proposed project would not use energy in a wasteful manner.

Transportation Energy. State and federal regulations regarding fuel efficiency standards for vehicles in California are designed to reduce wasteful, unnecessary, and inefficient use of energy for transportation. Further, local planning documents generally encourage project design to limit fuel consumption by located projects in areas with existing infrastructure and encouraging alternative transportation. Fuel consumption associated with vehicle trips generated under the No Action Alternative is not anticipated to be inefficient, wasteful, or unnecessary in comparison to other similar developments in the State.

As discussed above, there are a variety of mechanisms in place that would lead to or require energy efficiency, result in the use or development of alternative energy, or otherwise reduce energy consumption. For example, the regulations identified above, including California's Title 24 Energy Efficiency Standards, general plan policies, CAPs, and other local and regional plans that reduce the level of vehicle miles traveled (VMT), would be applied to projects. These regulations are intended to guide projects so that they do not result in inefficient and wasteful consumption of energy.

In addition, the California Public Utilities Commission obligates energy providers to maintain the capacity to provide energy to planned projects. As it is anticipated that development under the No Action Alternative would be consistent with applicable land use plans, which utilities incorporate into their assessment of infrastructure needs, it is anticipated that there would be adequate service available to meet the generated demand.

As discussed in Section 16.3.1, the effects of climate change include rising global temperatures, increased frequency and intensity of wildland fire, changes in precipitation, rising sea levels, and a decrease in snow pack. The activities under the No Action Alternative would be subject to these climate factors except sea level rise. The Plan Area is located in Yolo County, which is located more than 50 miles inland from the Pacific Ocean. Although the elevation in some parts of the County are near sea level, particularly in the portions that are part of the Sacramento-San Joaquin Delta, the effects of sea level rise would be reduced with distance from the ocean. The declining effects of ocean tides on water levels in the Sacramento-San Joaquin Delta is evidence of this effect. Portions of the Delta more distant from the ocean experience declining water elevation changes from the tides. In Yolo County, there is little to no evidence of tidal effects. Therefore, projected rises in sea level would not adversely affect the Plan Area. However, increases in temperature and wildland fire, changes in precipitation patterns, and a smaller snow pack leading to altered flow patterns in rivers fed by the Sierra snowpack, such as the Sacramento River, could directly affect the Plan Area and protected mitigation lands. The ability of protected mitigation lands to be resilient to these changing conditions would be influenced by factors such as protected mitigation lands size, connectivity between protected mitigation lands to support species movement, and buffers between protected mitigation lands and adjacent development.

Cumulative Effects

Based on the global nature of GHG emissions, the global climate change analysis is inherently cumulative. GHG emissions resulting from implementation of all alternatives, including the No Action Alternative, would be cumulative contributions to a global issue. Available local emissions thresholds and the CEQ recommendations are used to assess whether the GHG emissions of an alternative make a substantial contribution to the global cumulative effects of climate change. Therefore, the cumulative impacts of the No Action Alternative on existing and future conditions are identical to those described above.

ALTERNATIVE B—PROPOSED ACTION ALTERNATIVE (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public

and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Climate change impacts as a result of these activities would be the same as described under the No Action Alternative. While the types and quantities of agricultural activities and their associated GHG emissions may change, such changes would not be the result of the Proposed Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/HCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures (AMMs) during implementation of development related activities. This impact discussion focuses on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species. The primary result of the neighboring landowner protection program from a GHG emissions perspective, however, would be the general preservation of existing conditions on lands adjacent to the Plan reserve system lands, and therefore, little to no change in GHG emissions associated with those lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Project and Alternatives*. Because the program would not change land uses or their associated GHG emissions, it would not have an effect on GHG levels in the atmosphere, and is not evaluated further.

Effect CC-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Under the Proposed Action Alternative, implementation of the conservation strategy would include management activities that entail the construction, maintenance, repair, replacement, and use of facilities required to operate the reserve system, including maintenance sheds, shade structures, roads, culverts, fences, gates, wells, stock tanks, and stock ponds. Habitat enhancement, restoration, creation, management, and monitoring would also be conducted. Though the Proposed Action Alternative relies on the continued agricultural use of the land, changes to the types and quantities of agricultural activities, and related GHG emissions, are not expected to result from implementation of the Proposed Action Alternative. The level of agricultural-related GHG emissions under the Proposed Action Alternative would not be different than under the No Action Alternative. Implementation of the Plan's management activities under the Proposed Action Alternative would result in GHG emissions similar to those described under the No Action Alternative and have analogous effects with respect to climate change. Applicable significance criteria for GHG emissions would not be exceeded (i.e., 660 MT CO₂e/year).

However, the conservation strategy under the Proposed Action Alternative would result in a reserve system that is consolidated and more contiguous than under the No Action Alternative and managed by a single entity. This would support more efficient reserve system lands operation, such as allowing a single vehicle trip to be used to conduct reserve management and monitoring on multiple reserve system lands, as opposed to multiple reserve system management entities each making separate trips to conduct management and monitoring on individual preserves. Reduced vehicle trips, and associated reductions in VMT, would also result in reduced GHG emissions from reserve system operations and maintenance as compared to the No Action Alternative.

Although establishment and operation of reserves under neither the Proposed Action Alternative nor the No Action Alternative would result in GHG emissions that would have a significant effect on the environment, overall emissions from reserve system operations are anticipated to be slightly less or similar under the Proposed Action Alternative.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not generate a substantial level of GHGs.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect CC-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As discussed above for Effect CC-1, establishment and operation of the reserve system under the Proposed Action Alternative would not exceed the applicable GHG significance criteria, and therefore would not constitute a substantial contribution of GHG emission that would conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions. Overall GHG emissions from reserve system operations would be slightly less or similar under the Proposed Action Alternative than under the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect CC-3: Result in inefficient and wasteful consumption of energy, or require new or expanded energy facilities.

Appendix F of the State CEQA Guidelines requires consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce “wasteful, inefficient and unnecessary” energy usage (Public Resources Code Section 21100, subdivision [b][3]). However, neither the law nor the State CEQA Guidelines establish thresholds that define wasteful, inefficient, or unnecessary use. Therefore, this section includes a qualitative discussion of the potential for the project to result in the inefficient or wasteful consumption of energy.

Energy would be required to construct projects provided incidental take authorization through the HCP/NCCP. This one-time energy expenditure required to construct physical infrastructure would be non-recoverable. Most energy consumption would result from operation of reserve maintenance equipment, and indirect energy consumption would be associated with the production and transport of reserve maintenance materials. There are no unusual project characteristics that would necessitate the use of reserve maintenance equipment that would be less energy efficient than those used for comparable activities in other parts of the State. As discussed above for the No Action Alternative, the incremental increase in the use of energy bound in reserve maintenance materials would not be substantial when compared to overall local and regional demand for reserve maintenance materials. Energy efficiency is also expected for the offsite production of reserve maintenance materials, based on the economic incentive for efficiency. Non-renewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other reserve maintenance sites in the region.

Energy demand for establishment and operation of reserve system lands has been quantified through CalEEMod calculations for a habitat restoration effort, which would be the greatest energy consuming activity related to the reserve system. As described above for the No Action Alternative, reserve system establishment that includes habitat restoration or creation could produce up to 472 MT CO₂/ year from the use of heavy-duty equipment, worker commute, and vendor haul trips; reserve system maintenance and operational activities could result in emissions of up to 442 MT CO₂/year. There is potential that the reserves established under the Proposed Action Alternative could be somewhat more energy efficient than those modeled for the No Action Alternative because they would be consolidated when compared to the No Action Alternative. Further, where reserve system lands are a continuation of existing conditions, there would be little to no change in energy consumption. Overall energy consumption for establishment and management of reserve system lands would not be substantial and there are no unique or special circumstances that would result in a wasteful use of energy. The projected energy consumption would not require additional capacity or substantially increase peak or base period demands for electricity and other forms of energy.

As discussed above for the No Action Alternative, the development for which the HCP/NCCP would provide take coverage is included in the local planning documents used by utility providers to forecast demand and is not expected to require new or expanded energy facilities not anticipated by the energy provider. Further, any new or expanded energy facilities are included within the overall development receiving incidental take authorization.

The energy use of development with incidental take coverage and the reserve system under the Proposed Action Alternative would be generally similar to the energy use of the anticipated take associated with development and individual reserves anticipated under the No Action Alternative. Therefore, implementation of the Proposed Action Alternative would result in a less-than-significant impact relative to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required

Effect CC-4: Effects of climate change to the action.

As discussed above in Section 16.2.1 and the evaluation of the No Action Alternative, climate change may result in various effects on reserves in the Plan Area related to precipitation amounts and patterns, temperature, wildfire risk, and snow pack effects on river flows. These changes could result in adverse effects to reserve systems. Given the amount of uncertainty and number of variables involved, it would be speculative to attempt to predict the future effects of climate change on any particular species or ecosystem in the Plan Area. Although, if adverse effects from climate change were to occur in reserve system lands, the larger interconnected reserve system associated with the Proposed Action Alternative would be more resilient to changing climatic conditions than the smaller more discrete reserves associated with the No Action Alternative. Also, the buffers provided between reserves and adjacent land uses included as part of the conservation strategy under the Proposed Action Alternative would add further resiliency to potential climate change effects.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial**.

No mitigation is required

Cumulative Effects

As described previously for the No Action Alternative, effects related to GHG emissions and global climate change, by their nature, are cumulative. Therefore, cumulative impacts of the Proposed Action Alternative would be the same as those described above for the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative would include the same categories of covered activities as the Proposed Action Alternative; however, under the Reduced Take Alternative, there would be eight areas designated for development under the Proposed Action Alternative where activities that would result in take of covered species would be not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

If the prohibition on take of covered species in the eight designated areas resulted in less overall development in the Plan Area, effects from mobile and area source GHG emissions from take associated with development related activities could be slightly less under the Reduced Take Alternative than under the No Project Alternative. However, the prohibition on take in the eight areas could result in the development planned for these locations being diverted to another part of the Plan Area. If any of the new locations were farther from development centers, this could result in more frequent and longer vehicle trips and an increase in mobile-source GHG emissions from development related activities. As discussed above for the Proposed Action Alternative, overall energy consumption for establishing and managing the reserve system is small and there would be no unique or special circumstances that would result in a wasteful use of energy.

Climate change effects from implementation of the conservation strategy would be minimal; therefore, the reduced level of mitigation requirements would not make a change to the level of climate change-related effects in the Plan area relative to the Proposed Action Alternative.

Overall, under the Reduced Take Alternative, Effects CC-1 through CC-4 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation required

Cumulative Effects

As described previously for the No Action Alternative, effects related to GHG emissions and global climate change, by their nature, are cumulative. Therefore, cumulative impacts of the Reduced Take Alternative would be the same as those described above for the No Action Alternative and Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D-REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative would include the same categories of covered activities as the Proposed Action Alternative, but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development that resulted in take of listed species in these locations would be required to obtain FESA and CESA authorization on a project-by-project basis (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

Impacts related to GHG emissions and climate change as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. Because the two areas that would not be covered by the HCP/NCCP could still be developed, the overall development scenario may ultimately not differ from the No Action Alternative and Proposed Action Alternative. Although any development in the two identified areas would not be development related activities under the HCP/NCCP, mitigation for effects on covered species would still be required, which would likely result in some level of habitat reserve establishment. As discussed above for the

Proposed Action Alternative, overall energy consumption for establishing and managing the reserve system is small and there would be no unique or special circumstances that would result in a wasteful use of energy. Overall, under the Reduced Development Alternative, Effects CC-1 through CC-3 would not be appreciably different from what is described for the Proposed Action Alternative.

Climate change effects from implementation of the conservation strategy would be minimal under the Reduced Development Alternative; therefore, the reduced level of mitigation requirements would not make a change to the level of climate change-related effects in the Plan area relative to the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required

Cumulative Effects

As described previously for the No Action Alternative, effects related to GHG emissions and global climate change, by their nature, would be cumulative. Therefore, cumulative impacts of the Reduced Development Alternative would be the same as those described above for the No Action Alternative and the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

17 GEOLOGY, SOILS, AND MINERAL RESOURCES

17.1 INTRODUCTION

This chapter provides information relevant to geology, soils, and mineral resources impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. Naturally occurring asbestos (NOA) which may be associated with serpentinite rock formations, is addressed in Chapter 19, *Hazardous Materials*.

17.1.1 Data Sources

The following key sources of data and information were used in the preparation of this chapter:

- ▲ Maps and reports published by the California Geological Survey (CGS),
- ▲ The *Soil Survey of Yolo County, California* (U.S. Department of Agriculture [USDA] 1972),
- ▲ *Yolo County 2030 Countywide General Plan* (Yolo County 2009a),
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County 2009b), and
- ▲ *Background Report for the Yolo County General Plan Update* (Yolo County 2005).

17.1.2 Definitions

Geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize 11 provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief, and climate (CGS 2002).

Active faults have a record of displacement (i.e., movement) sometime in the past 11,000 years. *Potentially active faults* have a record of displacement in the last 1.6 million years. *Inactive faults* do not have a record of displacement in the last 1.6 million years. When cracks appear in the ground surface during a seismic event, the phenomenon is referred to as *surface rupture*.

Seismic ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake. The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the *magnitude*, which is generally expressed in the Richter Magnitude Scale or as moment magnitude. The scale used in the Richter Magnitude Scale is logarithmic, so that each successively higher Richter magnitude reflects an increase in the energy of an earthquake of about 31.5 times. Moment magnitude is the estimation of an earthquake magnitude using seismic moment, which is a measure of an earthquake size utilizing rock rigidity, amount of slip, and area of rupture. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. The *intensity* of ground shaking is described by two methods: ground acceleration as a fraction of the acceleration of gravity or the Modified Mercalli scale, which is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

A *soil association* is a landscape-level classification system based on the distinctive spatial distributions of combinations of soil series. Soils in each series have similar physical and chemical characteristics. *Liquefaction* is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state. *Expansive soils* shrink and swell in response to the presence of water. *Erosion* is a natural

process whereby soil and highly weathered rock materials are worn away and transported, most commonly by wind or water.

Mineral resource zone (MRZ) classifications are established by the State Surface Mining and Reclamation Act (SMARA) of 1975 (described below in Section 17.2.2, *Regulatory Setting*) to evaluate an area's mineral resources. The MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data; and socioeconomic factors such as market conditions and urban development patterns. The MRZ classifications are defined as follows.

- ▲ **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- ▲ **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- ▲ **MRZ-3:** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- ▲ **MRZ-4:** Areas where available information is inadequate for assignment into any other MRZ.

The term *onsite wastewater treatment systems* applies to sewage treatment and disposal systems that serve a particular site or facility. The most typical form of this type of system is a septic tank and leach fields.

17.2 AFFECTED ENVIRONMENT

17.2.1 Environmental Setting

GEOLOGY

The Plan Area spans two geomorphic provinces. Roughly 70 percent of the Plan Area is in the Great Valley geomorphic province that covers the central portion of the state. The western portion of the Plan Area includes the Coast Ranges geomorphic province, which is associated with mountains formed along the San Andreas Fault (CGS 2002).

The Great Valley geomorphic province, also called the Central Valley, is a nearly flat alluvial plain that extends from the Tehachapi Mountains in the south to the Klamath Mountains in the north, and from the Sierra Nevada in the east to the Coast Ranges in the west. The valley is approximately 450 miles long, with an average width of about 50 miles. Elevations of the alluvial plain are generally just a few hundred feet above mean sea level (MSL), with extremes ranging from a few feet below MSL to about 1,000 feet above MSL (Hackel 1966).

Geologically, the Great Valley geomorphic province is a large, elongated, northwest-trending asymmetric structural trough that has been filled with an extremely thick sequence of sediments ranging in age from Jurassic to Holocene. This asymmetric geosyncline has a stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Hackel 1966). Within the Great Valley geomorphic province, the Plan Area consists of gently sloping to level alluvial areas. Geologic units in this part of the Plan Area generally consist of Quaternary-age alluvium and basin deposits, and the Quaternary Modesto and Riverbank Formations. Rolling terraces of the Tehama Formation (non-marine sandstone, siltstone, and volcanoclastic rocks) project into the valley area northwest of Woodland and form the Dunnigan Hills (Wagner et. al. 1987).

The Coast Ranges geomorphic province includes many separate ranges; coalescing mountain masses; and several major structural valleys of sedimentary, igneous, and metamorphic origin. The northern Coast Range extends from the California/Oregon border south to the San Francisco Bay area, and the southern Coast Range extends from the San Francisco Bay area south to the northern edge of the Transverse Ranges geomorphic province. Both the northern and southern Coast Ranges generally extend to 50 to 75 miles inland from the coastline and parallel the Great Valley geomorphic province throughout their length, except for extreme northern California where the northern Coast Range is adjacent to the Klamath Mountains geomorphic province (Page 1966).

The Coast Ranges geomorphic province is characterized by the presence of two entirely different core complexes, one being a Jurassic-Cretaceous eugeosynclinal assemblage (the Franciscan rocks) and the other consisting of early Cretaceous granitic intrusives and older metamorphic rocks. The two unrelated, incompatible core complexes lie side by side, separated from each other by faults. A large sequence of Cretaceous and Cenozoic clastic deposits covers large parts of the province. The rocks in the province are characterized by many folds, thrust faults, reverse faults, and strike-slip faults that have developed as a consequence of Cenozoic deformation (Page 1966).

Within the Coast Ranges geomorphic province, the Plan Area consists of moderately sloping to very steep uplands and terraces and is characterized by parallel ridges and valleys that trend slightly west of north (Andrews 1972). The rocks in the Coast Ranges part of the Plan Area consist of a number of Quaternary and Cretaceous geologic formations, including upturned marine sandstones, shales, mudstones, and conglomerates, with some volcanoclastic rocks (Wagner and Bortugno 1982). A small area of ultramafic rocks, one of which may be serpentinite, occurs along Little Blue Ridge, west of Rumsey (USGS and CGS 2011). Elevations in the Coast Ranges reach more than 3,000 feet above MSL.

SEISMICITY

Seismic hazards include earthquake fault ground rupture and ground shaking (primary hazards), and liquefaction and earthquake-induced slope failure (secondary hazards). Localized ground shaking and liquefaction are the most significant seismic hazards in the Plan Area (Yolo County 2005).

Surface Rupture and Faulting

The only fault in the Plan Area that is potentially subject to surface rupture is the Hunting Creek Fault (sometimes referred to as the Hunting Creek-Berryessa Fault) (Yolo County 2005). There is evidence of activity on this fault during the Holocene epoch (approximately the last 11,000 years), and the fault is associated with a Special Studies Zone. (Special Studies Zones are delineated by the State of California, pursuant to the Alquist-Priolo Earthquake Fault Zoning Act, around potentially active faults. See Section 17.2.2, *Regulatory Setting*, below, for additional information.) The Hunting Creek Fault is a right-lateral fault and has an average slip rate of 6 mm per year. Its maximum expected Richter magnitude is 7.1 (CGS 2003, Appendix A). The fault is located in a sparsely inhabited part of the extreme northwestern corner of the Plan Area (Exhibit 17-1). Only a very short section of the fault occurs in the Plan Area; most of the trace extends through Lake and Napa counties.

In addition to the Hunting Creek Fault, the Dunnigan Hills Fault, which extends between the town of Dunnigan and northwest of the town of Yolo west of Interstate 5, is potentially active (Yolo County 2005: 3-5). There is evidence of displacement along the fault during the Holocene epoch (Jennings 1994); however, the Dunnigan Hills Fault is not within an Alquist-Priolo Earthquake Fault Zone (Hart and Bryant 1997), and surface fault rupture is considered unlikely.

There are also a number of pre-Quaternary faults (e.g., Capay, Sweitzer, and West Valley faults) in the western part of the Plan Area that show displacement more than 1.6 million years ago. These faults are considered inactive.

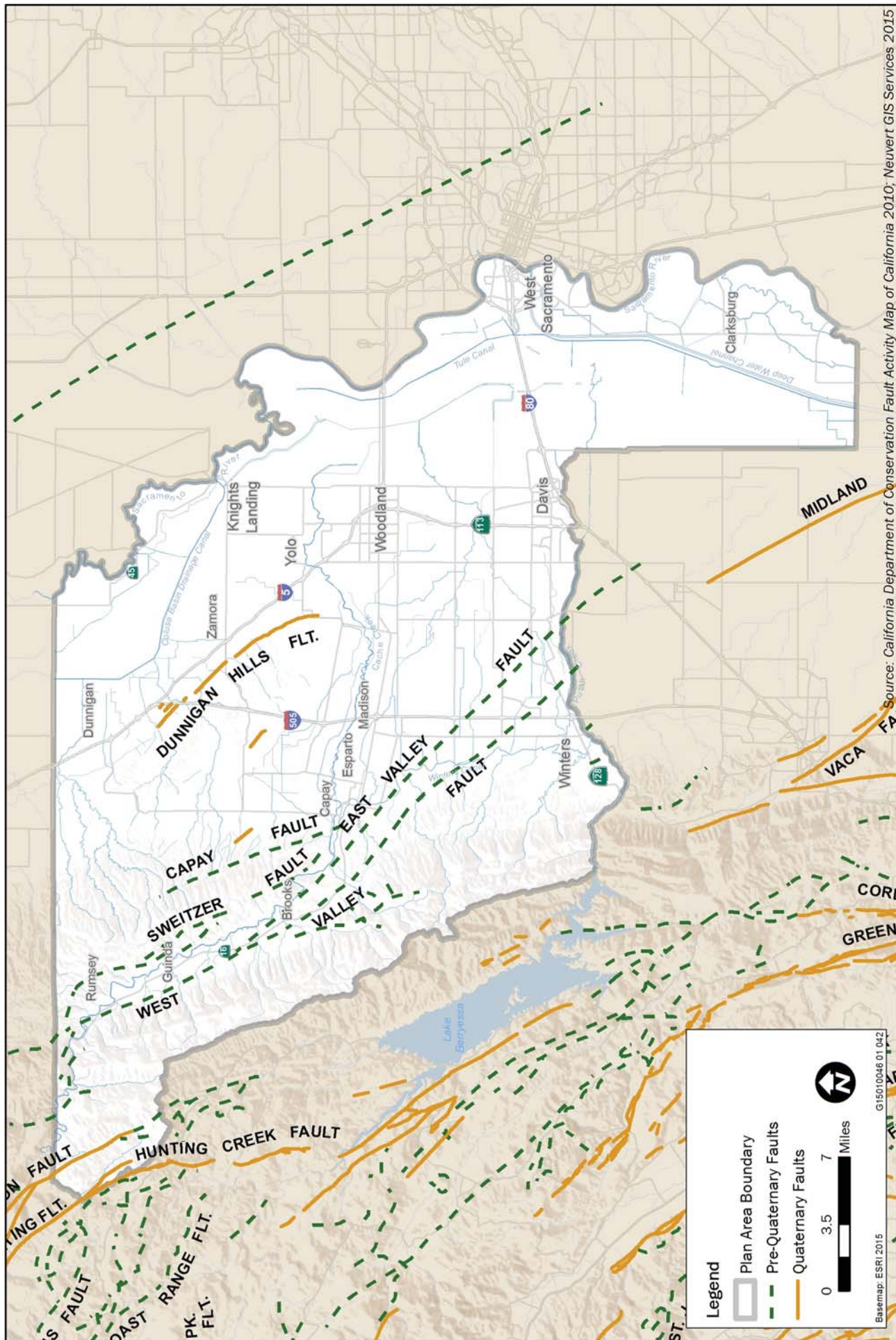


Exhibit 17-1

Faults in the Plan Area

Ground Shaking Hazard

Earthquake energy, and therefore the potential for ground shaking, is most intense at the fault epicenter; with the potential for, and intensity of, ground shaking typically decreasing with distance from the epicenter. Estimates of the peak ground acceleration are based on probabilistic models that account for multiple seismic sources. Under these models, consideration of the probability of expected seismic events is incorporated into the determination of the level of ground shaking at a particular location. Yolo County is mapped by CGS as a region that is generally distant from known, active faults. As a result, the county is expected to experience lower levels of shaking less frequently. Earthquake hazard in the western portion of the Plan Area is moderate and lower in the alluvium in the eastern portion of the Plan Area (CGS 2008).

In addition to the Hunting Creek and Dunnigan Hills faults discussed above, major regional faults outside the Plan Area in the Coast Ranges and in the Sierra Nevada foothills are capable of producing strong ground shaking in the Plan Area. The Coast Range-Sierran Block Boundary, at the edge of the western side of the lower Sacramento Valley, is currently recognized as a potential seismic source capable of generating moderate earthquakes that could affect the ground-shaking hazard within the Plan Area (Yolo County 2009b).

Liquefaction and Related Hazards

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts located within 50 feet of the surface typically are considered to be the most susceptible to liquefaction. Soils and sediments that are not water-saturated and that consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997). The part of the Plan Area in the Coastal Ranges geomorphic province would generally be expected to have a low liquefaction hazard, except in the intermountain valleys underlain by alluvium and shallow groundwater. Liquefaction is expected to be a relatively greater hazard in the Great Valley portion of the Plan Area, particularly along the floodplains of streams where the sediments are generally sandier than other areas.

Two potential ground failure types associated with liquefaction are lateral spreading and differential settlement. Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a nearly level surface toward a river channel or other open face. Areas most prone to lateral spreading are those that consist of fill material that has been improperly engineered, that have steep, unstable banks, and that have high groundwater tables. The banks along the Deep Water Ship Channel and Turning Basin in West Sacramento may have such conditions. Damage caused by liquefaction and lateral spreading is generally most severe when liquefaction occurs within 15 to 20 feet of the ground surface (Yolo County 2005).

Differential settlement can occur as soil compacts and consolidates to varying degrees after ground shaking ceases. Differential settlement results when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from one percent to five percent, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Portions of the Plan Area that contain loose or uncontrolled (non-engineered) fill may be susceptible to differential settlement.

OTHER GEOLOGIC CONDITIONS

Land Subsidence

Land subsidence (lowering of the land-surface elevation) occurs in three ways: as a result of compaction and oxidation of peat soils; hydrocompaction (i.e., a soil is saturated, then when the moisture is removed the soil particles consolidate more tightly than before saturation); and groundwater overdraft, which is the main mechanism for subsidence in the Plan Area. The primary hazards associated with subsidence are increased pressure on levees and damage to underground utilities. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven. Specific to

the Plan Area, land subsidence has damaged or reduced the integrity of highways, levees, irrigation canals, and wells (Yolo County 2009b).

In Yolo County, as much as 4 feet of land subsidence due to groundwater withdrawal has occurred since the 1950s, particularly in the area between the towns of Zamora, Knights Landing, and Woodland (Yolo County 2009b). More recently, subsidence has been observed in the Plan Area through periodic monitoring conducted in 1999, 2002, and 2005. A corridor that extends north from the City of Davis, through the City of Woodland, to the community of Zamora and through the northeast corner of the county showed evidence of the most subsidence in these studies. The greatest amount of subsidence was observed in the community of Zamora, which subsided roughly 6 inches during this six-year period. These areas generally have little access to surface water and rely on substantial groundwater pumping (D'Onofrio and Frame 2006).

Landslides

Landslides are commonly triggered by unusually high rainfall and the resulting soil saturation, by earthquakes, or a combination of these conditions. The general term "landslide" may include a wide range of slope failures, including but not limited to rock falls, deep failure of slopes, earthflows, and shallow debris flows. Some landslides occur as a result of human activities, such as timber harvest, undermining a slope, and improper drainage water management.

Steep slopes underlain by Cretaceous rocks along Cache Creek are susceptible to landslides, and numerous large and small landslides have been mapped in this area (Manson 1990). Areas in the northwestern portion of the Plan Area have high landslide susceptibility (CGS 2011). However, except for the communities of Guinda, Capay, Rumsey, and Brooks, landslides are generally not a significant hazard to life or property in the Plan Area, due in large part to the relatively flat topography in much of the County (Yolo County 2009b, Figure IV.L-6). Most of the areas subject to landslides are in agricultural use or are otherwise undeveloped.

SOILS IN THE PLAN AREA

Overlying the geologic units described above is a layer of soil. Soil types are important in describing engineering constraints such as erosion and runoff potential, corrosion risks, and various behaviors that affect structures, such as expansion and settlement (the nature of these constraints are described further below). There are 12 soil associations in the Plan Area that have formed through landscape-level physical and chemical processes (Exhibit 17-2). Table 17-1 summarizes the soil associations' characteristics. The soil associations in the Plan Area can be grouped into an uplands group, a lowland alluvial fan group, and a lowland Colusa/Yolo Basin group.

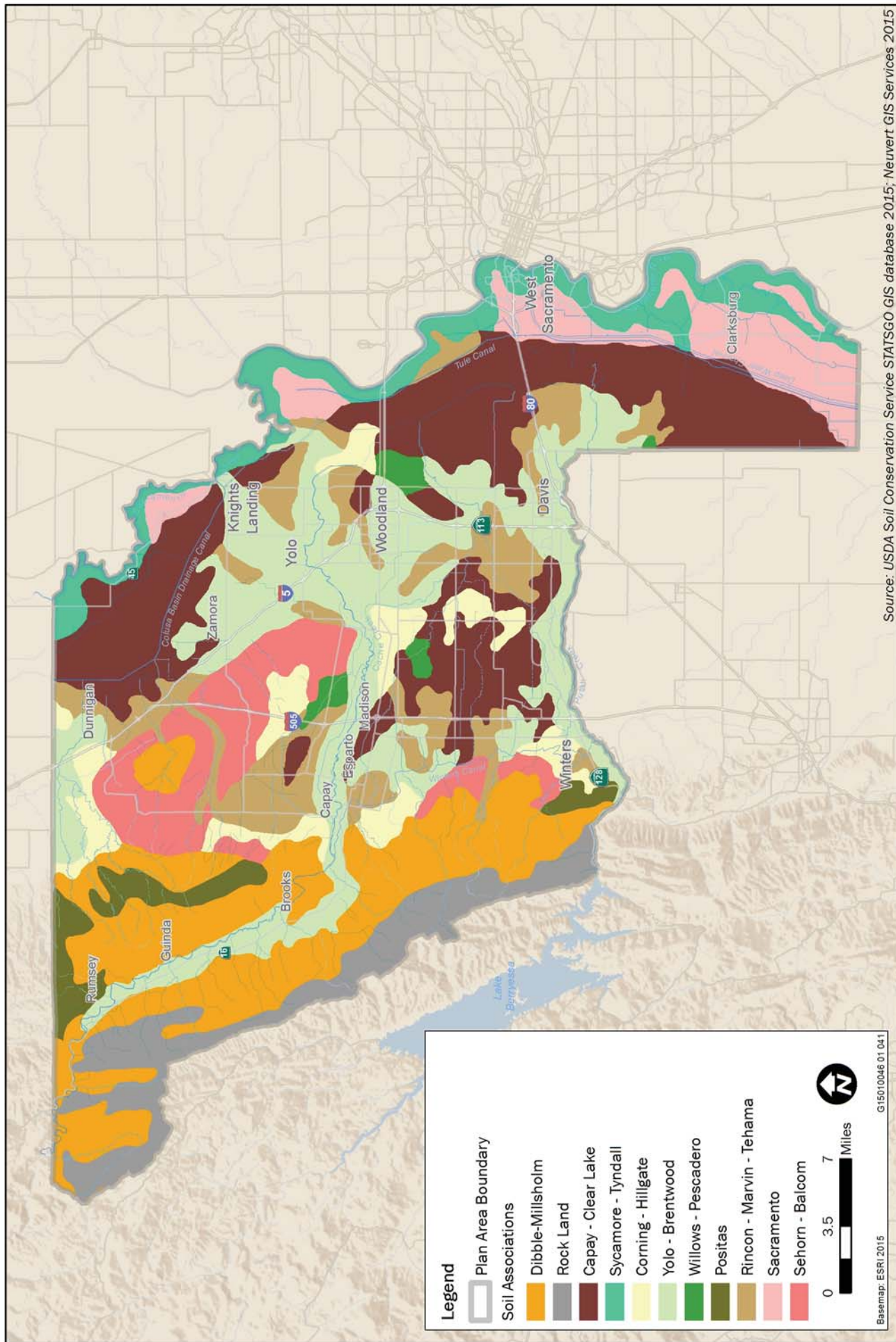


Exhibit 17-2

Soils Associations in the Plan Area

Table 17-1 Soil Associations for Yolo County

Soil Association Name	Water Erosion Hazard	Expansive Soil Potential (shrink-swell)	Corrosivity (uncoated steel)	Soil Limitations for Septic Tank Filter Field
Yolo- Brentwood	None to slight	Yolo: Moderate Brentwood: High	Yolo: Low to Moderate Brentwood: High	Yolo: Moderate to Severe Brentwood: Severe
Rincon-Marvin- Tehema	None to slight	Rincon: Mod/High Marvin: Mod/High Tehema: Moderate	Rincon: Mod/High Marvin: High Tehema: Low/Moderate	Severe
Capay-Clear Lake	None to slight	High for most subtypes	High	Severe
Sycamore- Tyndall	None to slight	Moderate to High	Sycamore: High Tyndall: Low/Moderate	Severe for most subtypes
Sacramento	None to slight	Moderate to High	High	Severe
Willows- Pescadero	None to slight	Moderate to High	High	Severe
Capay- Sacramento	None to slight	High for most subtypes	High	Severe
Corning- Hillgate	None to slight	Low to High	Low to High	Severe
Sehorn-Balcom	Moderate to very high	Sehorn: High Balcom: Moderate	Sehorn: High Balcom: Moderate	Severe
Dibble- Millsolm	Moderate to very high	Dibble: High Millsolm: Moderate	Dibble: High Millsolm: Moderate	Severe
Positas	Moderate to very high	Low to High	Low to High	Severe
Rock Land	Very high	–	–	–

Source: USDA 1972

Uplands Soils Group

The uplands soils group consists of five soils associations: Rock Land, Dibble-Millsholm, Positas, Sehorn-Balcom, and Corning-Hillgate. The Rock Land association is located on sandstone of Franciscan complex and Great Valley sequence materials along the highest ridges of Little Blue Ridge and Blue Ridge (Andrews 1972). Typically, 50 to 90 percent of the land surface of Rock Land is exposed sandstone, shale, or serpentinized bedrock; the remainder is covered by a thin layer of sandy loam (Andrews 1972). Immediately below the Rock Land association on Blue Ridge and along the flanks of the Capay Hills is the Dibble-Millsholm association, which formed from Great Valley sequence materials (Andrews 1972). Exposed bedrock covers less than 10 percent of the surface of the Dibble-Millsholm association, which consequently has more soil development. Although it lacks similar parent material, an outlier of this association has been mapped on the highest areas of the northern Dunnigan Hills.

The patchy Positas association formed on terraces over the Red Bluff Formation in the southern end of the Blue Ridge and along the western and northern slopes of the Capay Hills. Its soils are gravelly loams. The Sehorn-Balcom association formed over the Tehama Formation, along the eastern toes of the Blue Ridge and Capay Hills, and along most of the Dunnigan Hills. The soils of this association consist of silty clays and clays. Adjacent terraces of the Red Bluff and Tehama Formations support the Corning-Hillgate association, which also extends along the Plainfield Ridge. The soils of this association are gravelly loams or loams. One outlier of this association has been mapped across the entire Cache Creek Settling Basin. Among the upland soils used for livestock grazing, soils in the Sehorn-Balcom and Dibble-Millsolm associations generally produce the greatest amounts of forage (Andrews 1972).

Lowland Alluvial Fan Group

The lowland alluvial fan group consists of four soils associations: Yolo-Brentwood, Capay-Clear Lake, Rincon-Marvin-Tehama, and Willows-Pescadero. The Yolo-Brentwood association is most closely associated with alluvial floodplains and fans of Cache and Putah Creeks. In the Cache/Putah Basin, it forms the highest proportions of the basin rim at the mouths of the streams from the Blue Ridge and along the natural levee of Putah Creek. Its soils are deep and well drained, and their textures range from silty loams to silty clay loams. Soils in the Yolo-Brentwood association are suited to a wide range of crops and are among the best arable soils in the Plan Area.

The soils of the Capay-Clear Lake association line the bottoms of portions of the Cache/Putah Basin and other lowland areas. These soils are generally poorly drained silty clays to clays. Their historic vegetation was primarily prairie/grassland, with some localized seasonal freshwater marsh. The Rincon-Marvin-Tehama association is found on the rim of the Cache/Putah Basin between the Yolo-Brentwood association and the Capay-Clear Lake association. On the eastern side of the Cache/Putah basin there is a patch of the Willows-Pescadero association that formed where groundwater was forced to the surface by the Dunnigan Hills/Plainfield anticline. The soils of this association are saline-alkaline silty clay loams to clays. These soil associations are also found east of the Dunnigan Hills/Plainfield Ridge anticline where salts that were transported eastward across the Putah/Cache alluvial fans accumulated at the basin rim interface between the alluvial fans and the Yolo and Colusa Basins.

Lowland Colusa/Yolo Basin and Sacramento River Natural Levee Group

The lowland Colusa/Yolo Basin and Sacramento River natural levee group consists of three soil associations: Sycamore-Tyndall, Sacramento, and Capay-Sacramento. The Sycamore-Tyndall association is found on the natural levees of the Sacramento River. Its soils are somewhat poorly drained very fine sandy loams to clay loams. Below the Sycamore-Tyndall association, in the rice lands of the Colusa Basin, is the Sacramento association. Its soils are poorly drained silty clay loams and clays. Finally, the Yolo Bypass and parts of the Colusa Basin contain the Capay-Sacramento association, with its moderately well-drained to poorly drained silty clay loams to clays. Note that the Capay-Sacramento soil association is not identified in Exhibit 17-2.

Soil Characteristics

Erosion Potential

Natural rates of erosion vary depending on slope, soil type, and vegetative cover. Typically, soils with high amounts of silt are more easily eroded, while coarse-grained (sand and gravel) soils are less susceptible to erosion. Soil erosion can become problematic when human intervention causes rapid soil loss and the development of erosional features (such as incised channels, rills, and gullies) that undermine roads, buildings, or utilities. This is typically associated with vegetation clearing and earth moving, which reduces soil structure and cohesion. Many of the soils in the steeper, upland areas in the western part of the Plan Area have been subject to accelerated erosion, such that they have lost part, or all, of their original topsoil layer (Andrews 1972). This is, presumably, largely a result of past overuse of forage by grazing animals (Yolo County 2005).

Soils in the Yolo-Brentwood association are suited to a wide range of crops and are among the best arable soils in the Plan Area. The suitability of the soils for particular agricultural uses and their farmland classification (e.g., Prime Farmland) are described in more detail in Chapter 6, *Agricultural and Forestry Resources*.

Expansive Soil Potential/Shrink-Swell Potential

Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). When these soils swell, the change in volume can exert significant pressure on loads that are placed on them, such as building and structure foundations or underground utilities, and can result in structural distress and/or damage. Often, grading, site preparations, and backfill operations associated with subsurface structures can eliminate the potential for expansion. The soils of the Plan Area generally have moderate to high shrink-swell potential and are classified as expansive soils (see Table 17-1).

Corrosivity

The corrosive potential of soil is a result of a combination of soil characteristics and environmental influences. Factors affecting corrosion potential include the amount of water in the soil, the conductivity of the soil solution, the pH of the soil solution, the oxygen concentration (aeration), and the activity of organisms capable of causing oxidation/reduction reactions. The estimation of corrosivity for untreated steel pipe is a common metric for describing corrosive potential and is commonly based on resistance to flow of electrical current, total acidity, soil drainage, soil texture, and conductivity of the saturation extract of the soil. The potential for soil conditions to result in deterioration of concrete is also considered and is influenced by the amount of sulphates in the soil combined with soil texture and acidity. Soils in the Plan Area range from low to high corrosivity potential for uncoated steel.

Liquefaction Potential

The causes and effects of liquefaction, and the potential for liquefaction in the Plan Area are described above in the discussion of seismicity.

MINERAL RESOURCES

A variety of minerals were once mined in the Plan Area (Yolo County 2005). In the past, small amounts of gold and silver were mined from Cache and Putah Creeks. The Barrick Gold Mining Company's McLaughlin Mine, which is no longer operational, was located in the northeastern corner of the Plan Area. The primary minerals presently mined are aggregate and natural gas. According to the California Department of Conservation (2014) there are approximately 25 natural gas fields located within Yolo County. Most of the aggregate occurs along Cache Creek, beginning at the upstream end of Capay Valley (at County Road 85) and extending downstream to approximately Interstate 5.

Exhibit 17-3 highlights the significant mineral resources (MRZ-2) found throughout the Plan Area. The State of California has mapped the aggregate resources along lower Cache Creek as three Mineral Resource Zones: MRZ-1 comprises 1,458 acres, MRZ-2 comprises 18,452 acres, and MRZ-3 comprises 8,220 acres (Yolo County 2009b). The Off-Channel Mining Plan (OCMP) and relevant implementing ordinances (i.e., the Off-Channel Surface Mining Ordinance and the Surface Mining Reclamation Ordinance) currently authorize seven off-channel mining operations (Teichert-Schwarzgruber, Syar, CEMEX, Teichert-Woodland, Teichert-Esparto, Granite-Capay, and Granite-Esparto) along Cache Creek. This includes 968 acres of planned aggregate mining and 1,282 acres of additional future mining.

17.2.2 Regulatory Setting

This section describes the federal, state, and local regulations, laws, and policies that pertain to geology, seismicity, soils, and mineral resources within the Plan Area.

FEDERAL LAWS AND REGULATIONS**Clean Water Act**

The Clean Water Act (CWA) is discussed in detail in Chapter 4, *Biological Resources*, and Chapter 9, *Hydrology and Water Quality*. However, because Section 402 of the CWA is directly relevant to potential land disturbance activities within the Plan Area, additional information is provided below.

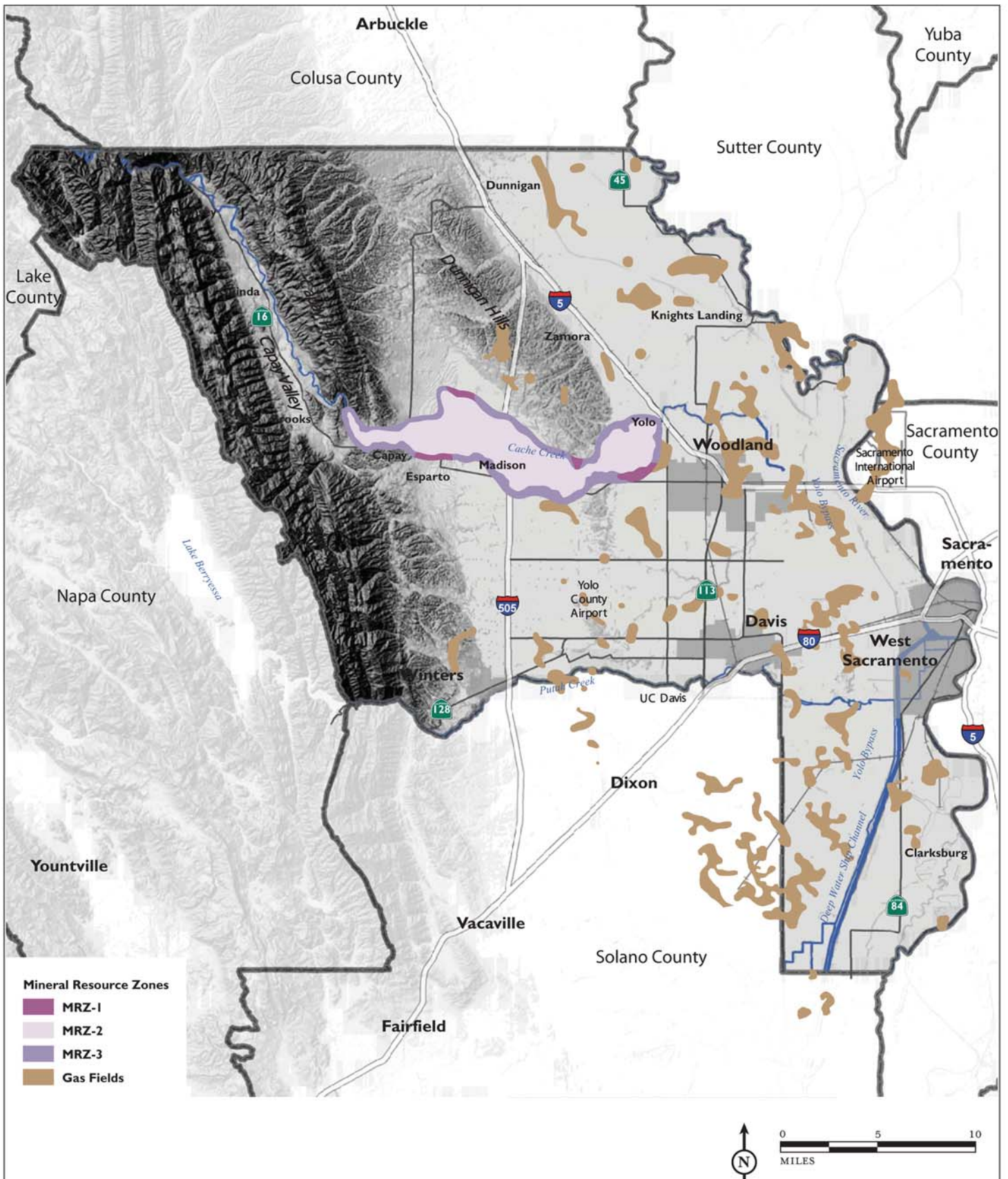


Exhibit 17-3

Regional Mineral and Gas Resource Zones

Under the National Pollutant Discharge Elimination System Phase II Rule (an element of implementing Section 402 of the CWA), activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). General Construction Permit applicants are required to prepare a Notice of Intent and a stormwater pollution prevention plan (SWPPP) and implement and maintain best management practices to avoid adverse effects on water quality as a result of construction activities, including earthwork. The Central Valley Regional Water Quality Control Board administers the stormwater permit program in the Plan Area.

STATE LAWS AND REGULATIONS

Alquist-Priolo Earthquake Fault Zoning Act

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act (the Alquist-Priolo Act) is to regulate development near active faults to mitigate the hazard of surface rupture. Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement within the last 11,000 years. A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in Seismic Hazard Zones until appropriate site-specific geologic or geotechnical investigations have been carried out, and measures to reduce potential damage have been incorporated into the development plans. To date, seismic hazard maps have been prepared for parts of the San Francisco Bay Area and in the Los Angeles area; no such maps are presently available for the Plan Area.

California Building Code

The State's minimum standards for structural design and construction are established in the California Building Standards Code (CBSC) (24 California Code of Regulations). The CBSC requires that "classification of the soil at each building site will be determined when required by the building official" and that "the classification will be based on observation and any necessary test of the materials disclosed by borings or excavations."

The 2013 California Building Code (CBC) is based on the 2009 International Building Code and contains necessary California amendments that are derived from the American Society of Civil Engineers' Minimum Design Standards 7-05. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures, throughout California. The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a Seismic Design Category for a project. The CBC includes a seismic zone map to determine applicable seismic standards for proposed structures. Seismic zones range from 0 to 4, with Zone 0 being the least active and Zone 4 the most active.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) is the principal legislation addressing mineral resources in California. Its stated purpose is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that:

- ▲ significant environmental effects of mining are prevented or minimized;
- ▲ mined lands are reclaimed and residual hazards to public health and safety are eliminated; and
- ▲ consideration is given to recreation, watershed, wildlife, aesthetic, and other related values.

SMARA governs the use and conservation of a wide variety of mineral resources, although some resources and activities are exempt from its provisions, including excavation and grading conducted for farming, construction, or recovery from flooding or other natural disaster.

SMARA provides for the evaluation of an area's mineral resources using a system of MRZ classifications that reflect the known or inferred presence and significance of a given mineral resource. The four MRZ classifications are described above in Section 17.1.2, *Definitions*. These classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data; and socioeconomic factors such as market conditions and urban development patterns.

The State of California is responsible for mineral resources zoning under SMARA, but SMARA implementation and enforcement authority rests with the local jurisdiction and is carried out through the county or city land use planning process and codes. Yolo County's SMARA implementing regulations are contained in Chapter 3 of Title 10 in the County Code.

In addition to mineral resource conservation, SMARA regulates surface mining in California. Key elements of the regulations are summarized below.

Annual Mining Report

A mining report is required to be submitted by surface mining operations annually. The report must include such information as the amount of land disturbed during the previous year, acreage reclaimed during the previous year, and amendments made to the reclamation plan.

Reclamation Plan

Before a mining project is approved, a reclamation plan must be prepared and approved by the lead agency. The plan must include such information as:

- ▲ maximum anticipated depth of extraction,
- ▲ quantity and type of materials to be extracted,
- ▲ time span of the operation,
- ▲ mine waste disposal method,
- ▲ manner in which reclamation will be accomplished including erosion control measures,
- ▲ post-reclamation land use, and
- ▲ how the reclamation will affect future mining in the area.

Additionally, SMARA specifies that lead agencies require financial assurances of each mining operation to ensure reclamation is performed in accordance with the approved reclamation plan. The financial assurances may take the form of surety bonds, irrevocable letters of credit, trust funds, or similar mechanism.

Most of the mining operations along Cache Creek are subject to all of SMARA's requirements. However, two of the mines were operating before SMARA was enacted and are considered "grandfathered" operations. These facilities are, nevertheless, subject to certain regulatory requirements, such as providing financial assurances and implementing reclamation plans.

Oil, Gas, and Geothermal Wells Regulations

The California Department of Conservation's Division of Oil, Gas, and Geothermal Resources oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes the development of oil, natural gas, and geothermal resources in the State through sound engineering practices that protect the environment, prevent pollution, and ensure public safety. Applicable State law comes from the California Code of Regulations Title 14, Natural Resources of the California; Division 2, Chapter 4, Development, Regulation, and Conservation of Oil and Gas Resources. This chapter governs natural gas well drilling, operation, and abandonment procedures. It provides detailed standards and regulations that operators and local jurisdictions must comply with.

LOCAL LAWS AND REGULATIONS

Yolo County 2030 Countywide General Plan

The Health and Safety Element of the 2030 Countywide General Plan for Yolo County contains policies and actions aimed at reducing the risk of geologic or seismic hazards in the Plan Area. Policies and actions potentially relevant to the Plan are provided below.

- ▲ **Policy HS-1.1.** Regulate land development to avoid unreasonable exposure to geologic hazards.
- ▲ **Policy HS-1.2.** All development and construction proposals shall be reviewed by the County to ensure conformance to applicable building standards.
- ▲ **Policy HS-1.3.** Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.
- ▲ **Action HS-A1.** Require a geotechnical analysis for construction in areas with potential geological hazards and/or for purposes of environmental analysis. Recommendations of the geotechnical analysis shall be implemented. (Policy HS-1.1, Policy HS-1.2, Policy HS-1.3)
- ▲ **Action HS-A2.** Rely upon the most current and comprehensive geological hazard mapping available in the evaluation of potential seismic hazards associated with proposed new development. (Policy HS-1.3)
- ▲ **Action HS-A3.** Continue to participate in the Yolo County Subsidence Network and implement its recommendations. (Policy HS-1.2, Policy HS-1.3)

The Conservation and Open Space Element of the 2030 Countywide General Plan contains policies and actions aimed at reducing the risk of geologic or seismic hazards in the Plan Area. Policies and actions potentially relevant to the Plan are provided below.

- ▲ **Policy CO-3.1.** Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.
- ▲ **Policy CO-3.2.** Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.
- ▲ **Policy CO-3.3.** Encourage the extraction of natural gas where compatible with both on-site and surrounding land uses, and when performed in a manner that does not adversely affect the environment.
- ▲ **Policy CO-3.4.** Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable, natural gas policies of the Land Use and Resource Management Plan of the Delta Protection Commission.

- ▲ **Policy CO-5.1.** Coordinate with water purveyors and water users to manage supplies to avoid long-term overdraft, water quality degradation, land subsidence and other potential problems.
- ▲ **Action CO-A37.** Designate and zone lands containing identified mineral deposits to protect them from the encroachment of incompatible land uses so that aggregate resources remain available for the future. (Policy CO-3.1)
- ▲ **Action CO-A39.** Encourage the responsible development of aggregate deposits along Cache Creek as significant both to the economy of Yolo County and the region. (Policy CO-3.1)
- ▲ **Action CO-A40.** Encourage recycling of aggregate materials and products. (Policy CO-3.1)
- ▲ **Action CO-A42.** Implement the Cache Creek Area Plan to ensure the carefully managed use and conservation of sand and gravel resources, riparian habitat, ground and surface water, and recreational opportunities. (Policy CO-3.1)
- ▲ **Action CO-A45.** Prohibit commercial mining in or adjoining Putah Creek. (Policy CO-3.1, Policy CO-3.2)
- ▲ **Action CO-A49.** Consider the exploration, drilling, and extraction of natural gas as compatible with agriculture and open space uses. (Policy CO-3.3)
- ▲ **Action CO-A50.** Evaluate any impacts to identified natural gas fields as part of the development review process. (Policy CO-3.3)
- ▲ **Action CO-A93.** Require the implementation of Best Management Practices (BMPs) to minimize erosion, sedimentation, and water quality degradation resulting from new development and increases in impervious surfaces. (Policy CO-5.5, Policy CO-5.6)

Yolo County Onsite Wastewater Treatment Systems Local Agency Program

Yolo County has prepared a draft Onsite Wastewater Treatment Systems Manual that provides the policy, procedural, and technical requirements for the implementation of the provisions of the Yolo County Onsite Wastewater Treatment Systems Ordinance, codified in Chapter 19 of the Yolo County Code of Ordinances. The Yolo County Division of Environmental Health is responsible for the enforcement of the Yolo County Onsite Wastewater Treatment Systems Ordinance and the application of the manual, which is intended to provide guidance for homeowners, designers, installers, contractors and service providers.

City of Davis General Plan

The Davis General Plan includes the following policies related to geology, soils, and mineral resources potentially relevant to the Plan:

- ▲ **Policy AG 3.1.** Develop programs to help to conserve soil resources.
- ▲ **Policy AG 4.1.** Discourage the extraction of mineral resources in the planning area.
- ▲ **Policy HAZ 2.1.** Take necessary precautions to minimize risks associated with soils, geology and seismicity.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policies that relate to geology, soils, or mineral resources that may be applicable to the analysis of the HCP/NCCP: Safety Element

Goal S-3. To prevent loss of life, injury, and property damage due to geologic and seismic hazards.

- ▲ **Policy S-3.1. New Structures.** The City shall require that new structures are able to withstand the effects of seismic activity, including liquefaction, within the limits of technical and economic feasibility.

- ▲ **Policy S-3.2. Geotechnical Report.** The City shall require new development seeking a discretionary permit to prepare a geotechnical report or other appropriate analysis, and incorporate appropriate mitigation measure to ensure new structures are able to withstand the effects of seismic activity, including liquefaction.
- ▲ **Policy S-3.8. Coordination with Utility Providers.** The City shall require utility providers to design utility lines to withstand seismic forces, be accessible for repair, and contain safety features such as automatic shutoff valves, switches, and expansion joints.
- ▲ **Policy S-3.10. Levee Inspections.** The City shall work with responsible agencies to regularly inspect and repair area levees, as needed, to ensure structural integrity in the event of seismic activity.

City of Winters General Plan

The City of Winters General Plan includes the following policies related to erosion potentially applicable to the Plan:

- ▲ **Policy VI.A.6.** The City shall condition development approvals to minimize the discharge of sediment from grading into Putah Creek and Dry Creek. To this end, grading should be carried out during the dry months, when possible. Areas not being graded should be disturbed as little as possible. Construction and grading areas, as well as soil stockpiles, should be covered or temporarily revegetated when left for long periods. Revegetation of slopes should be carried out immediately upon completion of grading. Also, temporary drainage structures and sedimentation basins must be installed to prevent sediment from entering and thereby degrading the quality of downstream surface waters, particularly Putah Creek. The full cost of any necessary mitigation measures shall be borne by the projects creating the potential impacts.
- ▲ **Policy VI.D.4.** Any upstream development that creates potential erosion impacts on Dry Creek and Putah Creek shall be required to adopt all feasible measures to mitigate such impacts.
- ▲ **Policy VI.D.7.** The City shall work with Yolo County, Solano County, the Putah Creek Council, the California Department of Fish and Game, and the U.S. Army Corps of Engineers in establishing guidelines for erosion control measures along Putah Creek and Dry Creek. Such guidelines should implement the following principles:
 - Slope stabilization projects should emphasize revegetation.
 - Stabilization projects that involve the use of cribs, gab ions, rock and wire mattresses, or wire mesh over stone should be screened from public view with vegetation to assure a naturalistic appearance.
- ▲ **Policy VIIA. I.** The City shall require new development to be constructed according to the requirements of the Uniform Building Code to ensure that new structures are able to withstand the effects of seismic activity, including liquefaction.
- ▲ **Policy VII.A.2.** Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces in accordance with state requirements.

City of Woodland General Plan

The Woodland General Plan includes the following policies related to geologic hazards that are potentially relevant to the Plan.

- ▲ **Policy 8.A.1.** The City shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., groundshaking, liquefaction, expansive soils).
- ▲ **Policy 8.A.2.** The City shall require submission of a preliminary soils report, prepared by a registered civil (geotechnical) engineer and based upon adequate test borings, for every major subdivision.

- ▲ **Policy 8.A.3.** The City shall require that new structures intended for human occupancy be designed and constructed to minimize risk to the safety of occupants due to groundshaking.
- ▲ **Policy 8.A.4.** City shall continue to support scientific geologic investigations which refine, enlarge, and improve the body of knowledge on active fault zones, unstable areas, severe groundshaking, and other hazardous conditions in the Woodland area.
- ▲ **Policy 8.A.5.** The City shall require that new structures and alterations to existing structures comply with the current edition of the Uniform Building Code and the City Security Ordinance.
- ▲ **Policy 8.A.7.** The City shall continue to implement the Uniform Code for the Abatement of Dangerous Buildings to address older buildings that may at risk for seismic or geologic hazards.
- ▲ **Policy 8.A.8.** The City shall avoid siting of structures across soil materials of substantially different expansive properties.
- ▲ **Policy 8.A.9.** The City shall require the use of special bending-resistant designs where foundations must be slab-on-grade in areas with expansive soil.

Cache Creek Area Plan

The OCMP and Cache Creek Resources Management Plan (CCRMP) together comprise the Cache Creek Area Plan. The OCMP and CCRMP establish a number of goals to assist in management, balancing issues and concerns within the overriding vision of enhancing the variety of resource needs for the region. The Cache Creek Improvement Program was developed to implement the goals, objectives, actions, and performance standards of the CCRMP as it relates to the stabilization and maintenance of the Cache Creek channel. The Cache Creek Improvement Program provides the structure and authority for a Technical Advisory Committee, defines the procedures and methodologies for stream monitoring and maintenance activities, and identifies initial high priority projects for stream stabilization.

17.3 ENVIRONMENTAL CONSEQUENCES

17.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The following evaluation identifies both the potential effects of geologic and soil hazards, and the potential for the HCP/NCCP to effect soil resources by means such as accelerated erosion. Evaluation of the potential impacts that may result from each alternative is based on a review of the covered activities as described in the Yolo HCP/NCCP; review of the Yolo County General Plan, and planning documents from the Cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative would comply with applicable local, state, and federal regulations and general plan policies. The assessment of potential effects on geology, soils, and mineral resources in the Plan Area is based on the anticipated changes in land cover and land uses over a 50-year study period, corresponding to the permit term under the Proposed Action Alternative. As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California

Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault;
 - strong seismic ground shaking;
 - seismic-related ground failure, including liquefaction; or
 - landslides;
- ▲ result in substantial soil erosion or the loss of topsoil;
- ▲ be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- ▲ be located on expansive soil, as defined in Table 18-1-B of the UBC (1994), creating substantial risks to life or property (Note: The updated CBC no longer cites the 1994 UBC Table 18-1-B for identifying expansive soils, although the criteria in Appendix G of the State CEQA Guidelines still refers to this table. The analysis of expansive soils relies on the updated CBC information.)
- ▲ have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater;
- ▲ result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- ▲ result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

ISSUES NOT EVALUATED FURTHER

The Planning Area is served by a large and expanding network of wastewater conveyance facilities that collect wastewater for treatment and disposal. The use of septic tanks and other onsite wastewater treatment and disposal systems in new development has declined substantially in the Plan Area. Where new development would use septic tanks or other onsite wastewater treatment and disposal systems, this activity would be heavily regulated by local jurisdictions, such as through the Yolo County Onsite Wastewater Treatment Systems Local Agency Program described above. Septic tanks and any other onsite systems

cannot be installed without review and permitting, and review includes evaluation of soil conditions for suitability. Use of septic tanks or other onsite waste water treatment and disposal systems would not be authorized in areas with soils incapable of supporting these facilities. Therefore, this issue is not evaluated further in this impact analysis.

In some instances, placing additional persons within a seismic risk area has been considered as a cumulative seismic hazard impact. However, given the relatively low seismic risk in the Plan Area, and the fact that any development occurring within the Plan Area would be subject to various site development, engineering, and construction standards to minimize seismic risk, such as the CBS, this cumulative impact mechanism is not considered further in this EIS/EIR.

17.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities in the unincorporated area of the county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Since the distances to major regional faults is long compared to some parts of California, Yolo County is subject to relatively low risk from seismic shaking; nonetheless, active local faults like the Hunting Creek Fault or the Coast Range-Sierran Block Boundary may result in significant shaking in the county. Any facilities under any of the development categories that would require some form of building permit would be designed and constructed to meet relevant requirements of the CBC, as required by the state, city, and county building codes, and as set forth in the local agencies' general plans. These building code requirements specify that detailed seismic investigations be completed for all public and private projects located within the boundaries of a designated Earthquake Fault Zone, and that such projects receive appropriate permit approvals. Site-specific geologic investigation and analysis by a licensed professional would be conducted in accordance with standard industry practices and State provided guidance, such as the CGS Special Publication 117 of 2008, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* and would minimize risk associated with seismic hazards.

Projects constructed over the next 50 years in the Plan Area would result in additional people and structures being exposed to other existing geohazards, including liquefaction, slope instability, soil settlement or compaction, and adverse soil conditions. However, similar to seismic risk, existing federal, state, and local programs are designed to provide accurate and timely information detailing hazards, impose regulatory

requirements regarding geotechnical and soils investigations, provide limitations on the locations of structures for human habitation, impose requirements for hazard notices to potential users, and establish structural standards for requirements for buildings and grading projects. Potential impacts from geohazards such as expansive soils (that cover roughly three-quarters of the County) can be addressed through implementation of standard remedial measures (e.g., soil removal, foundation design). Similarly, slope stability issues, such as those in the hills around the Capay Valley and along the western mountains of the County, can be addressed by site-specific geotechnical work and various established engineering measures. However, any planned development that utilizes groundwater from the area between the towns of Zamora, Knights Landing, and Woodland could accelerate the existing soil subsidence resulting from groundwater extraction.

Ground-disturbing earthwork associated with construction under any development category may increase soil erosion rates. Activities such as excavation, trenching, grading, and compaction, would cause groundbreaking and vegetation removal. As a result, soil would be exposed to rain and wind, potentially causing accelerated erosion. However, ground-disturbing earthwork would need to meet the relevant requirements of the state, city, and county building codes, as set forth in the local agencies' general plans and ordinances. Furthermore, compliance with applicable federal and local erosion-related regulations (i.e., the SWPPPs that are developed for individual projects and the requirements of the county and city stormwater quality management codes) would substantially reduce the potential for construction activities to result in adverse erosion effects.

Mineral resources would continue to be extracted at existing mining sites and natural gas fields consistent with SMARA and local land use regulations. Mining could be restarted at existing inactive sites, or permits could be issued for mineral extraction at new sites within the Plan Area. Mine reclamation would occur consistent with SMARA and local land use regulations. Development and other activities that could hinder access to mineral resources would also continue to occur under the No Action Alternative, as directed by the county and city general plans, various area plans, and other applicable planning documents. However, these plans generally guide development away from important mineral resources. Key aggregate extraction sites along Cache Creek are already identified for mining in various plans. Gas fields can be tapped from a limited number of extraction wells; therefore, development over one portion of a gas field does not necessarily limit the accessibility of the underlying natural gas from an extraction well at another location. Therefore, it is not anticipated that the activities associated with any of the development categories would substantially limit access to areas with significant mineral resources.

As the development and related activities are implemented as part of the No Action Alternative, impacts to threatened and endangered species and other biological resources would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the county with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat restoration or creation). Retaining lands in their existing condition would not result in any effects related to geology and soils. Habitat restoration and creation would not result in facilities or structures being constructed that would be subject to geohazards. Although ground-disturbing activities could result in temporary increases in erosion risk, compliance with existing laws, regulations, and policies would substantially reduce the potential for ground disturbance associated with habitat restoration or creation activities to result in adverse erosion effects.

Establishment of protected mitigation lands, whether or not they include habitat restoration or creation, could result in reduced access to mineral resources. To be accepted by resource agencies, protected mitigation lands must include a deed restriction and other legal mechanisms that prohibit land uses that conflict with habitat and/or species conservation, which would likely include restrictions on mineral extraction. Although access to mineral resources could conceivably be restricted by biological resources mitigation, lands with significant mineral resources typically have higher monetary value and it becomes less cost effective to purchase and use these lands for biological resources mitigation. Given the extent of agricultural land and natural land cover in the Plan Area available for protected mitigation land

establishment that does not contain significant mineral resources, it is unlikely that the biological resources mitigation would be located on sites that would preclude access to areas where significant mineral resources may be present.

Cumulative Effects

Impacts related to geology and soils are generally site-specific, rather than regional in nature. The geologic effects of multiple projects over large distances typically do not interact relative to issues such as seismic risk or the presence of expansive soils. However, for issues such as erosion, projects in close proximity may combine cumulatively to create a larger downstream erosion impact than would occur from a single project.

Geology, soils, and mineral resources in the Plan Area have been altered by agricultural operations, urban and rural development, and mining operations. However, no particular cumulative interactions or cumulative changes related to seismic risk, landslide, erosion, unstable soils, or expansive soils have been identified in the Plan Area. Due to the extensive regulations, standards, and policies related to these issues, as well as the limited ability for projects to interact on a cumulative basis related to geology and soils, it is unlikely that projects or actions under the No Action Alternative or implementation of other foreseeable future project actions would contribute to a cumulative impact associated with these issues.

The existing land subsidence in the area between the towns of Zamora, Knights Landing, and Woodland can be attributed to the cumulative extraction of groundwater from past and present projects in this area. Foreseeable future projects, such as wind and solar power generation and Caltrans highway improvements, would not result in the use of large amounts of groundwater and are unlikely to contribute further to this cumulative impact. However, any development under the No Action Alternative that results in an increase in groundwater extraction from this area could incrementally accelerate the land subsidence.

Although past and present projects may have limited access to mineral resources in isolated locations, such as a road crossing a site with mineable aggregate below the road bed, there are large areas remaining in the County where aggregate and natural gas are available (see Exhibit 17-3). As stated above, it is not anticipated that development and activities associated with the No Action Alternative would substantially limit access to mineral resources due to the various planning documents directing development away from important mineral resource areas and/or identifying important areas for continued mineral extraction. Continued extraction of aggregate is a specific component of the No Action Alternative. As also identified above, due to the flexibility available in siting extraction wells to tap a natural gas field, even if development were to occur over a portion of a natural gas field, the underlying gas could still be extracted from a well in another location. These same principals and conclusions would apply to the foreseeable future projects in Plan Area. In addition, for projects such as expansion or improvement of existing Caltrans facilities, the project footprint would be relatively small compared to the overall area where mineral resources are available. Also, the ability to extract mineral resources in the area would already be more difficult due to the presence of the existing highway facility. Overall, any cumulative reduction in area available for extraction of mineral resources in the Plan Area resulting from the No Action Alternative and other foreseeable future projects would not be considerable relative to the continued availability of large areas for mineral extraction.

For the reasons described above, this same conclusion would also apply to the cumulative establishment of biological resource protected mitigation lands conducted as part of the No Action Alternative and that might also be established as part of the implementation of foreseeable future projects. In addition, as identified in the analysis of the No Action Alternative, lands with significant mineral resources typically have higher monetary value and it becomes less cost effective to purchase and use these lands for biological resources mitigation. It is unlikely that protected mitigation lands established as part of the No Action Alternative or the foreseeable future projects would be located on lands with important mineral resources.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Impacts related to geology, soils, and mineral resources as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required implementation of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussions focus on the elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species.

The primary result of the neighboring landowner protection program, from a geology, soils, and mineral resources perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. Also, as a voluntary program, a qualifying landowner may join or exit at will. If a landowner participating in the program had mineral resources on their property that they later decided to extract, they could exit the program with no effect on pursuing any necessary permits and authorizations for the mineral extraction. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Since the program would not change conditions related to geology, soils, and mineral resources, it would not have an effect on these resources, and is not evaluated further in the impact discussions below. Similarly, the potential for addition of the lands in the expanded Plan Area to the reserve system would not have effects related to geology and soils because no development would occur. The potential for effects on mineral resources in the expanded Plan Area is discussed below.

All covered activities implemented under the Proposed Action Alternative (including both development and conservation actions) would be subject to AMMs required by the HCP/NCCP, some of which would reduce soil-related impacts. The AMMs that would reduce the likelihood of geology and soils related impacts include the following, which apply to General Construction and Operations and Maintenance projects:

- ▲ **AMM3, Confine and Delineate Work Area.** Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.
- ▲ **AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas.** Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species or are easily restored to prior or improved ecological functions. Within one year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat.

Effect GEO-1: Expose people or structures to substantial adverse effects due to rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides.

As mentioned previously, the northwestern portion of Yolo County has a high landslide susceptibility. Lateral spreading is a moderate to significant hazard in the eastern portion of the Plan Area. Historical and recent subsidence is present throughout northern and central Yolo County, and is likely to occur in the future. Liquefaction hazards are moderate and differential settlement or ground collapse is a common hazard for the Great Valley geomorphic province in the eastern portion of the Plan Area. Many unstable soil hazards are in predominately agricultural and open space areas where no urban development is planned.

The only seismic fault in the Plan Area considered subject to surface rupture is the Hunting Creek Fault, which extends into Planning Unit #1 (Little Blue Ridge). The Proposed Action Alternative does not include any covered activities in this planning unit, nor have any priority acquisition areas been identified.

Implementation of the conservation strategy under the Proposed Action Alternative does not include residential development or other habitable structures and, as such, it would not place housing within geotechnical hazard areas or expose people to seismic risk or other geohazards. While there may be structures associated with the reserve system such as gates and fences, they are not habitable structures and can be easily repaired if damage from a seismic event or other geohazard were to occur.

Conservation actions under the Proposed Action Alternative and those under the No Action Alternative would likely result in similar land uses on reserve system lands, with the same lack of potential to place people or structures at risk from seismic events and other geohazards.

Potential effects from establishing and managing a reserve system under the Proposed Action Alternative would not expose people or structures to substantial adverse effects due to rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect GEO-2: Result in substantial soil erosion or the loss of topsoil.

Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks. These activities would result in continuation of existing agricultural operations or the preservation of existing open space, and therefore would not cause or contribute to erosion.

The conservation strategy included in the Proposed Action Alternative also includes habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat restoration and creation where an existing natural or seminatural land cover type would be converted to a different natural land cover type (e.g., restoration of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation). As discussed above for the No Action Alternative, where these activities include ground disturbance they could cause or accelerate erosion. However, compliance with applicable regulations and building codes would effectively reduce this potential hazard. In addition, General Construction and Operations and Maintenance projects under the Proposed Action Alternative, including ground disturbing activities on reserve system lands, would be required to implement AMM3 and AMM8, which would reduce the potential for erosion by limiting temporary construction footprints within the Plan Area.

In general terms, the covered activities that are part of the implementation of the conservation strategy under the Proposed Action Alternative (e.g., establishment of reserves; habitat enhancement, restoration, and creation) are similar to conservation and mitigation actions that would occur on a project by project basis under the No Action Alternative, and are no more likely to result in substantial erosion. Grading

activities that would occur in conjunction with the Proposed Action Alternative are regulated by the local jurisdictions in which they would occur. Each jurisdiction in the Plan Area has a unique permitting process. Generally, the Conservancy would submit an application that includes a description of the work. Additional reports, such as a soil engineering report, engineering geology report, or plans and specifications for grading may be required by the local building or engineering departments, depending on the proposal. The application, plans, and specifications (if any) would be checked by the appropriate building official or engineer, and may be reviewed by other departments of the County or City to check compliance with the laws and ordinances under their jurisdiction. Earthwork recommendations to ensure slope stability and erosion controls, based on site conditions, would be incorporated into the project construction documents. The Conservancy may also be required to secure a National Pollutant Discharge Elimination System permit, depending on the size of the project footprint. The SWPPP and best management practices required by the permit would limit the potential for reserve maintenance to generate substantial soil erosion or result in the loss of topsoil.

Conservation actions under the Proposed Action Alternative and those under the No Action Alternative would likely result in a similarly low potential to increase erosion.

Potential effects from establishing and managing a reserve system under the Proposed Action Alternative would not result in substantial soil erosion or the loss of topsoil.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect GEO-3: Create a substantial risk to life or property by locating structures on expansive soil.

The soils of the Plan Area have moderate to high shrink-swell potential; soils with high shrink-swell potential generally occur in the far western edge of the Plan Area. Therefore, portions of the Yolo HCP/NCCP reserve system could be located on expansive soils. However, implementation of the conservation strategy under the Proposed Action Alternative does not include construction of structures susceptible to damage from expansive/shrink swell soils; therefore, no substantial risk to life or property from expansive soils would occur. This is consistent with the risk from expansive soils associated with implementation of the No Action Alternative.

Potential effects from establishing and managing a reserve system under the Proposed Action Alternative would not create a substantial risk to life or property by locating structures on expansive soil.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect GEO-4: Result in the loss of availability of a known mineral resource.

As shown in Exhibit 17-3, mineral resources in the Plan Area identified pursuant to SMARA are concentrated in the area around Cache Creek. Natural gas fields are located throughout the low-lying portions of the Plan Area, including the expanded Plan Area along Putah Creek. These areas correspond with high priority reserve system acquisition areas identified for the Proposed Action Alternative (see Exhibit 2-5 in Chapter 2, *Proposed Action and Alternatives*). Therefore, mineral rights, which could be exercised for the extraction of oil, gas, precious metals, trace elements, or other resources (i.e., aggregate), may occur on properties that the Conservancy considers for the reserve system. These rights may be severed from the surface rights of the real property. Evaluation of properties prior to acquisition would include determination, through the due diligence process, of whether a separate mineral estate exists. If a separate mineral estate exists, Conservancy staff members would assess the risk of mineral extraction occurring. Since exercise of a severed mineral right conflicts with the intent of the conservation easements placed on lands enrolled in the

reserve system, the Conservancy is likely to purchase the mineral estate for properties with a high conservation value that have known mineral resources where the potential for those mineral rights to be exercised is moderate or high. This would reduce the availability of mineral resources in the Plan Area.

The Yolo HCP/NCCP covers aggregate mining within the Cache Creek Area Plan (CCAP) boundary, consistent with the OCMP (Yolo County 1996), which is expected to continue throughout the 50-year study period and beyond. The OCMP and relevant implementing ordinances currently authorize seven off-channel mining operations along Cache Creek. This includes approximately 968 acres of planned aggregate mining and 1,282 acres of additional future mining. The HCP/NCCP assumes 2,250 acres of new mining beyond those approved for the seven authorized operations (see Exhibit 2-4 in Chapter 2, *Proposed Action and Alternatives*). This area coincides with the MRZ-2 zones identified in the county, as depicted in Exhibit 17-4. Although both High Priority and Low Priority reserve system acquisition areas are identified in the MRZ-2 zone around Cache Creek, lands anticipated for mining are typically located outside the priority acquisition areas. Comparing the Cache Creek aggregate mining areas identified in Exhibit 2-4 to Exhibit 17-4, the mining areas generally overlap with white areas in Exhibit 17-4 where there is no priority for reserve system acquisition. The HCP/NCCP intentionally removes the potential for conflict between mining operations and reserve land acquisition. Reserves would not be established under the Yolo HCP/NCCP that conflict with the OCMP. In addition, through incorporation of aggregate mining in the CCAP as a Yolo HCP/NCCP covered activity, the Proposed Action Alternative may streamline the permitting and approval process for existing and future mining activities.

Since extraction of mineral resources is generally understood to conflict with conservation of surface resources, it is anticipated that the Conservancy would take measures, such as the purchase of severed mineral rights, to limit mineral resource extraction. Although access to mineral resources could conceivably be restricted if land enrolled in the reserve system possesses important mineral resources, lands with mineable resources typically have much higher monetary value and it becomes less cost effective, or cost prohibitive, to purchase these lands for the reserve system. Local jurisdictions also have policies in place to protect mineral resources. Conversely, implementation of the Proposed Action Alternative could also streamline access to aggregate resources in the CCAP relative to the No Action Alternative. Overall, the potential loss of availability of known mineral resources from implementation of the conservation strategy under the Proposed Action Alternative would not be appreciably different from the establishment of mitigation preserves under the No Action Alternative. Therefore, implementation of the Proposed Action Alternative would have a less-than-significant impact relative to the No Action Alternative.

Although, the Plan includes priority acquisition areas within the CCAP boundary, establishing and managing a reserve system under the Proposed Action Alternative would not substantially limit the availability of a known mineral resource compared to an existing conditions baseline.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative. The Proposed Action Alternative would not result in a significant cumulative impact related to, geology, soils, or mineral resources for the same reasons described for the No Action Alternative. In addition, the extent of any potential effects would be further reduced under the Proposed Action Alternative because the implementation of adopted AMMs would provide an additional mechanism for impact avoidance and oversight during reserve activities, and inclusion of aggregate mining in the CCAP as a covered activity could streamline access to mineral resources in this area.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C – REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of development-related activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative there are eight areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. (See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.)

There is a potential that development displaced from these eight areas could occur in other parts of the Plan Area. Development that occurs in the Plan Area, but outside the restrictions of, and without the take coverage afforded to, the development-related activities under the Proposed Action Alternative would generally have similar potential to expose people or structures to potentially damaging geologic conditions or expansive soils, result in substantial erosion, or reduce the availability of a known mineral resource. As described above for the No Action Alternative, existing federal, state, and local programs are designed to provide accurate and timely information detailing hazards, impose regulatory requirements regarding geotechnical and soils investigations, provide limitations on the locations of structures for human habitation, impose requirements for hazard notices to potential users, and establish structural standards for requirements for buildings and grading projects. Development and other activities that could hinder access to mineral resources would occur as directed by county and city general plans, various area plans, and other applicable planning documents that generally guide development away from important mineral resources. Overall, Effects GEO-1, through GEO-4 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on geology, soils, and mineral resources in the Plan Area from the Reduced Take Alternative would be similar to those under the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D – REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of development-related activities as the Proposed Action Alternative (Alternative B). However, under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area and the Elkhorn Specific Plan Area would not be covered activities. Any development that results in take of listed species in these locations would be required to obtain authorization under the Federal and State Endangered Species Acts, as appropriate, on a project by project basis. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative.)

With implementation of the Reduced Development Alternative, development that occurs within a portion of the west side of the Dunnigan Specific Plan Area and the Elkhorn Specific Plan Area would not be subject to AMM3 and AMM8, which limit temporary ground disturbance during construction activities. Development would, however, be subject to existing federal, state, and local programs designed to provide accurate and timely information detailing hazards, impose regulatory requirements regarding geotechnical and soils investigations, provide limitations on the locations of structures for human habitation, impose requirements for hazard notices to potential users, and establish structural standards for requirements for buildings and grading projects, as described above for the No Action Alternative. To the extent that preclusion from the HCP/NCCP drives development that would occur in the Dunnigan and Elkhorn Specific Plan Areas under the Proposed Action Alternative to occur elsewhere, the effects related to geology and soils would be as disclosed above for the Reduced Take Alternative. Displaced development that could hinder access to mineral resources would occur as directed by county and city general plans, various area plans, and other applicable planning documents that generally guide development away from important mineral resources. Overall, Effects GEO-1 through GEO-4 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on geology, soils, and mineral resources in the Plan Area from the Reduced Development Alternative would be similar to those under the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

18 VISUAL RESOURCES

18.1 INTRODUCTION

This chapter provides information relevant to visual resources and aesthetics impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant.

18.1.1 Data Sources

The following key sources of data and information were reviewed to prepare the aesthetics and visual resources chapter.

- ▲ Yolo County 2030 Countywide General Plan (Yolo County 2009a),
- ▲ Yolo County 2030 Countywide General Plan Environmental Impact Report (Yolo County 2009b),
- ▲ City of Davis General Plan (City of Davis 2007),
- ▲ City of West Sacramento General Plan 2035 Policy Document (City of West Sacramento 2016),
- ▲ City of Winters General Plan (City of Winters 1992),
- ▲ City of Woodland General Plan Update (City of Woodland 2002),
- ▲ Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015), and
- ▲ Eligible (E) and Officially Designated (OD) State Scenic Highways (California Department of Transportation [Caltrans] 2011).

18.1.2 Definitions

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area. Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

VISUAL CHARACTER

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with development and landscape modifications, including roads, utilities, structures, earthworks, parks, and landscaping. The perception of visual character can vary significantly

seasonally, as well as by time of day, as weather, light, shadow, and elements that compose the viewshed change.

VISUAL QUALITY

Assessment of quality of a view is inherently subjective and various methods and systems have been developed in an effort to standardize analysis. One approach to evaluating visual quality adopted by the Federal Highway Administration is to employ the concepts of vividness, intactness, and unity (Federal Highway Administration 1981), which are described below.

- ▲ Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- ▲ Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
- ▲ Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

VISUAL EXPOSURE AND SENSITIVITY

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail). To identify the importance of views of a resource, a viewshed is divided into distance zones of foreground, middle ground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic region or types of terrain, a common foreground zone is 0.25–0.5 mile from the viewer, the middle ground zone from the foreground zone to 3–5 miles from the viewer, and the background zone from the middle ground to infinity.

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking or camping, and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work. Commuters and non-recreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they are generally considered to have high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based in a regional frame of reference. The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but have very little significance in mountainous terrain.

18.2 AFFECTED ENVIRONMENT

Environmental Setting

REGIONAL SETTING

Yolo County lies within California's Central Valley and the northern portion of the Sacramento-San Joaquin River Delta, directly west of Sacramento and northeast of Solano and Napa Counties. The Central Valley is predominantly flat, contrasting with California's Coast Ranges to the west and the Sierra Nevada to the east. The Sacramento River flows from north of Yolo County into the Sacramento-San Joaquin River Delta at the southern end of the County. The Delta includes interconnected canals, streambeds, sloughs, marshes, and islands with agriculture as the primary land use. Visual resources within the undeveloped portions of the Central Valley are predominantly agricultural in nature, with expansive vistas consisting of open farmland and rangeland, orchards, vineyards, and distant views to the surrounding mountains.

VISUAL CHARACTER OF PLAN AREA

For the purposes of this analysis, Yolo County may be divided into seven separate areas of distinct natural resource, geographic, or developed qualities in order to describe the varying visual and scenic resources found within the County: Capay Valley/Capay Hills, Sacramento River, Yolo Bypass/Delta, Putah Creek/Lake Berryessa, Cache Creek, Dunnigan Hills, and the Valley Floor. In addition, Yolo County contains four incorporated cities; Davis, West Sacramento, Winters and Woodland. The University of California Davis (UC Davis) lies adjacent to the City of Davis. Each of these areas is described in greater detail below.

Capay Valley/Capay Hills

The Capay Valley is a unique landform of low, flat alluvial soils that extends generally northwest from the community of Capay to the Colusa County border, following along Cache Creek. The valley and the adjoining Capay Hills, which form the eastern border of the valley, consist of a series of draws, canyons, and rangelands rising from the valley floor into the surrounding hills. Agriculture is the dominant land use within the valley, with large orchards and open rangeland contributing to the expansive vistas afforded from elevated viewpoints within the Capay Hills. Capay Valley is also the location of several small communities, including Capay, Guinda, and Rumsey, and is one of three designated American Viticultural Areas (AVAs) located within the County. The Capay Hills include a number of Yolo County's 20 mountain summits and peaks, including Bald Mountain, which is the prominent peak within the hills and affords uninterrupted views to the west and east.

Sacramento River

The Sacramento River area contains those lands within the County generally east of the Yolo Bypass and north of the City of West Sacramento, including the town of Knights Landing and the Elkhorn area. This area is predominantly alluvial plain resulting from the Sacramento River's meandering path and flood deposition, and is composed primarily of prime farmland. Walnut orchards dominate the landscape just north of West Sacramento; tomatoes and wheat fields are the most prominent vegetative features along the Sutter County border. Numerous canals, streambeds, sloughs, and marshes are intermixed with the agricultural lands. The Sacramento River area includes classic river vistas and other scenic resources typical of flat expanses dominated by riverine and wetland landscapes.

Yolo Bypass/Delta

Similar in landscape and visual character to the Sacramento River area, the Yolo Bypass/Delta area comprises those lands within the Yolo Bypass itself as well as the City of West Sacramento (described further below) and the lowland areas within the Sacramento-San Joaquin Delta that lie to the south. This area contains the northern end of the Delta and is composed of both prime farmland surrounding Clarksburg as well as open grazing, agriculture, and wildlife habitat within the Yolo Bypass. This area also contains the Clarksburg AVA, which includes approximately 11,000 acres of vineyards that dominate the landscape. The Yolo Bypass includes and lies adjacent to the Deep Water Ship Channel (DWSC), which affords unique visual character to the area and provides viewers with occasional glimpses of ship traffic from the San Francisco Bay traversing the surrounding agricultural landscape, a visual quality unique to this area and not typically seen elsewhere within the State. The downtown Sacramento city skyline is a prominent feature from many vantage points within this area, particularly at night.

Putah Creek/Lake Berryessa

Although it contains similar vistas and scenery to other areas discussed, the Putah Creek/Lake Berryessa area demonstrates a cross-section of visual resources typical within the County as rangeland gives way to crop fields, and riverine landscapes adjoin developed areas. Putah Creek forms the southern border of and separates Yolo County from Solano County, flowing to the east from Lake Berryessa's Monticello Dam. The Putah Creek/Lake Berryessa area includes those lands generally south of the Yolo County Airport from the western County border to the City of Davis. This area includes rolling hills and canyons along the eastern edge of Blue Ridge (used predominantly as rangeland) located west and north of the City of Winters. East of Interstate 505 (I-505), the landscape becomes flatter and views are dominated by walnut and almond orchards and various other crops. Toward the eastern end of the area, the City of Davis' skyline joins the eastern horizon, although the city's generally low profile prevents it from interrupting the expansive views afforded both from I-505 and State Road 128.

Cache Creek

The Cache Creek area extends generally east from the community of Capay through the center of the County to the Yolo Bypass, just east of the community of Woodland. Within this area, Cache Creek becomes braided past gravel mining operations and consists of several shallow channels. Riparian forest habitat can be found frequently along the creek. At the western end, the creek is restricted within levees before emptying into the Yolo Bypass. Adjoining the mining areas along the creek are a variety of crop fields, which give the landscape a diverse visual character where orderly crop plantings intermingle with natural settings. The Cache Creek area also contains Monument Hill, which is the dominant feature of the horizon and affords uninterrupted views across the County from all cardinal points.

Dunnigan Hills

The Dunnigan Hills area includes lands generally northwest of the community of Yolo, north of County Road 19 and to the west of I-5, including the towns of Dunnigan and Zamora. These hills extend northward to the Colusa County line, and are a series of rolling hills used predominantly as rangeland. The Dunnigan Hills area also includes the Dunnigan Hills AVA, although most of the 3,000 acres of vineyards are not visible from many public access points. As a result, this area evokes a visual character similar to other open rangelands within the County, with sparse vegetation (mostly grasses) and grazing animals giving the area a pastoral character throughout.

Valley Floor

The Valley Floor area comprises the remaining lands within the County not included in the previous six areas, and generally includes those lands south of the Cache Creek area and north of the Putah Creek/Lake Berryessa area as well as lands east of the Dunnigan Hills area and west of the Sacramento River area. The area includes the City of Woodland and the City of Davis, as well as the towns of Esparto and Madison and the Monument Hills community. These lands are almost entirely agricultural and include vast stretches of alfalfa, rice, and tomato fields as well as other varieties of field crops. The landscape within this area is predominantly flat, with expansive views of cultivated fields uninterrupted by natural or constructed

land forms or significant development. Adding to the visual character of this area are intermittent farm implement storage and agricultural industrial buildings, including barns, processing facilities, and storage areas, which support the Valley Floor areas agricultural character.

Davis and UC Davis

Located in the southeastern portion of Yolo County, the City of Davis is 11 miles west of Sacramento and 70 miles northeast of San Francisco. The City of Davis is primarily an urban landscape within its City limits, dotted with parks and greenbelts within the urbanized areas. The UC Davis campus, located immediately southwest of the City of Davis but largely integrated with the City, is located on approximately 2,900 acres of unincorporated land and is one of the most visually prominent features in the area with relatively large buildings and a water tower visible from I-80 and many vantage points in the area. Land surrounding the City is primarily characterized by agriculture and open space land uses.

West Sacramento

West Sacramento is bounded by the Sacramento Bypass to the north, the Sacramento River to the north and east, and the DWSC and Yolo Bypass to the west. The northern portions of the City are already developed, and the natural and human-made waterways and bypasses prevent further development to the north, east, and west. Therefore, most major development is spreading southward into lands where the current use is primarily agriculture. Development that is occurring in the northern, eastern, and western portions of West Sacramento is either occurring on disjunct parcels of agricultural land or consists of redevelopment and infilling of vacant parcels in older portions of the city. Much of the city consists of urban landscapes, with distinct features being several high-rise buildings and bridges along the Sacramento River and industrial facilities at the Port of West Sacramento and nearby segments of the DWSC.

Winters

Scenic resources within the City of Winters consist largely of historic and tree-lined neighborhoods, architectural landmarks, as well as panoramic views of Mt. Vaca and the Vaca Mountains. Farmhouses and orchards that are scattered on the periphery of the City and the riparian corridor along Putah Creek are also considered valuable features within the visual landscape of the City. There are no designated State Scenic Highways in the Plan Area (California Department of Transportation 2015). However, Yolo County has designated State Route (SR) 128/Grant Avenue, beginning in the City of Winters at Interstate 505 (I-505) and extending west to Lake Berryessa, as a local "scenic highway corridor." The City of Winters General Plan (General Plan) also designates SR 128 between I-505 and the urbanized area of the City as a scenic corridor.

Woodland

The City of Woodland is located in central Yolo County, approximately 20 miles northwest of the City of Sacramento on I-5 and 8 miles west of Sacramento International Airport. It is seven miles north of the City of Davis. The Yolo Bypass of the Sacramento River lies approximately 3 miles east of the City, and Willow Slough is located about one miles to southeast. The surrounding landscape is characterized by row crops, pastures, orchards, and vineyards, as well as natural landscapes such as annual grasslands, riparian forest, freshwater marsh and wetlands, and lake habitats. I-5 runs diagonally from the northwest to southeast across the city, dividing the community into two distinct areas, with most of the residential and commercial development on the southeast and industrial development in the northwest quadrant of the city.

VIEWER GROUPS AND VIEWER RESPONSES

Viewer groups in the Plan Area are primarily persons living or conducting business in Yolo County; travelers using the interstates, highways, and smaller local roads; and recreationists (boaters, anglers using canals, creeks, and rivers; hunters; trail users; equestrians; bicyclists; joggers; etc.). Each group is discussed below.

Residents

Urban and rural residents make up the largest viewer group in the Plan Area. Urban residences mostly orient their views inward within urbanized areas. Residences on the outer edge of existing cities and rural towns have the potential for middle ground and background views over agricultural fields in the surrounding area and beyond to the hills/mountains on the east and west sides of the Sacramento Valley. Rural residences are interspersed, at very low densities, between swaths of agricultural or undeveloped land that allows inhabitants to have views similar to those available at the edges of cities and towns. Both urban and rural residents are likely to have a high sense of ownership over their adjacent views that include undeveloped lands and their inherent scenic quality. Because of their long-term exposure to such views and sense of ownership, these residents are considered to have high sensitivity to changes in the viewshed.

Businesses

Employees of the various job opportunities available in Yolo County, such as those associated with agricultural, industrial, recreational, commercial, governmental, and educational facilities have views from their respective facilities. Situated in different locations throughout the Plan Area, these facilities' views range from views limited by infrastructure, vegetation, or levees to sweeping views that extend out to the background. However, even where higher quality views may be available at work places, employees and users of these facilities are likely to be primarily occupied with their work activities and tasks at hand and, on the whole, only spend short periods looking beyond the immediate area. Because of their limited viewing times, their focus on tasks at hand, and the current use of their immediate viewing location as a business, this viewer group is considered to have moderate sensitivity to changes in views.

Roadway Users

Roadway users' vantage points differ based on the roadway they are traveling and elevation of that roadway. The majority of views are mostly limited to the foreground by urban, commercial, and industrial development; vegetation; and levees. Views to the middle ground and background are present but are limited to areas where structures that otherwise would conceal background views from the roadway are set back. However, if the vantage is elevated, as on bridges crossing over the Sacramento River, causeways over flood control bypasses (e.g., Yolo Bypass), and levee roads (e.g., South River Road), most views of the surrounding mountain ranges (e.g., Vaca Mountains, Coast Range, and Sierra Nevada), waterways (Sacramento River, DWSC, Yolo Bypass when flooded) and open space areas (agriculture, parkways) are clearly visible or only partially obstructed by rooflines and mature vegetation in the area.

Travelers use roadways at varying speeds; normal highway and roadway speeds differ based on the traveler's familiarity with the route and roadway conditions (e.g., presence/absence of rain). Single views typically are of short duration, except on straighter stretches where views last slightly longer. Viewers who frequently travel these routes (e.g., business commuters) generally possess moderate visual sensitivity to their surroundings. The passing landscape becomes familiar to these viewers, and their attention typically is not focused on the passing views but on the roadway, roadway signs, and surrounding traffic. Viewers who travel local routes for their scenic quality generally possess a higher visual sensitivity to their surroundings because they are likely to respond to the natural environment with a high regard and as a holistic visual experience. Furthermore, there are scenic stretches of roadway passing through the Plan Area that offer sweeping views of the surrounding area that are of interest to motorists, especially when traveling on the bridges or levee tops and on clear days when background views are prominent. For these reasons, viewer sensitivity is moderate among most roadway travelers.

Recreationists

Recreational users may view the Plan Area from locations such as parks, waterways, roadways, trails, preserves, duck club lands, and levees. Recreational uses include boating and fishing, hunting in the bypasses, birding, walking, running, jogging, and bicycling along trails, levee crowns, and local roads. Recreational users have differing views based on their location in the landscape and are accustomed to variations in the level of industrial, commercial, urban, and recreational activities occurring within the Plan Area. Preserves and hunting lands are enjoyed for their recreational resources along with their scenic views.

Users of the waterways are likely to seek out natural areas along waterways, such as sand and gravel bars and beaches, in addition to using the waterways as a resource. The amount of vegetation present along the levees and waterways creates a softened, natural edge that is enjoyed by recreationists. Local recreationists also have a high sense of ownership over the waterways, corridors, preserves, flyways, and hunting lands they use for recreation.

Viewer sensitivity is high among recreationists using the Plan Area because they are more likely to value the natural environment highly, may focus on their surroundings for extended periods, appreciate the visual experience, have a high sense of ownership, and be more sensitive to changes in views.

SCENIC HIGHWAYS

Yolo County has no designated federal or State Scenic Highways. A portion of State Route 16 (from approximately the town of Capay at County Road 85, north to the County line) is identified by Caltrans as “eligible” for designation as a State Scenic Highway but is not officially designated. Yolo County has, however, designated the following as local scenic highways:

- ▲ State Route 16: Colusa County line to Capay
- ▲ State Route 128: Winters to the Napa County line
- ▲ County Roads 116 and 116B: Knights Landing to the eastern terminus of County Road 16
- ▲ County Roads 16 and 117 and Old River Road: County Road 107 to West Sacramento
- ▲ South River Road: West Sacramento city limits to Sacramento County line

LIGHT AND GLARE

Unincorporated Yolo County is a predominantly rural, agricultural region with approximately 35 dispersed areas of existing development. Because of its rural character, night lighting and glare mostly occur within and around these developed communities, although individual areas supporting agriculture and other industries produce limited amounts of nocturnal lighting either on a nightly basis, or on an intermittent basis when evening activities require additional lighting. Existing sources of ambient nighttime lighting generally include neon and fluorescent signs in developed areas; exterior lighting along buildings for safety, architectural accent, or to illuminate nighttime operations; lights within buildings that illuminate the exteriors of buildings through windows; landscape and wayfinding signage lighting; street and parking lot lighting; and vehicle headlights. Glare is created by reflection of natural (i.e., sunlight) and artificial light off of existing windows and building surfaces. Glare occurs on a site or use specific, building by building basis, and there are no general trends related to glare in the County.

18.2.1 Regulatory Setting

FEDERAL REGULATIONS

There are no federally designated Scenic Byways or Wild and Scenic Rivers in Yolo County and no federal regulations related to visual resources relevant to the analysis of impacts from the Proposed Action and alternatives.

STATE LAWS AND REGULATIONS

California Scenic Highway Program

California’s Scenic Highway Program was created by the California Legislature in 1963 and is managed by the California Department of Transportation (Caltrans). The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated “scenic” depending on how much of the natural landscape travelers

can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view (Caltrans 2011).

The program includes a list of eligible highways and officially designated scenic highways, and includes a process for the designation of official State or County Scenic Highways. As identified above, there are no designated scenic highways in or near the Plan Area. State Route (SR) 16 in Yolo County, from the SR 20 to Capay is eligible for designation as a state scenic highway worthy of protection for maintaining and enhancing scenic viewsheds (Caltrans 2011).

California Wild and Scenic Rivers

Cache Creek is designated as a California Wild and Scenic River from "1/4 mile below Cache Creek Dam to Camp Haswell" (Public Resources Code 2010). The segments in the County are designated as follows:

- ▲ one mile downstream of Davis Creek confluence to western boundary of Section 6 T12N R4W designated as *Wild*,
- ▲ western boundary of Section 6 to the confluence with Bear Creek designated as *Scenic*, and
- ▲ Bear Creek confluence to Camp Haswell designated as *Recreational*.

These designations are defined by the act (PRC 5093.54) as "(a)*Wild* rivers, which are those rivers or segments of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted; (b)*Scenic* rivers, which are those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads; and (c)*Recreational* rivers, which are those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

These segments are protected under the California Wild and Scenic Rivers Act (California Public Resources Code (PRC) Sections 5093.50 et seq.). This act preserves certain designated rivers in their free-flowing state for the benefit and enjoyment of the public. These rivers must possess extraordinary scenic, recreational, fishery, or wildlife values. The Natural Resources Agency is responsible for coordinating activities of state agencies that may affect these designated rivers.

LOCAL LAWS AND REGULATIONS

Yolo County General Plan

The Plan Area encompasses all of Yolo County. Development in the unincorporated county is subject to the goals and policies of the Yolo County 2030 Countywide General Plan (Yolo County 2009), including visual resource and aesthetic policies, design guidelines, and ordinances such as tree preservation/removal ordinances. The General Plan identifies the following policies and actions related to visual resources and potentially relevant to the Plan.

Land Use and Community Character Element

- ▲ **Policy CC-1.2.** Preserve and enhance the rural landscape as an important scenic feature of the County.
- ▲ **Policy CC-1.3.** Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.
- ▲ **Policy CC-1.4.** Identify and preserve, where possible, landmarks and icons which contribute to the identity and character of the rural areas.

- Policy CC-1.5. Significant site features, such as trees, water courses, rock outcroppings, historic structures and scenic views shall be used to guide site planning and design in new development. Where possible, these features shall become focal points of the development.
- Policy CC-1.6. New freestanding off-site advertising along rural roads shall be limited. Existing non-conforming advertising shall be eliminated whenever possible.
- Policy CC-1.8. Screen visually obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas, along highways, freeways, roads and trails.
- Policy CC-1.9. In communities, place both new and existing line utilities and telecommunications infrastructure underground where feasible. Where underground utilities are not feasible, minimize the aesthetic impact by co-locating new improvements within existing lines and facilities where possible.
- Policy CC-1.10. Protect existing ridgelines and hillsides from visually incompatible development.
- Policy CC-1.11. Require the development of open space corridors, bicycle paths and trails integrating waterways, scenic areas and County parks where appropriate, in collaboration with affected land owners as a part of project approval. The intent is to connect each community and city and other special places and corridors, throughout the County.
- Policy CC-1.12. Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.
- Policy CC-1.13. The following routes are designated as local scenic roadways, as shown in Figure LU-3 (Scenic Highways):

 - State Route 16 (Colusa County line to Capay)
 - State Route 128 (Winters to Napa County line)
 - County Roads 116 and 116B (Knights Landing to eastern terminus of County Road 16)
 - County Roads 16 and 117 and Old River Road (County Road 107 to West Sacramento)
 - South River Road (West Sacramento City Limits to Sacramento County line)
- Policy CC-1.14. Designate other scenic roadways or routes where appropriate using the following criteria: the roadway or route traverses a scenic corridor, water feature, open space area or other interesting or unique areas, both urban and rural and may include bikeways, hiking and riding trails and pedestrian ways.
- Policy CC-1.15. The following features shall be protected and preserved along designated scenic roadways and routes, except where there are health and safety concerns:

 - Trees and other natural or unique vegetation
 - Landforms and natural or unique features
 - Views and vistas
 - Historic structures (where feasible), including buildings, bridges and signs
- Policy CC-1.16. The following features shall be stringently regulated along designated scenic roadways and routes with the intent of preserving and protecting the scenic qualities of the roadway or route:

 - Signage
 - Architectural design of adjoining structures
 - Construction, repair and maintenance operations
 - Landscaping
 - Litter control

- Water quality
- Power poles, towers, above-ground wire lines, wind power and solar power devices and antennae
- **Policy CC-1.17.** Existing trees and vegetation and natural landforms along scenic roadways and routes shall be retained to the greatest feasible extent. Landscaping shall be required to enhance scenic qualities and/or screen unsightly views and shall emphasize the use of native plants and habitat restoration to the extent possible. Removal of trees, particularly those with scenic and/or historic value, shall be generally prohibited along the roadway or route.
- **Policy CC-1.18.** Electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines shall be avoided along scenic roadways and routes, to the maximum feasible extent.
- **Policy CC-1.19.** Unscreened outdoor storage of industrial and commercial parts and materials, salvage or junk, dismantled vehicles, used or new vehicle sales or, building materials for sale and similar materials, uses and things along designated scenic roadways and routes shall be prohibited.
- **Policy CC-2.16.** Require the following sustainable design standards as appropriate for projects located within the growth boundaries of the unincorporated communities

Q. Homes that do not back onto roads, parks, schools, greenbelts, trails, or water bodies. Instead, homes that front on these features shall access by way of single-loaded streets or other designs to improve public aesthetics and neighborhood security.

U. Except for parking provided onsite for individual residential lots, parking shall be located to the rear of the facility being served and screened from public view. Parking shall be landscaped to achieve a minimum of 50 percent shading.

- **Policy CC-3.11.** Achieve the following within the Elkhorn Specific Plan growth boundaries:
 - B. The Specific Plan shall emphasize aesthetic standards that recognize the importance of this site as the “visual gateway” to Yolo County along Interstate 5.
- **Policy CC-4.28.** Design highway service commercial uses at identified rural interchanges to preserve surrounding agriculture, rural character, scenic quality and the natural environment.
- **Policy CC-4.12.** Require “green” design, construction and operation including:
 - L. Light pollution reduction to protect “dark skies.”
- **Policy CC-4.15.** Reflect a human scale in architecture that is sensitive, compatible and distinctive to both the site and the community.
- **Policy CC-4.17.** Avoid the repetition of residential facades/designs within subdivisions and abrupt changes in facades between adjoining developments.

Action CC-A26. Update the County Zoning Code to prohibit the location of new homes on or near the top of ridgelines, where they would adversely affect nearby views. (Policy CC-1.10). Responsibility: Planning and Public Works Department; Timeframe: 2010/2011.

Action CC-A34. The discretionary review of development proposals shall evaluate and address impacts on the rural landscapes and views. This review shall also evaluate the potential for land use incompatibilities and require incorporation of design features to reduce potential impacts, to the greatest extent feasible. (DEIR MM LU-2c) (Policies CC-1.1 through CC-1.19). Responsibility: Planning and Public Works Department; Timeframe: 2009/2010.

Action CC-A36. Pursue designation of State Route 16 as a scenic highway. (Policy CC-1.14). Responsibility: Planning and Public Works Department; Timeframe: 2012/2013.

Public Facilities and Services Element

- ▲ **Policy PF-2.3.** Design new stormwater facilities to enhance recreational, habitat, and/or aesthetic benefits, as well as to integrate with existing parks and open space features.
- ▲ **Policy PF-5.10.** Reduce vegetation and other wildland fuels on County-owned land within the State Responsibility Area to reduce the intensity of fires, consistent with biological, scenic, and recreational considerations.

Agriculture and Economic Development Element

- ▲ **Policy ED-3.5.** Improve downtown street corridors to protect historic aesthetics and stimulate economic activity.

Action ED-A16. Offer incentives to business and property owners to improve the appearance of aging retail space while maintaining established historic aesthetics. (Policy ED-3.2)

Conservation and Open Space Element

- ▲ **Policy CO-1.1.** Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.
- ▲ **Policy CO-3.1.** Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Action CO-A20. Develop and implement a system of open space corridors and trails that connects each community and city by integrating waterways, scenic areas, significant habitat areas, County parks, and other special resource areas. (Policy CO-1.1, Policy CO-1.2, Policy CO-1.3, Policy CO-1.12, Policy CO-1.25, Policy CO-1.26). Responsibility: Parks and Resources Department; Timeframe: 2010/2011.

Yolo County Oak Woodland Conservation and Enhancement Plan

Many residents and visitors enjoy the oak woodlands in Yolo County for their scenic beauty while recreating and driving through the county. The *Yolo County Oak Woodland Conservation and Enhancement Plan* promotes voluntary efforts to conserve and enhance the county's oak woodlands, which provide significant aesthetic, ecological, and economic benefits (Yolo County 2007).

City of Davis General Plan

The following applicable goals and policies related to aesthetics are taken from the Land Use and Growth Management; Urban Design and Neighborhood Preservation; and Habitat, Wildlife, and Natural Areas Elements of the City of Davis General Plan.

- ▲ **Policy LU A.5.** Require neighborhood greenbelts in all new residential development areas. Require that a minimum of 10 percent of newly-developing residential land be designated for use as open space primarily for neighborhood greenbelts.
- ▲ **Policy LU N.** Urban Agricultural Transition Area Intent: 1] To provide a buffer and minimize conflicts between urban and agricultural areas. 2] To provide public open space. 3] To define the planned **urbanized** edge of the City, as one of many useful growth management tools. Allowable Uses: Passive open space recreation such as trails and bikeways, wildlife and habitat preservation, drainage ways, community gardens, plant stock portions of nurseries, agriculture

Goal UD 2: Maintain an aesthetically pleasing environment and manage a sustainable community forest to optimize environmental, aesthetic, social, and economic benefits.

- ▲ **Policy UD 2.1:** Preserve and protect scenic resources and elements in and around Davis, including natural habitat and scenery and resources reflective of place and history.
- ▲ **Policy UD 2.2:** Maintain and increase the amount of greenery, especially street trees, in Davis, both for aesthetic reasons and to provide shade, cooling, habitat, air quality benefits, and visual continuity.
- ▲ **Policy UD 2.5:** Ensure attractive functional signs.

Goal UD 6: Strengthen the city's neighborhoods to retain desirable characteristics while allowing for change and evolution, promoting public and private investments, and encouraging citizen involvement in neighborhood planning.

- ▲ **Policy UD 6.1:** Recognize the existence of individual neighborhoods with general boundaries and facilitate the development of neighborhood strategies in partnership with residents and property owners. The strategies should recognize the unique characteristics of the individual neighborhood and the potential for change, within the context of a well-planned city. The strategies should be directed toward solving unique neighborhood problems and implementing neighborhood priorities and enhancing livability.

Goal HAB 1. Identify, protect, restore, enhance and create natural habitats. Protect and improve biodiversity consistent with the natural biodiversity of the region.

- ▲ **Policy HAB 1.1** Protect existing natural habitat areas, including designated Natural Habitat Areas.
- ▲ **Policy HAB 1.2** Enhance and restore natural areas and create new wildlife habitat areas.
- ▲ **Policy HAB 1.3** Commit adequate City resources and staff time so as to protect habitat and other natural resources.
- ▲ **Policy HAB 1.4** Preserve and protect scenic resources.

Outdoor Lighting Control Ordinance

The City enacted the Outdoor Lighting Control Ordinance in 1998. The ordinance, commonly referred to as the City's "Dark Sky Ordinance," provides standards for outdoor lighting in an effort to minimize light pollution, glare, and light trespass caused by inappropriate or misaligned light fixtures, while improving nighttime public safety, utility, security, and preserving the night sky as a natural resource and thus facilitating people's enjoyment of stargazing. This ordinance does not apply to interior lighting, including lighting at greenhouse facilities. Single-family and duplex properties are exempted.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policy that relate to visual resources that may be applicable to the analysis of the HCP/NCCP:

Natural and Cultural Resources Element

Goal NRC-8. To protect significant scenic resources.

- ▲ **Policy NCR-8.1. Protecting Scenic Vistas.** The City shall protect scenic vistas from obstructions and visual clutter where it would negatively affect the public's reasonable use and enjoyment of the resource.

City of Winters General Plan

The following applicable goals and policies that relate to aesthetic conditions are taken from the Natural Resources Element of the City of Winters General Plan.

Goal VI.C: To protect sensitive native vegetation and wildlife communities and habitat.

- ▲ **Policy VI.C.4:** The City shall support and participate in local and regional attempts to restore and maintain viable habitat for endangered or threatened plant and animal species. To this end, the City shall work with surrounding jurisdictions and state and federal agencies in developing a regional Habitat Management Plan. Such plan shall provide baseline data for the Winters area on special-status plant and animal taxa, including Swainson's hawk and the valley elderberry longhorn beetle, and provide guidelines and standards for mitigation of impacts on special-status taxa.
- ▲ **Policy VI.C.10:** The City shall encourage and support development projects and programs that enhance public appreciation and awareness of the natural environment.

City of Woodland General Plan

The following applicable goals and policies that relate to aesthetic conditions are taken from the Environmental Resources Chapter of the City of Woodland General Plan.

Goal 7.A: To protect and enhance the natural quantity and qualities of the Woodland area's rivers, creeks, sloughs, and groundwater.

- ▲ **Policy 7.A.1:** The City shall cooperate with Yolo County in the conservation of Cache Creek for the protection of its water resources and its open space qualities. To this end, the City shall oppose the introduction of new potential sources of pollutants to Cache Creek.
- ▲ **Policy 7.A.6:** The City shall encourage the protection of floodplain lands and where appropriate, acquire public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.

Goal 7.B: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

- ▲ **Policy 7.B.1:** The City shall participate in the countywide Habitat Conservation Plan/Natural Community Conservation Plan and Joint Powers Agency to mitigate the impacts of growth projected under the General Plan on wildlife habitats in the Woodland area.
- ▲ **Policy 7.B.3:** In connection with the countywide Habitat Conservation Plan/Natural Communities Conservation Plan, the City shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations.

Goal 7.D: To preserve and enhance open space lands to maintain the natural resources of the Woodland area.

- ▲ **Policy 7.D.1:** The City shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The City shall, where appropriate, permanently protect as open space areas of natural resource value, including wetlands preserves, riparian corridors, woodlands, and floodplains.
- ▲ **Policy 7.D.3:** The City shall support the maintenance of open space and natural areas that are interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement, and sustain ecosystems.

- ▲ **Policy 7.D.6:** The City shall serve as the steward of public open space and ensure that the use and maintenance of the open space is carried out in an environmentally responsible manner.

18.3 ENVIRONMENTAL CONSEQUENCES

18.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The analysis of the visual effects of the alternatives is based on:

- ▲ direct familiarity with the study area, including urban and rural areas and local roadways; and
- ▲ review of the alternatives in regard to compliance with State and local ordinances and regulations and assessments of changes in visual character and quality.

An assessment of visual resource impacts involves consideration of both the visual character and quality of the resource affected, and the value given the resource by viewers. Viewer valuation or response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration.

Changes in foreground views from a position where large numbers of viewers are relatively stationary for extended periods would generate greater viewer exposure than changes in a background view seen by a limited number of viewers driving rapidly past the viewing site. Viewer sensitivity relates to viewer expectations and the extent of the public's concern for a particular viewshed. Viewers undertaking recreational activities in a location known for high quality aesthetic resources is expected to have higher expectations and express greater concern relative to preservation of scenic conditions than workers in an industrial setting in an urban area. Further information on these topics is provided above in Section 18.1.2, Definitions.

The assessment of potential effects on visual resources in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action. Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. Potential purchase of conservation easements along the Putah Creek corridor in Solano County, as described in Chapter 2, is also considered.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, *Proposed Action and Alternatives*. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ have a substantial adverse effect on a scenic vista;
- ▲ substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▲ substantially degrade the existing visual character or quality of the site and its surroundings; or
- ▲ create a new source of substantial light or glare that would adversely affect day or nighttime public views.

18.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Development in rural and urban areas may result in the complete removal of natural and agricultural land cover types within a given project site, which could involve tree removal, vegetation clearing, and grading. This would alter the visual character of the existing landscape within a site; however, it is assumed that locations of new developments and infrastructure in urban areas would be in close proximity to urban centers and would not substantially alter the existing visual character or affect scenic vistas or other scenic resources. In addition, the various County and city policies related to visual resources would minimize the potential for new development to result in drastic changes in visual character from existing or nearby development. County and city policies, ordinances, and design guidelines would also minimize the generation of substantial light or glare in urbanized areas. Viewer groups in urban areas are expected to contain a higher proportion of employees, commuters, and residents who do not have views outside the urban area; groups that are less sensitive to changes in visual conditions.

Under the No Action Alternative, developments in rural areas associated with rural projects and activities may be more likely to result in localized changes to the visual character of a site if new structures and

facilities are placed in locations where few, or none, currently exist. Larger scale residential or commercial developments that either significantly expand an existing rural community or create a new community where one did not previously exist could be viewed as a substantial degradation of the existing visual character or quality of the site and its surroundings as rural agricultural land or other open space is converted to development. Whether such development would adversely affect a scenic vista or damage a scenic resource would depend on the site specific conditions. Applicable policies, ordinances, and design guidelines would prevent substantial generation of light or glare.

Many activities under the rural public services, infrastructure, and utilities category would result in minimal changes to visual conditions, such as road and bridge improvements, installation of trails and bikeways, and underground utilities. Other activities under this category, such as stormwater drainage and retention/detention facilities, levees, and flood control facilities may be visible as a new or modified element from certain vantage points, but would be consistent with the expectations for a rural setting. Other larger facilities, or facilities with a more industrial character, such as those involving wastewater treatment, energy generation, solid waste management, and airports, depending on the scale and location, could have effects similar to those described above for residential and commercial development in rural areas.

Although activities under the agricultural economic development category could result in relatively large structures being constructed in a rural/agricultural area (e.g., processing plants), these would be considered consistent with the visual character of the area as a facility that supports the prevailing land use. Such a structure could conceivably disrupt a view of a scenic vista from certain vantage points, or introduce a new source of nighttime lighting, but a majority of viewers would be expected to be associated with the agricultural industry and would find the facility consistent with expectations for a farming area.

Open space areas are typically considered a visual amenity and would be unlikely to result in adverse visual/aesthetic impacts. New open space parks may contain facilities to support recreation-related activities (e.g., camp sites, picnic areas). Such areas would require supporting infrastructure (e.g., roads, support buildings). In some cases, this may result in some land use conversion; however, these types of projects are likely to maintain the existing visual character of individual project sites. Users of the facilities, recreationists, who are typically considered a sensitive viewer group, would typically find development of facilities supporting recreational use consistent with their expectations of visual conditions in the area.

Also included in the agricultural economic development and open space category is the continued operation of, or development of new, mining sites. Development, use, and reclamation of a mining site typically follows a phased plan, which entails clearing of surface vegetation, removal and stockpiling of topsoil for future use in reclamation activities, mining of material (e.g., construction aggregate), processing of mined material at the mine area, and reclamation of the mined lands to such uses as agricultural, lake, habitat, and open space uses. These activities may include reclamation to agriculture, habitat and open space, and open water lakes with habitat and/or recreational uses. Ongoing mining activities at existing facilities would be a continuation of existing conditions. However, development of new mining lands would result in a decline in visual quality of a site until reclamation is ultimately completed sometime in the future.

The impact descriptions provided above, other than for mining operations, relate to the permanent change in visual conditions resulting from development of new structures and facilities. Temporary effects on visual conditions would also be associated with construction activities as sites are graded; equipment and personnel enter and leave, and move within the construction site; materials and equipment are stored in staging areas; and structures move through various stages of the construction process. Most viewers would identify construction activities as temporary and their response to changed visual conditions (whether positive or negative) would focus on the anticipated, and then realized, final outcome. Although construction activities can result in an undesirable visual condition (e.g., ground disturbance, material stockpiles), most viewers would not be expected to respond strongly to this temporary portion of individual projects and activities.

Under the No Action Alternative, development and other activities described above would occur as planned by the plan participants, and impacts to threatened and endangered species and other biological resources

would occur, requiring mitigation. Mitigation measures are likely to include on-site areas of preservation within a specific project site, and smaller, non-contiguous areas of preservation lands throughout Yolo County, or nearby sites outside the County with authorization from the permitting agencies. Generally, these required mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat establishment/re-establishment), which would generally be considered to have a neutral or beneficial effect on scenic conditions.

Further, as discussed in Chapter 2, under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Salona County. The land is primarily used for agriculture and would continue. There is also valley foothill riparian along Putah Creek that could be considered forest land as well. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is anticipated that some additional landowners would also place their land under easement in the future, which would enhance the quality of the rural agricultural landscape. Additionally, it is expected that under the No Action Alternative, the riparian forest along Putah Creek would continue to be protected via various laws and regulations (see Chapter 4, *Biological Resources* and Chapter 6, *Agricultural and Forest Resources*) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee. Therefore, allowing the existing land-uses of area within the expanded Plan Area under the No Action Alternative would not have an adverse effect on scenic and aesthetic resources.

Cumulative Effects

Past conversions of natural habitat to agricultural use has changed the visual character in parts of the County such that non-agricultural vegetation and trees have been removed and replaced. Prior to adoption of agrarian practices, Yolo County supported grasslands, forests, wetlands and marshlands, and riparian communities characteristic of the Central Valley. Before the implementation of California's flood management system, flood regimes influenced the ecology and topography of the County. Artificial systems designed to mitigate and control river systems combined with widespread conversion to agriculture altered the character of much of the County from wild grasslands to rural agriculture. Additionally, expansion of development in urban areas in the past century (i.e., Davis, West Sacramento, Winters, and Woodland) has resulted in land use conversions from natural habitat and/or agricultural use to commercial, industrial, residential, and mixed use. The visual character of such areas has been transformed from rural agrarian to urban and/or developed. Thus, there is an existing cumulative alteration to the visual character in the Plan Area that some could perceive as adverse.

Consistent with the general plans of Yolo County, West Sacramento, Davis, Winters, and Woodland, further land use conversions will occur as planned development proceeds under the No Action Alternative. Projects and activities included within the categories of urban and rural projects and activities, above ground infrastructure and utilities, and agricultural economic development activities could all continue the trend of transforming portions of Yolo County from rural agrarian to an urban and/or developed visual character. However, cumulative impacts require the interaction of multiple projects or actions that together alter the environment more than the individual projects or actions do alone. Aesthetic conditions for a viewer in the southwest portion of Yolo County are not affected by activities in the northeast corner of the County as this location is not visible from the vantage point. Therefore, the extent of cumulative effects on visual resources is dependent in large part on the location of the viewer, and not all portions of Yolo County would be affected equally by future modifications to visual conditions under the No Action Alternative. Locations on the periphery of areas with more extensive planned future development/activities would be most likely to observe a cumulative change in visual character from multiple projects being completed within view of the vantage point. Although effects on night sky views from cumulative increases in lighting typically have a farther geographic reach than daytime views, locations on the periphery of areas with more extensive planned future development/activities would also be expected to experience the greatest cumulative change in night sky views.

It is anticipated, however, that future development implemented under the No Action Alternative would comply with the policies set forth in city and County General Plans. Development in rural areas would be limited in order to preserve the rural landscape as established by Policy CC-1.2 of the *Yolo County General Plan*. Further, sources of nighttime lighting in rural areas would be minimized to comply with Policy CC 1.3 which targets protection of the rural night sky and Policy CC-4.12 which instructs future development to require reductions in light pollution. Additional policies from the Land Use and Community Character Element (provided in the setting of this section) of the *Yolo County General Plan* establish standards and goals to mitigate visual impacts to scenic resources. In addition, the general plans of the Davis, West Sacramento, Winters, and Woodland contain policies applicable to maintenance of visual resources. It is expected that compliance with general plan policies, described above under Section 18.2.2, would direct future development to adhere to aesthetically pleasing design that would be consistent with existing nearby development.

As identified above in the alternative specific impact discussion, required biological resources mitigation actions under the No Action Alternative would either retain lands in their existing condition (i.e., preserve habitat), or convert lands to a more natural state (i.e., habitat establishment/re-establishment), which would generally be considered to have a neutral or beneficial effect on scenic conditions. On a cumulative basis, in situations where two or more mitigation sites would be visible from one vantage point, these activities would have a similar neutral or beneficial effect.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities; rural projects and activities; rural public services, infrastructure, and utilities; agriculture economic development and open space; and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Visual resource impacts as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; monitoring; and control of invasive nonnative species. However, the primary result of the neighboring landowner protection program, from a scenic resources perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary neighboring landowner protection program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. Because the program does not change visual conditions, it would not have an effect on visual resources, and is not evaluated further in the impact discussions below.

All covered actions implemented under the Proposed Action Alternative, including both development and conservation actions, would be subject to AMMs required by the HCP/NCCP, some of which would reduce visual resource effects. The AMM that would reduce the likelihood of visual resource effects is shown in Table 18-1 and is discussed in detail in Appendix C. AMM7, *Control Night-Time Lighting of Project Construction Sites*. AMM7 would require workers to direct all lights for night-time lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

Table 18-1 Yolo HCP/NCCP Avoidance and Minimization Measure Applicable to Visual Resources**General Construction and Operations and Maintenance**

AMM7, Control Night-Time Lighting of Project Construction Sites

Effect VIS-1: Potential for substantial adverse effects on scenic vistas.

A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views, including panoramic views of great breadth and depth, often from elevated vantage points. While much of the Plan Area is generally flat, some locations afford sweeping views of the landscape that provide scenic vistas. Implementation of the Proposed Action Alternative would involve natural resources conservation through the preservation of natural and seminatural landscapes and maintenance of ecological integrity of large habitat blocks, ecosystem function, and biological diversity. The conservation strategy included in the Proposed Action Alternative also includes habitat enhancement, where existing habitat conditions and values to covered species would be improved in an area, and habitat establishment/re-establishment where an existing natural or seminatural land cover type would be converted to a different natural land cover type (e.g., re-establishment of riparian habitat on land that once supported riparian habitat, but currently contains annual grassland vegetation). These elements of the conservation strategy designed to preserve and augment existing ecosystem health and biological diversity would produce visual benefits to scenic vistas because existing areas containing natural habitat or agricultural lands would be preserved, and in some cases improved or expanded. Vegetation and tree growth would be encouraged in locations where such habitat would benefit target covered species, such as along the Putah Creek corridor. Because a coordinated system of a linked reserves would be established for habitat preservation, enhancement, and establishment/re-establishment, scenic vistas would be effectively extended compared to the No Action Alternative because continuous areas of land, rather than smaller discrete sites, would be established as mitigation sites.

In the context of effects associated with scenic vistas, potential effects from establishment and management of a reserve system as result of implementation of the Proposed Action Alternative would be considered beneficial relative to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would result in an enhancement in quality of scenic vistas.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial**.

No mitigation is required.

Effect VIS-2: Potential damage to scenic resources.

Implementation of the various elements of the HCP/NCCP conservation strategy would primarily involve the preservation, enhancement, and establishment/re-establishment of existing land covers. It is highly unlikely that these activities, which are intended to preserve and enhance natural communities, would adversely affect trees, rock outcroppings, or similar natural features of sufficient size or prominence to be considered scenic resources. If a historical structure were to occur on lands acquired as a part of the reserve system, it would be evaluated as described in Chapter 12, *Cultural Resources*, and avoided by reserve activities if it was found to be a significant historic resource. Therefore, historic buildings of sufficient quality and stature to be considered a scenic resource would not be damaged by reserve activities.

Yolo County contains a segment of SR 16, which is considered an Eligible State Scenic Highway by Caltrans, but is not officially designated as a State Scenic Highway; therefore, effects to scenic resources along a State Scenic Highway would not occur as a result of implementation of the Proposed Action Alternative. However, there are several segments of highways that are designated as local scenic highways:

- ▲ State Route 16: Colusa County line to Capay
- ▲ State Route 128: Winters to the Napa County line
- ▲ County Roads 116 and 116B: Knights Landing to the eastern terminus of County Road 16
- ▲ County Roads 16 and 117 and Old River Road: County Road 107 to West Sacramento
- ▲ South River Road: West Sacramento city limits to Sacramento County line

Implementation of the Proposed Action Alternative would result in the preservation and enhancement of natural and semi natural areas to promote habitat and ecosystem health and biological diversity. The existing visual character of these sites would be retained, or lands could be modified towards a more natural state (i.e., habitat establishment/re-establishment), which would generally be considered to have a neutral or beneficial effect on scenic conditions. In particular, portions of the reaches of County Roads 116, 116B, 16, and 117 that are considered scenic cross through locations identified as HCP/NCCP priority acquisition areas (see Exhibit 2-5, *Reserve System Priority Acquisition Areas*, in Chapter 2). Reserve system lands would be more likely to be established at locations visible from these road segments. Areas along scenic highways would not be adversely altered as a result of preservation and enhancement of agricultural lands and habitats. It cannot be determined whether the Proposed Action Alternative would result in more or less reserve system lands within view of scenic highway segments.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse effects to views from a scenic highway.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect VIS-3: Potential degradation of visual character and quality.

As described above under Section 18.2.1, *Environmental Setting*, Yolo County lies within California's Central Valley and the northern portion of the Sacramento-San Joaquin River Delta, directly west of Sacramento and northeast of Solano and Napa Counties. Visual resources within the undeveloped portions of the Central Valley are predominantly agricultural in nature, with expansive vistas consisting of open farmland and rangeland, orchards, vineyards, and distant views to the surrounding mountains. In addition, there are various developed areas, including four incorporated cities in the Plan Area. Implementation of the conservation strategy associated with the Proposed Action Alternative would result in the preservation, enhancement, and establishment/re-establishment of natural and semi natural areas to promote habitat and ecosystem health and biological diversity. The existing visual character of reserve system sites would generally be maintained. Any sites that incorporate habitat enhancement or establishment/re-establishment would typically be perceived as an improvement to visual character as the extent and quality of native habitats is improved. Lands included in the conservation system would not be adversely altered by preservation, enhancement, and establishment/re-establishment activities, and these activities would not substantially affect the character and quality of the Plan Area and surroundings from a viewer's perspective. Because a coordinated linked reserve system would be established under the Proposed Action Alternative, any enhancements to visual character and quality would be effectively extended compared to the No Action Alternative because continuous areas of land, rather than smaller discrete sites, would be established as mitigation sites.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **beneficial**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse effects to visual quality or character. The creation of a reserve system would enhance the visual quality and character of discrete preserve sites established as mitigation for covered activities.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **beneficial**.

No mitigation is required.

Effect VIS-4: Potential for substantial light or glare.

As discussed above, the Proposed Action Alternative would entail the conservation and enhancement of natural and semi natural areas for the protection of covered species in the County. Construction materials known to produce glare or permanent lighting structures that could generate substantial sources of nighttime lighting would not be required. It is highly unlikely that any activities associated with establishment and maintenance of reserve sites or habitat enhancement, establishment, re-establishment would require nighttime construction; although if earth moving is required, equipment and materials could be stored overnight in staging areas with security lighting. However, AMM number 7 (AMM7) from the HCP/NCCP requires construction workers to direct all lights for night-time lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area (all AMMs are described in Chapter 2, *Proposed Action and Alternatives*). This AMM would be applicable to construction associated with all covered activities, including preserve development, operations, and maintenance.

AMM7 provides an additional mechanism for impact avoidance and oversight related to construction lighting at preserve locations not included in the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Further, potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in the introduction of new sources of glare or nighttime lighting, and would therefore not contribute adverse effects to aesthetic resource.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative.

The contribution of the Proposed Action Alternative to cumulative visual conditions would essentially be the same as compared to the No Action Alternative. Implementation of urban projects and activities, rural projects and activities, rural public services (infrastructure and utilities, agriculture economic development and open space), and public and private operation and maintenance receiving incidental take authorization under the Proposed Action Alternative would occur at generally the same intensity as the same categories of activities under the No Action Alternative. Ground disturbance associated with these activities could alter the quality of existing viewsheds and visual resources.

However, establishment of the reserve system would include enhanced viewsheds and landscapes from in the Plan Area as compared to the No Action Alternative. These enhancements to visual resources would result from the enhancement and establishment/re-establishment of habitats and would be retained through the ongoing maintenance and monitoring of conservation areas. As described above, visual resources would be improved as a result of the implementation of the Proposed Action Alternative through preservation and enhancement of large areas of habitat and agricultural lands compared to the existing conditions. In addition, any benefits to visual resources would be effectively extended compared to the No Action Alternative because continuous areas of land, rather than smaller discrete sites, would be established as mitigation sites. Also, AMM7 provides an additional mechanism for impact avoidance and oversight related to construction lighting at reserve system sites not included in the No Action Alternative. Therefore, implementation of the Proposed Action Alternative would not result in a cumulatively considerable contribution to the combined effects of past, current, and probable future projects on visual resources. The Proposed Action Alternative would make less of a contribution to any potential adverse cumulative effects

compared to the No Action Alternative, and therefore would not result in a cumulatively considerable contribution to a significant cumulative effect relative to the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C—REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of development-related activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative there are eight areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C- Reduced Take Alternative* for more information on this alternative.

Effects related to hazardous materials as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. The Reduced Take Alternative would have the same potential to disturb known sites of contamination (as identified in Appendix F) as the Proposed Action Alternative. The alternative would also be near, or include, the same airports as the Proposed Action Alternative. However, activities that could result in take (e.g., development) would not be allowed on approximately 1,335 acres within the Plan Area in general, and in specific areas in the vicinity of existing development (such as Clarksburg, West Sacramento, and the Woodland Elkhorn Specific Plan area). The Reduced Take Alternative includes implementation of the Yolo HCP/NCCP and associated conservation strategy and AMMs (including AMM7). Overall, under the Reduced Take Alternative, Effects VIS-1, VIS-2 and VIS-4 would not be appreciably different from what is described for the Proposed Action Alternative. Beneficial effects would be slightly less than under both the No Action Alternative and the Proposed Action Alternative but still very similar.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past, present, and reasonably foreseeable future projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on visual resources under the Reduced Take Alternative are not substantially different from those described for the Proposed Action Alternative. Therefore, implementation of development and related activities receiving incidental take authorization could adversely affect visual resources. While laws and policies would help reduce potential effects, the potential remains for development and related activities provided incidental take authorization by the Plan to make a cumulatively considerable contribution to a significant cumulative visual impact.

However, as described for the Proposed Action Alternative, establishment and management of a reserve system has substantially less potential to adversely affect visual resources, and due to the natural of reserve system activities, there is great opportunity to avoid and otherwise mitigate for effects on resources that are present. Therefore, establishment and management of a reserve system under the Reduced Take Alternative would not make a cumulatively considerable contribution to a significant impact related to visual resources.

Since there is the potential for less development to occur under the Reduced Take Alternative, there is also the potential for fewer effects on visual resources associated with development (e.g., introduction of new

structures, ground disturbing activities). Therefore, any cumulative contribution to a significant cumulative impact to visual resources under the Reduced Take Alternative could be slightly less than both under the No Action Alternative and the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D—REDUCED DEVELOPMENT ALTERNATIVE (ALTERNATIVE D)

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the Yolo HCP/NCCP and therefore, would not be provided incidental take authorization through the Plan. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative.) Impacts to visual resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action Alternative.

Overall, under the Reduced Development Alternative, effects VIS-1, VIS-2, and VIS-3 would not be appreciably different from what is described for the Proposed Action Alternative. Effects due to development could be slightly less than under both the No Action Alternative and the Proposed Action Alternative if the two areas are not developed during the permit term, but overall, impacts would be similar.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past, present, and reasonably foreseeable future projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects on visual resources under the Reduced Development Alternative are not substantially different from those described for the Proposed Action Alternative or the No Action Alternative. Implementation of development and related activities receiving incidental take authorization could adversely affect visual resource through development-related activities (e.g., introduction of new structures, ground disturbing activities). While laws and policies would help reduce potential effects, the potential remains for development and related activities provided incidental take authorization by the Plan to make a cumulatively considerable contribution to a significant cumulative impact related to visual resources.

However, as described for the Proposed Action Alternative, establishment and management of a reserve system has substantially less potential to adversely affect visual resources, and due to the nature of reserve system activities, there is a greater opportunity to avoid and otherwise mitigate for effects on resources that are present. Therefore, the establishment and management of a reserve system under the Reduced Development Alternative would not make a cumulatively considerable contribution to a significant cumulative impact related to visual resources.

Since there is the potential for less development to occur under the Reduced Development Alternatives (i.e., if the two areas not covered by the Plan under the alternative are not developed during the 50-year permit term), there is also the potential for less disturbance to visual resources. Therefore, any contribution to a cumulative impact related to visual resources under the Reduced Development Alternative could be slightly less than under both the No Action Alternative and the Proposed Action Alternative but overall, impacts would be similar.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

19 HAZARDOUS MATERIALS

19.1 INTRODUCTION

This chapter provides information relevant to hazardous materials impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. Water quality is discussed in Chapter 9, *Hydrology and Water Quality*, of this document. Chapter 15, *Air Quality*, includes an analysis of potential health risks associated with toxic air contaminants other than naturally-occurring asbestos (NOA). NOA is discussed in this chapter

19.1.1 Data Sources

The following key sources of information were reviewed to prepare the hazardous materials chapter.

- ▲ *The Yolo County 2030 Countywide General Plan* (Yolo County 2009a);
- ▲ *The Yolo County 2030 Countywide General Plan EIR* (Yolo County 2009b); and
- ▲ Databases maintained by the California Department of Toxic Substances Control (DTSC) and the State Water Resources Control Board (SWRCB).

19.1.2 Definitions

Hazardous materials are those substances that, because of their physical, chemical, or other characteristics, may pose a significant present or potential hazard to human health and safety or to the environment, if released. Although often treated separately from hazardous materials, petroleum products (including crude oil and refined products such as fuels and lubricants) and natural gas are considered in this analysis because they might pose a potential hazard to human health and safety if released into the environment, including through accident or upset conditions involving rail operations.

An *Airport influence area* (AIA) is usually defined by the Airport Land Use Commission (ALUC) as the area in which current or future airport-related noise, over flight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those land uses.

Wildland fire is defined by the National Wildfire Coordinating Group as “any non-structure fire that occurs in vegetation or natural fuels” (National Wildfire Coordinating Group 2014).

A *vector* is an organism that transmits a disease to other living organisms (such as animals or humans). Examples of animal vectors include mosquitoes, ticks, mites, and fleas.

19.2 AFFECTED ENVIRONMENT

19.2.1 Environmental Setting

HAZARDOUS WASTE RELEASE SITES

Hazardous materials are routinely used, stored, and transported by businesses (including industrial and commercial/retail businesses), public and private institutions (such as educational facilities and hospitals), and households. Due to lack of awareness, accidental occurrences, intentional actions, and historical business practices that pre-date current regulatory standards, there are sites in the Plan Area where hazardous wastes were released to soil or groundwater during storage, use, transfer, and disposal. These include sites that were historically contaminated but have been remediated and sites that are known, or believed, to be contaminated that are currently being characterized or cleaned-up. Releases can be localized, or may migrate and contaminate nearby areas.

The State of California maintains the linked EnviroStor and Geotracker databases of known contamination sites pursuant to Government Code Section 65962.5. Based on the information gathered from these databases, there are 70 sites in Yolo County that are actively under evaluation, remediation, or verification monitoring. Geotracker lists sites for which the SWRCB is the lead oversight agency, which are generally, sites where surface or groundwater are the primarily effected media. Geotracker lists 64 active, open sites, including 27 leaking underground storage tank (LUST) cases, 35 cleanup program sites, a military cleanup sites, and the Yolo County Central Landfill. EnviroStor lists 89 sites in Yolo County for which DTSC has primary oversight, including four active sites in the Voluntary Cleanup Program, one active Superfund site, and one backlog site. See Appendix F for a summary of active sites.

Superfund Sites

Frontier Fertilizer is the only Superfund site in the Plan Area. The site was placed on the US Environmental Protection Agency's (EPA) Superfund list on May 31, 1994. It was first developed in the 1950s to store agricultural equipment. In the 1970s, business practices were to store, mix, and distribute pesticides and fertilizers for local agriculture. Pesticide handling ceased in 1983 when it was discovered that pesticides in waste water disposed into an unlined disposal pit were resulting in the contamination of soils and the migration of these chemicals into shallow groundwater (DTSC 2015). EPA has been operating a groundwater extraction and treatment system since 1995. Quarterly groundwater monitoring data indicates that there are still areas with residual contamination (EPA 2015). Soil gas and groundwater sampling is ongoing. There are land use restrictions in place.

Underground Storage Tanks

Flammable liquids, such as gasoline, have historically been stored in underground storage tanks (USTs), which tend to leak over time, resulting in potential risks for the general public and the environment. LUSTs are common in Yolo County, and are often associated with airports, farms, and abandoned railroad lines (Yolo County 2009a). There are currently 291 LUST sites listed in Yolo County; 262 of which have been remediated to regulatory standards and are no longer active. There are an additional 114 permitted UST facilities in Yolo County (SWRCB 2016). The LUST sites identified in the Geotracker database above are a subset of this total number of LUST sites identified here.

HAZARDOUS MATERIALS ASSOCIATED WITH AGRICULTURE

Agricultural enterprises have historically stored, handled, and applied pesticides and herbicides throughout Yolo County. Agricultural chemicals used before the 1970s often included highly persistent compounds such as dichlorodiphenyltrichloroethane (DDT). Inorganic compounds containing heavy metals such as arsenic, lead, and mercury were commonly used before the 1950s. Chemicals commonly used in the past have the potential to leave residual inorganic or organic components in shallow soils that could persist for many

decades. If present in elevated concentrations, these residues could pose a potential health risk to persons who may come in direct contact with surface soils (Yolo County 2009b).

Modern agricultural chemicals are generally less persistent, organic compounds. Routine application of these materials does not typically result in accumulation to levels sufficient to cause concern because of product testing by the EPA before commercial use and regulation related to product application. Areas that are typically of concern include (1) pesticide-handling areas that lack concrete pads, berms, or cribs to contain spills or leaks during handling and storage, and (2) rinse water from washout facilities for pesticide-application equipment that has not been properly collected and treated before discharge. Equipment-repair and petroleum-storage areas might also be of concern.

ROAD AND RAILWAY HAZARDS

Transportation corridors present potential health and safety hazards related to contamination in the rights-of-way, accidental release of materials being transported, and air emissions generated by vehicles. The potential for existing contamination and accidental release of hazardous materials is discussed further below.

Potential for Existing Contamination

Leaded gasoline was used as a vehicle fuel in the United States from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways (i.e., aerially-deposited lead). Surface and near-surface soils along heavily-used roadways have the potential to contain elevated concentrations of lead. Studies by the California Department of Transportation suggest that hazardous waste levels of lead, if present, are generally found in soils within 30 feet of the edge of the pavement (DTSC 2009).

Contaminants common in railway corridors include wood preservatives (e.g., creosote and arsenic) and heavy metals in ballast rock. Ballast rock and soils associated with railroad tracks may also contain NOA. In addition, soils in and adjacent to these corridors might contain herbicide residues as a result of historical and ongoing weed-abatement practices.

Accidental Release of Hazardous Materials

The transportation of hazardous materials by truck and rail is regulated by the US Department of Transportation (USDOT). The California Department of Public Health regulates the haulers of hazardous waste. USDOT also provides grants to local agencies for preparation and training relating to hazardous materials incidents through its Hazardous Materials Emergency Preparedness Program administered by the Office of Emergency Services.

Hazardous materials, hazardous wastes, and petroleum products are a subset of the tremendous volume of goods routinely shipped along the transportation corridors in the Plan Area. Three agencies maintain searchable databases that track hazardous material releases in reportable quantities: EPA maintains the Hazardous Materials Incident Report System that contains data on hazardous material spill incidents reported to USDOT; the California Office of Emergency Services maintains the California Hazardous Materials Incident Report System that contains information on reported hazardous material accidental releases or spills; and SWRCB's Site Cleanup Program maintains information on reported hazardous material accidental releases or spills.

Freight Transport of Oil and Gas and Potential for Accidents

According to data published by the Federal Railroad Administration (FRA), there were 14 freight train accidents between 2005 and 2014 in Yolo County, eight of which were derailments. An average of 7,698 cars carrying hazardous materials traveled through the county annually, resulting in an annual average of 26 hazardous materials releases. Two fatalities were reported as a result of freight train accidents and other incidents, including crossing incidents, in this 10-year period (FRA 2014). Union Pacific Railroad (UPRR) has decreased derailments 23 percent in the last 10 years through employment of technology (e.g., lasers and ultrasound) to

identify rail imperfections, forecasting potential failures before they happen by tracking acoustic wheel vibrations, performing real-time analysis of rail cars, and conducting safety training programs on a regular basis (UPRR 2014). Railroads make technical information on shipments available to local officials and first responders along routes so that they are aware of what is moving through their area.

Freight railroads have employee safety training requirements and operating procedures that govern the handling and movement of hazardous goods, including crude oil. Federal regulations and self-imposed safety practices dictate train speeds, equipment and infrastructure inspections, and procedures for how to handle and secure trains carrying hazardous materials. The freight rail industry provides instruction to local public safety officials at the Transportation Technology Center's Security and Emergency Response Training Center, and individual railroads conduct additional local training for first responders (AAR 2015). Freight railroads also work with State emergency planning committees and local first responders to develop emergency response plans. In accordance with a February 2014 agreement between the USDOT and the Association of American Railroads, railroads have developed an inventory of emergency response resources and provided the USDOT with information on the deployment of those resources. This information is available upon request to appropriate emergency responders (AAR 2015). The Pipeline and Hazardous Materials Safety Administration's (PHMSA) 2012 Emergency Response Guidebook establishes an initial evacuation zone within 0.5 mile of rail corridors for train derailments involving flammable liquids and gases.

HAZARDOUS WASTE GENERATION IN YOLO COUNTY

Approximately 800 Yolo County businesses generated hazardous waste in 2008. Generators of hazardous waste in Yolo County are required to submit a Hazardous Materials Business Plan to Yolo County Environmental Health Services (YCEHS), and are inspected for compliance with federal and state hazardous waste storage, handling, and disposal regulations at least once every three years. There are currently 12 facilities classified as large-quantity generators that participate in the California Accidental Release Prevention (CalARP) program in Yolo County, indicating that they generate at least 1,000 kilograms (kg) of hazardous waste per month (YCEHS 2015).

NATURALLY-OCCURRING ASBESTOS

NOA includes fibrous minerals found in serpentine and other certain types of rock formations. As described further in Chapter 17, *Geology, Soils, and Mineral Resources*, serpentine rocks are mapped in the northwest corner of the Plan Area. Natural weathering or human disturbance can break NOA down to microscopic fibers that are suspended easily in air. When airborne asbestos is inhaled, these thin fibers irritate tissues and resist the body's natural defenses.

AIRPORT HAZARDS

Yolo County has four public use airports: Yolo County Airport, Borges-Clarksburg Airport, Watts-Woodland Airport, and University Airport (see Exhibit 13-1). The Yolo County Airport is located in south-central Yolo County, just to the north and west of the City of Davis and southwest of the City of Woodland. The Borges-Clarksburg Airport is located in eastern Yolo County, approximately 1-mile northeast of the town of Clarksburg. The Watts-Woodland Airport is located approximately 5 miles west of the City of Woodland. University Airport is located approximately 2 miles west of the City of Davis. In addition, Sacramento International Airport is located immediately east of the county boundary and there are a number of private airstrips and heliports in the Plan Area, including: the California Highway Patrol (CHP) Academy in Bryte (West Sacramento), G3 Ranch in Capay, Medlock Field between Woodland and Davis, KOVR television stations helistop in West Sacramento, and Joe Heidrick in Woodland (Yolo County 2009b).

The Sacramento Area Council of Governments is the ALUC for Sacramento, Sutter, Yolo, and Yuba counties, with the exception of the University of California (UC) Davis airport, which is self-regulated by the University of California. ALUCs may request that all or selected land use actions (e.g., General Plan, Specific Plan, Zoning Ordinance, building regulation, public land acquisition, annexation, large development project) within the

airport influence area be submitted for review for consistency with the comprehensive land use plans (CLUP). All of the public airports in the Plan Area have AIAs defined in their ALUCPs (SACOG 2015).

WILDFIRE HAZARDS

In accordance with California Public Resource Code Section 4201-4204 and Government Code Section 51175-51189, the California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), represent the risks associated with wildland fires. The western third of Yolo County (west of Esparto and Winters) has been classified as having Moderate to Very High wildfire risk, with the Very High risk areas concentrated in the northwest portion of the County bordering Napa, Lake, and Colusa counties (Exhibit 19-1). Most of the remaining areas of the county are unzoned, representing minimal to moderate wildfire risk (Yolo County 2009b).

In California, responsibility for wildfire prevention and suppression is shared by federal, State, and local agencies. Federal agencies are responsible for federal lands in Federal Responsibility Areas (FRAs). The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as State Responsibility Areas (SRAs), which are managed by CAL FIRE. All incorporated areas and other unincorporated lands are classified as Local Responsibility Areas (LRAs). Most of the western third of Yolo County has been classified as SRAs, with FRAs near the northwest and west county boundaries. Under State regulations, areas within very high fire hazard risk zones must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas (Yolo County 2009b).

VECTORS

The Sacramento-Yolo Mosquito Vector Control District implements an integrated pest management plan throughout Sacramento and Yolo counties that includes public education, surveillance, and control activities. The District has prepared a Mosquito Reduction Best Management Practices Manual that provides specific information regarding District policies, mosquito biology, and various best management practices (BMPs) that can be useful in reducing mosquito populations. Land-use specific sections provide guidance for landowners and land-managers who deal with programs such as: managed wetlands, stormwater and wastewater systems, irrigated agriculture, rice production, dairies, swimming pools, cemeteries, and tire storage facilities. The District's Ecological Management Department provides detailed guidance to property owners on how to best implement the BMPs (Sacramento-Yolo Mosquito Vector Control District 2014).

The District meets annually with wetland managers to develop annual management plans and to coordinate all irrigation and flooding activities. In addition to implementing BMPs, the Department administers a tiered fall flooding cost share program designed to discourage early flooding prior to October 1st of each year to reduce potential vector habitat. In 2014, eight wetland properties were billed for mosquito control costs under the cost share program (Sacramento-Yolo Mosquito Vector Control District 2014).

19.2.2 Regulatory Setting

FEDERAL LAWS AND REGULATIONS

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the EPA. Key federal regulations pertaining to hazardous wastes are described below.

Toxic Substances Control Act

The Toxic Substances Control Act regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials.

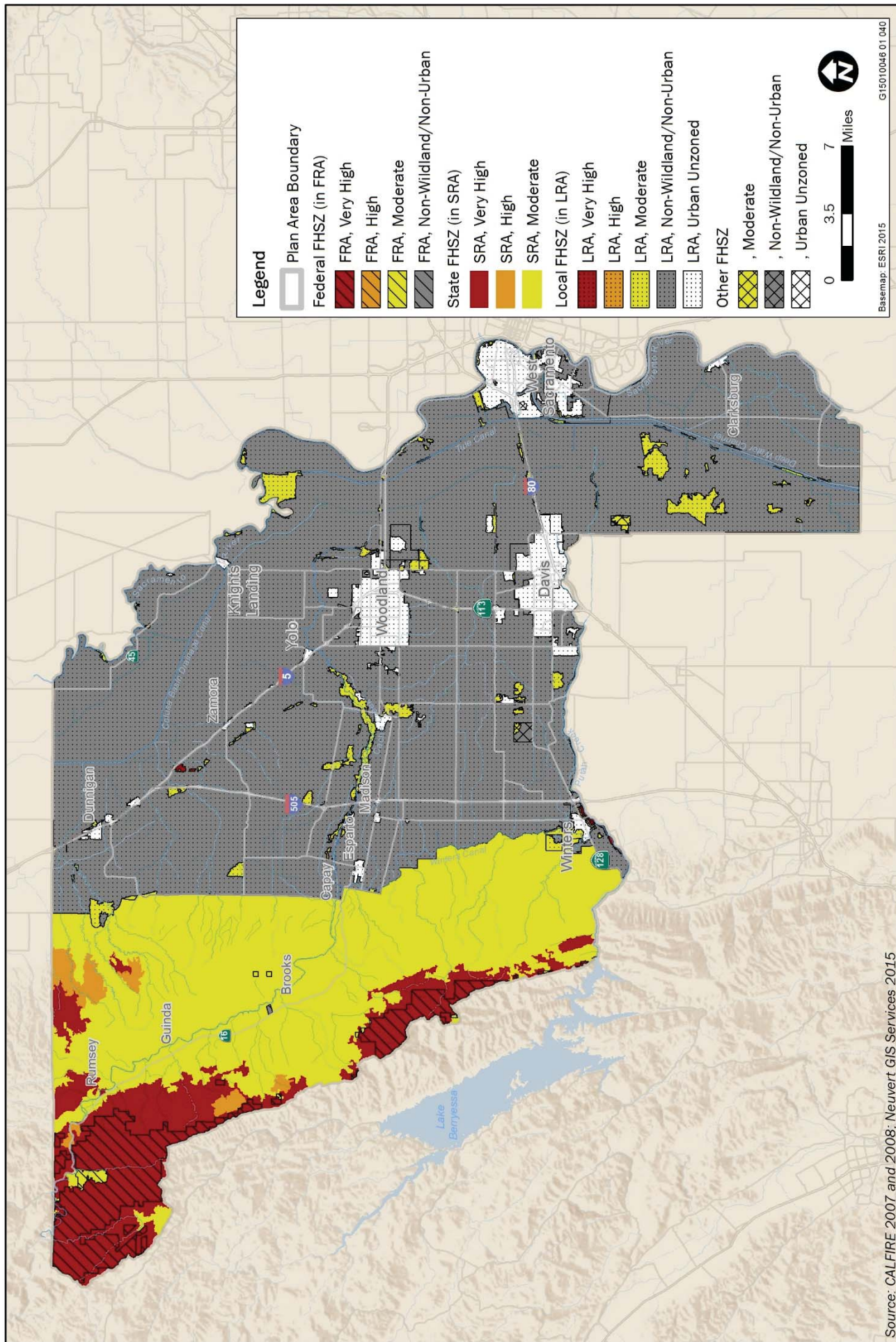


Exhibit 19-1

Fire Hazards

Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA) was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. EPCRA establishes requirements regarding emergency planning and “community right-to-know” reporting on hazardous and toxic chemicals. EPCRA requires states and local emergency planning groups to develop community emergency response plans for protection from a list of extremely hazardous substances (40 Code of Federal Regulations [CFR] 355 Appendix A). The community right-to-know provisions help increase the public’s knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. In California, EPCRA is implemented through the CalARP Program.

Resource Conservation and Recovery Act

Under the Resource Conservation and Recovery Act, DTSC has the authority to implement permitting, inspection, compliance, and corrective action programs to ensure that people who manage hazardous waste follow requirements designed to protect human health and the environment, reduce or eliminate the generation of hazardous waste, and conserve energy and natural resources. Requirements place “cradle-to-grave” responsibility for hazardous waste disposal on the shoulders of hazardous waste generators. Generators must ensure that their wastes are disposed of properly.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act regulates former and newly discovered uncontrolled waste disposal and spill sites. This act established the National Priorities List of contaminated sites and the “Superfund” cleanup program.

Federal Insecticide, Fungicide, and Rodenticide Act

Pesticides are regulated under the Federal Insecticide, Fungicide and Rodenticide Act by EPA. This includes labeling and registration of pesticides as to how they may be used. EPA delegates pesticide enforcement activities in California to the California Department of Pesticide Regulation (DPR), under Title 3 of the California Code of Regulations (CCR) and the California Food and Agriculture Code. The DPR registers pesticides for use in California, and licenses pesticide applicators and pilots, advisors, dealers, brokers, and businesses. In turn, the Yolo County Agricultural Commissioner (YCAC) acts as the local enforcement for DPR. The YCAC registers licensed pest control businesses; requires permits and advanced notification for buying or using California restricted-use pesticides; and requires the completion of pesticide use reports for pesticides applied in the County. In addition, the YCAC investigates pesticide-related injury and illnesses, and oversees enforcement of worker training in pesticide management.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act is administered by various agencies, including the Pipeline and Hazardous Materials Safety Administration, Federal Highway Administration, and FRA, depending on the mode of transportation and material being transported. The act provides the USDOT with a broad mandate to regulate the transport of hazardous materials, with the purpose of adequately protecting the nation against risk to life and property that is inherent in the commercial transportation of hazardous materials.

The Federal Motor Carrier Safety Administration (FMCSA) maintains a Hazmat Route Registry that describes the highway routes that must be utilized for the transport of certain classes of hazardous materials. In California, this is monitored and regulated by the CHP and the California FMCSA Field Office. Within the Plan Area, Interstate (I-) 80 and I-5 are CHP-designated routes for hazardous materials transport.

Federal Railroad Administration Office of Railroad Safety

FRA’s Office of Railroad Safety promotes and regulates safety throughout the Nation’s railroad industry. The regional offices enforce compliance with regulations related to hazardous materials, motive power equipment, operating practices, signal and train control, and tracks. California is in Region 7, which is headquartered in Sacramento, California (FRA 2015).

Federal Occupational Safety and Health Act

The US Department of Labor regulates worker health and safety at the federal level. The Federal Occupational Safety and Health Act of 1970 authorizes states (including California) to establish their own safety and health programs with the federal Occupational Safety and Health Administration (OSHA) approval.

STATE LAWS AND REGULATIONS

California regulations are equal to, or more stringent than, federal regulations. The EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key laws pertaining to hazardous wastes are discussed below.

California Occupational Safety and Health Regulations

The California Department of Industrial Relations regulates implementation of worker health and safety in California. The Department of Industrial Relations includes the Division of Occupational Safety and Health, which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA) program and provides consultative assistance to employers. California standards for workers dealing with hazardous materials are contained in Title 8 of the CCR and include practices for all industries (General Industrial Safety Orders), and specific practices for construction and other industries. Workers at hazardous waste sites (or working with hazardous wastes, as might be encountered during excavation of contaminated soil) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

Hazardous Materials Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs.

Hazardous Waste Control Act

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26 of the CCR, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Hazardous Waste and Substances Sites List

The Hazardous Waste and Substances Sites List, a key source of the Cortese List, is a planning document used by the State of California and its various local agencies to comply with the CEQA requirements to provide information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires that the California Environmental Protection Agency update the list annually. The list is maintained via DTSC's Brownfields and Environmental Restoration Program (Cleanup Program), and is accessible through the EnviroStor online database. Frontier Fertilizer and Capitol Plating Corporation are on the Cortese List (see Appendix F).

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act regulates water quality through the SWRCB and regional water quality control boards, including oversight of water monitoring and contamination cleanup and abatement.

California Public Utilities Commission Railroad Safety Regulations

The California Public Utilities Commission (CPUC) is the State regulatory agency with legal authority for rail safety within California. The Railroad Operations and Safety Branch is responsible for enforcing State and federal laws, regulations, Commission General Orders, and directives relating to the transportation of persons and commodities by rail. Several California Public Utilities Code Sections prescribe CPUC responsibilities. In particular, under Section 309.7, CPUC is responsible for inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads. Public Utilities Code Sections 309.7 and 765.5(d) require the CPUC to employ a sufficient number of federally-certified Inspectors to ensure that all main and branch line tracks are inspected at least every 12 months.

Local Community Rail Security Act

The Local Community Rail Security Act of 2006 (Public Utilities Code Sections 7665-7667) requires all rail operators to provide security risk assessments to CPUC, the Director of Homeland Security, and the Catastrophic Event Memorandum Account that describe the following:

- ▲ location and function of each rail facility,
- ▲ types of cargo stored at or typically moved through the facility,
- ▲ hazardous cargo stored at or moved through the facility,
- ▲ frequency of hazardous movements or storage,
- ▲ a description of sabotage-terrorism countermeasures,
- ▲ employee training programs,
- ▲ emergency response procedures, and
- ▲ emergency response communication protocols.

California State Aeronautics Act

At the State level, the California Department of Transportation's Division of Aeronautics administers FAA regulations. The Division issues permits for hospital heliports and public-use airports, reviews potential and future school sites proposed within 2 miles of an airport, and authorizes helicopter landing sites at or near schools. In addition, the Division of Aeronautics administers noise regulation and land use planning laws, which regulate the operational activities and provides for the integration of aviation planning on a regional basis.

CAL FIRE Regulations

Title 14 of the CCR establishes regulations for CAL FIRE in areas where CAL FIRE is responsible for wildfire protection. These regulations constitute the basic wildland fire protection standards of the California Board of Forestry and Fire Protection. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in State recreation areas. Additionally, Title 14 sets forth the minimum standards for emergency access, fuel modification, setback, signage, and water supply.

Emergency Services Act

Under the Emergency Services Act, the State developed an emergency response plan to coordinate emergency services provided by federal, State, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, the CHP, regional water quality control boards, air quality management districts, and county disaster response offices.

LOCAL LAWS AND REGULATIONS

Certified Uniform Program Agency

The California Environmental Protection Agency designates specific local agencies as Certified Unified Program Agencies (CUPAs). YCEHS is the CUPA designated for Yolo County and the Cities of Davis, West Sacramento, Winters, and Woodland and is responsible for the implementation of six statewide programs within its jurisdiction. These programs include:

- ▲ underground storage of hazardous substances,
- ▲ hazardous materials business plan requirements,
- ▲ hazardous waste generator requirements,
- ▲ CalARP program,
- ▲ Uniform Fire Code hazardous materials management plan, and
- ▲ aboveground storage tanks (Spill Prevention Control and Countermeasures Plan only).

Implementation of these programs involves:

- ▲ permitting and inspection of regulated facilities,
- ▲ providing educational guidance and notice of changing requirements stipulated in state or federal laws and regulations,
- ▲ investigations of complaints regarding spills or unauthorized releases, and
- ▲ administrative enforcement actions levied against facilities that have violated applicable laws and regulations.

The hazardous materials programs administered under the CUPA program are described below.

Hazardous Materials Management Plan

Businesses that store hazardous materials in excess of specified quantities must report their chemical inventories to YCEHS by preparing a Hazardous Materials Management Plan, also known as a business plan. This information informs the community on chemical use, storage, handling, and disposal practices. It is also intended to provide essential information to fire fighters, health officials, planners, elected officials, workers, and their representatives so that they can plan for, and respond to, potential exposures to hazardous materials.

California Accidental Release Prevention Program

Under the CalARP Program, businesses that use large quantities of acutely hazardous materials must prepare a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential.

Underground Storage Tank Programs

Current regulations require that USTs be installed, monitored, operated, and maintained in a manner that protects public health and the environment. Tanks must be constructed with primary and secondary levels of containment and be designed to protect public health and the environment for the lifetime of the installation. The USTs must be monitored for leaks and built such that a leak from the primary container into the secondary container will be detected. When an UST tank is proposed to be removed, a detailed permit application must be submitted to YCEHD, which oversees removal activities to identify evidence of leakage.

The YCEHS regulates the construction, operation, repair and removal of UST systems throughout Yolo County to ensure that hazardous materials are not released into the environment. Tanks and associated piping systems are required to meet stringent construction standards designed to reduce the potential for product loss. All tanks installed or upgraded must be continuously monitored (YCEHS 2015).

Aboveground Storage Tank Programs

Inspections and permits are required for facilities storing hazardous materials in aboveground storage tanks by YCEHD. In addition, any facility operating aboveground storage tanks with an aggregate tank capacity of 1,320 gallons or more must: 1) complete a Spill Prevention Control and Countermeasure plan to provide a detailed engineering analysis of the potential for release from aboveground storage tanks present at a facility and the measures, such as secondary containment and emergency response that can be implemented to reduce the release potential and 2) file a storage statement, as required by the SWRCB. There are approximately 175 aboveground storage tank sites in Yolo County (Yolo County 2009b).

Hazardous Waste Generation and Disposal

Once a hazardous material has been used or processed, what remains may be considered a hazardous waste. Many items routinely used by residents and businesses, such as paints and thinners, cleaning products, and motor oil, are considered hazardous waste once they are ready for disposal. Nearly all businesses and residences in the Plan Area are expected to generate some amount of hazardous wastes (including household hazardous wastes). Hazardous waste generation and disposal regulations are administered and enforced by YCEHS. Businesses that generate more than 100 kg of hazardous waste per month, or more than 1 kg of acutely hazardous waste, must be registered with EPA's Resource Conservation and Recovery Act program and are subject to extensive regulations regarding storage and disposal.

Emergency Response

Natural disasters, events resulting in the release of hazardous materials into the environment, or an accident resulting from a hazard, all necessitate an emergency response or evacuation plan. These plans facilitate coordination between government agencies in order to provide central management for effective response in an emergency situation within a given area. Various levels of government are responsible for applying resources and emergency relief to those in the emergency area in order to minimize the effects of the hazards or hazardous materials. Emergency plans outline the critical factors necessary during an emergency, including communications, transportation, a command station, control, and shelter. Emergency plans also often identify designated evacuation routes and procedures.

Yolo County maintains an Emergency Operation Center, which is the central location used to manage a disaster or other large-scale emergency in the county. Emergency response is governed by two plans: the Yolo County Emergency Operations Plan, which describes overall responsibilities, and the Yolo Operational Area Multi-Hazard Mitigation Plan, which was developed in response to a Federal Emergency Management Agency mandate to describe specific disasters and possible responses. A third plan, Yolo Operational Area Hazardous Materials Environmental Response Plan is implemented by YCEHS and addresses response to hazardous materials emergencies. This plan establishes a Hazardous Materials Response Team, which becomes active when deemed necessary by a fire department officer, and combines the forces of the UC Davis; the City of Davis, the City of West Sacramento, and the City of Woodland fire departments; and the YCEHS (Yolo County 2009b).

2030 Yolo County Countywide General Plan

The Health and Safety Element of the Yolo County General Plan establishes a goal, policies, and, as part of the implementation program, actions to ensure safety from hazardous materials in and around the county. Potentially relevant policies are as follows:

- ▲ **Policy HS-4.1:** Minimize exposure to the harmful effects of hazardous materials and waste. Protect the community and the environment from hazardous materials and waste.
- ▲ **Policy HS-4.2:** Inspect businesses regularly for compliance with their Hazardous Materials Inventory and Hazardous Materials Business Emergency Response Plan.
- ▲ **Policy HS-4.3:** Encourage the reduction of solid and hazardous wastes generated in the county.

Action times related to these policies include providing adequate separation between areas where hazardous materials are present and sensitive uses (HS-A46) and requiring new development and redevelopment in areas previously used for agricultural, commercial, or industrial uses to ensure that soils, groundwater, and buildings affected by hazardous material releases from prior land uses, as well as lead paint and/or asbestos potentially present in building materials, will not have the potential to affect the environment or health and safety of future property owners or users (HS-A47).

City of Davis General Plan

The City of Davis' General Plan contains the following policies related to hazards and hazardous materials and potentially relevant to the Plan:

- ▲ **Policy HAZ 3.1:** Provide for disaster planning.
- ▲ **Policy HAZ 4.1:** Reduce and manage toxics within the planning area.
- ▲ **Policy HAZ 4.2:** Provide for the proper disposal of hazardous materials in Davis.
- ▲ **Policy HAZ 4.3:** Reduce the potential for pesticide exposure for people, wildlife, and the environment.
- ▲ **Policy HAZ 4.5:** Minimize impacts of hazardous materials on wildlife inhabiting or visiting the Davis area.
- ▲ **Policy HAZ 4.7:** Ensure that remediation of hazardous waste sites is conducted in the most timely and environmentally responsible manner possible.
- ▲ **Policy HAZ 5.1:** Reduce the combined load of pollutants generated in the City's wastewater, stormwater, and solid waste streams. Such pollutants include, but are not limited to toxic and hazardous substances.

City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goal and policies that relate to hazards and hazardous materials that may be applicable to the analysis of the HCP/NCCP:

Public Facilities and Services Element

Goal PFS-9. To prevent loss of life, injury, and property damage due to wildland and structural fires, while ensuring an adequate level of fire protection services is maintained for all.

- ▲ **Policy PFS-9.12. Removal of Fire Hazards.** The City shall require property owners to remove fire hazards, including excessive/overgrown vegetation, hazardous structures and materials, and debris.

Safety Element

Goal S-1: To ensure that City emergency response procedures are adequate in the event of natural or man-made disaster.

- ▲ **Policy S-1.1. Emergency Response Plans.** The City shall maintain the Emergency Operations Plan and Standard Emergency Management System (SEMS).
- ▲ **Policy S-1.2. Multi-Hazard Mitigation Plan.** The City shall coordinate with jurisdictions in Yolo County, as necessary, to maintain the Yolo Operational Area Standard Multi-Hazard Mitigation Plan.
- ▲ **Policy S-1.13. Comprehensive Flood Management, Emergency, and Evacuation Plans.** The City shall maintain, implement, update, and make available to the public the local Comprehensive Flood Management Plan, Emergency Plans, and Evacuation Plans, which address emergency preparedness, evacuation, hazardous materials, and protection of critical facilities, development guidelines, and flood insurance outreach to better protect citizens in the event of a major flood event.

- ▲ **Policy S-1.14. Environmental Resources Impacted By Natural Disasters.** The City shall account for environmental resources impacted by natural disasters including but not limited to tribal cultural resources, archaeological sites, and sensitive habitat areas.

Goal S-6. To minimize exposure to the potentially harmful effects of hazardous materials and waste on West Sacramento residents.

- ▲ **Policy S-6.1. Hazardous Materials.** The City shall regulate the use, storage, manufacture, transport, and disposal of hazardous materials and waste in accordance with Federal, State, and local regulations. The City shall maintain additional standards addressing the transport of hazardous materials within the city, which can include restricting transport to designated routes.
- ▲ **Policy S-6.6. Inventory.** The City shall continue to maintain an inventory of businesses that manufacture or store hazardous materials on the premises.

City of Winters General Plan

The City of Winters' General Plan contains the following policies related to hazards and hazardous materials and potentially relevant to the Plan:

- ▲ **Policy VII.C.8:** The City shall promote the abandonment of gas wells consistent with requirements of state law and regulations.
- ▲ **Policy VII.D.1:** The City shall adopt, maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.

City of Woodland General Plan

The City of Woodland's General Plan contains the following policies related to hazards and hazardous materials and potentially relevant to the Plan:

- ▲ **Policy 8.E.1:** The City shall ensure that the use and disposal of hazardous materials in the city complies with local, state, and federal safety standards.
- ▲ **Policy 8.E.3:** The City shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County Hazardous Waste Management Plan.
- ▲ **Policy 8.E.4:** The City shall strictly regulate the storage of hazardous materials and wastes.
- ▲ **Policy 8.E.5:** The City shall ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards.
- ▲ **Policy 8.E.6:** The City shall require that new industries that store and process hazardous materials provide a buffer zone between the installation and the property boundaries sufficient to protect public safety. The adequacy of the buffer zone shall be determined by the City.
- ▲ **Policy 8.E.7:** The City shall require that applications for discretionary development projects that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.
- ▲ **Policy 8.E.8:** The City shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.

- ▲ **Policy 8.E.10:** The City shall identify sites that are inappropriate for hazardous material storage, maintenance, use, and disposal facilities due to potential impacts on adjacent land uses and the surrounding natural environment.
- ▲ **Policy 8.E.11:** The City shall work with other agencies to ensure an adequate countywide response capability to hazardous materials emergencies.
- ▲ **Policy 8.E.12:** The City shall provide the public, industry, and agriculture with the information needed to take rational steps to minimize, recycle, treat, dispose, and otherwise manage hazardous wastes in Woodland.
- ▲ **Policy 8.E.13:** The City shall provide education for small-quantity, household, medical, and agricultural hazardous waste generators regarding their responsibilities for source reduction and proper and safe hazardous waste management.
- ▲ **Policy 8.E.14:** The City shall develop and maintain complete and accurate information on the types, quantities, sources, and management of all hazardous wastes generated in Woodland to aid in management planning and emergency response.
- ▲ **Policy 8.E.15:** The City shall provide for safe and efficient hazardous waste emergency response and plan for contaminated site cleanup.
- ▲ **Policy 8.F.1:** The City shall periodically update the City of Woodland Emergency Response Plan, as necessary, to ensure that an adequate plan and program can be activated in the event of an emergency.
- ▲ **Policy 8.F.4:** The City shall maintain the capability to effectively respond to emergency incidents.

Airport Plans

The Sacramento Area Council of Governments is the designated ALUC for the counties of Yolo, Sacramento, Sutter, and Yuba. There are four general aviation airports in Yolo County. Three of these airports –Yolo County Airport, Watts-Woodland Airport, and Borges-Clarksburg Airport – are subject to the respective airport CLUPs prepared by the ALUC. A fourth airport, University Airport, is subject to an Airport Layout Plan prepared by UC Davis.

19.3 ENVIRONMENTAL CONSEQUENCES

19.3.1 Methodology and Significance Criteria

METHODS AND ASSUMPTIONS

The evaluation of potential effects related to hazards and hazardous materials is based on a review of documents and publicly available information about hazardous and potentially hazardous conditions on or near the Plan Area to determine the potential for project implementation to result in an increased health or safety hazard to people or the environment. This includes County and City planning documents, and SWRCB and DTSC hazardous materials database information.

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the Permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All covered activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) to implement the covered activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

The assessment of potential effects related to hazards and hazardous materials in the Plan Area is based on the anticipated changes in land cover and land uses over 50 years, corresponding to the permit term under the Proposed Action Alternative.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, Approach to the Analysis, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in the following:

- ▲ create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- ▲ create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment;
- ▲ emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25- mile of an existing or proposed school;
- ▲ be located on a site that is on a list of hazardous materials sites compiled pursuant to California Government Code 65962.5, and as a result would create a significant hazard to the public or the environment;
- ▲ for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- ▲ for a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- ▲ impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan;
- ▲ expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or
- ▲ substantially affect public health due to increased presence of potential natural disease vectors.

Issues Not Evaluated Further

As described above, NOA includes fibrous minerals found in serpentine and other specific types of rock formations. As described in Chapter 17, *Geology, Soils, and Mineral Resources*, serpentine rocks are mapped in the northwest corner of the Plan Area. More specifically, a small area of ultramafic rocks, one of which may be serpentinite, occurs along Little Blue Ridge, west of Rumsey (USGS and CGS 2011). However, there are no covered activities proposed in this area (See Figure 2-2). There are also no reserve system

priority acquisition areas in this portion of the Plan Area, although there is an existing piece of public lands that could be incorporated into the reserve system (Category 3 Baseline Public and Easement Lands; see Figure 2-5). It is highly unlikely that any activities associated with the Plan would result in ground disturbance in a location that contained serpentine rock or NOA. Even if some type of ground disturbing activity were to occur in an area that could contain NOA, existing regulatory requirements, such as those included in the California Occupational Safety and Health Regulations, would reduce or eliminate the mobilization of, or exposure to NOA. The Air Resources Board (ARB) has also adopted Airborne Toxic Control Measures (ATCMs) to control exposure to asbestos from construction, grading, quarrying, and surface mining operations (17 CCR 93105, 7/26/01). Compliance with regulatory requirements would avoid any potential adverse exposure to NOA. This issue is not discussed further.

19.3.2 Effects of Proposed Action and Alternatives

ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP: urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development, and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the USFWS or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county.

Under the No Action Alternative, development in rural and urban areas within the Plan Area would occur as planned by the plan participants. Planned development would temporarily increase the regional transport, use, storage, and disposal of hazardous materials and petroleum products (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals) that are commonly used at construction sites. In addition, due to the presence of documented contamination sites, historical land use within the Plan Area, and the presence of major roadways and railroad tracks, previously unknown hazardous materials could be encountered during construction. Hazardous waste generated during construction may consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals. Although the transportation of hazardous materials could result in accidental spills, leaks, toxic releases, fire, or explosion, the USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR. These standard accident and hazardous materials recovery training and procedures are enforced by the State and followed by private State-licensed, certified, and bonded transportation companies and contractors.

The most likely incidents involving construction-related hazardous materials are generally associated with minor spills or drips. Small fuel or oil spills are likely, but would have a negligible impact on public health. All

hazardous materials would be stored, handled, and disposed of according to the manufacturers' recommendations, and any spills would be cleaned up in accordance with existing regulations. All hazardous materials spills or releases, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled, must be immediately reported if the spill has entered or threatens to enter a water of the State, including a stream, lake, wetland, or storm drain, or has caused injury to a person or threatens injury to public health. Immediate notification must be made to the local emergency response agency, or 911 and the Governor's Office of Emergency Services Warning Center. For non-petroleum products, additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours as detailed in Section 25359.4 of the California Health and Safety Code and Title 40, Section 302.4 of the CFR. In addition, as described in Chapter 9, *Hydrology and Water Quality*, a stormwater pollution prevention plan would be prepared for each site covered by the permit. The stormwater pollution prevention plan would incorporate BMPs for the transport, storage, use, and disposal of hazardous materials to prevent the release of hazardous materials into the environment.

Operation of the anticipated projects could also involve the use of hazardous materials or petroleum products. Commercial uses in the Plan Area would prepare and implement hazardous materials plans, such as the following, to avoid occurrences, and minimize the effects of, hazardous materials spills and releases:

- ▲ California hazardous materials business plan (pursuant to California Health and Safety Code Section 25500), which specifies requirements for material inventory management, inspections, training, recordkeeping, and reporting.
- ▲ A spill prevention, containment, and countermeasures plan (pursuant to 40 CFR 112) or, for smaller quantities, a spill prevention and response plan, which identifies BMPs for spill and release prevention and provides procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases.

Under the No Action Alternative, development is anticipated to occur near the Yolo County Airport. The Yolo County Airport is within a development area for rural public services, infrastructure, and utilities projects. Parcels in Monument Hills are located adjacent to the runway at the Watts-Woodland Airport, and planned aggregate mining is identified immediately to the northeast. Planned infrastructure projects are also identified adjacent to the CHP Academy Airstrip and the KOVR helistop. City and county zoning and planning are required to conform to the CLUP unless the city or county governing body specifically overrides the CLUP by supermajority vote. Implementing agencies are responsible for analyzing compliance with CLUPs as a part of their land use approval authority. Discretionary land use actions in proximity of airports and related facilities would be reviewed for consistency with the CLUP. The Borges-Clarksburg Airport and Watts-Woodland Airport have safety overflight zone extending 5,000 feet from the runway. The Yolo County Airport has a safety overflight zone extending 10,000 feet from the runway (SACOG 2015).

Development could also occur near private airstrips, which are regulated by both local land use regulations and State and federal aviation guidelines. Although the regulatory environment for private airstrips is not as explicit as for public airstrips, adherence to State and local permits, existing regulations, and FAA requirements would reduce the potential for a safety hazard for people residing or working in the vicinity of private airstrips. In addition, general plan policies within the area ensure that development proximate to private airstrips addresses compatibility issues.

Under this alternative, there could also be increased urbanization along rail corridors. Construction and operation of planned projects would not increase the hazard associated with operation of the highway and railroad, but could increase the number of people potentially exposed to hazardous conditions. As noted above, FRA and PHMSA closely regulate the rail transport of crude oil and other hazardous materials. The transport of hazardous materials by rail is subject to requirements for handling, loading and unloading, and the placement of placards to alert emergency response teams as to the contents of each car. FRA routinely inspects the facilities of shippers and railroads to ensure that all regulatory requirements are being met.

Development that would occur under the No Action Alternative would be consistent with local planning documents. This is anticipated to reduce the potential for projects to be developed in a manner that would interfere with adopted emergency plans. Further, the amount and location of development would be consistent with the projections used to establish applicable emergency response and emergency evacuation plans, which would facilitate plan implementation. Once constructed, development would be required to comply with adopted emergency response plans, including the Yolo County Emergency Operations Plan and the Yolo County Operational Area Multi-Jurisdictional hazard Mitigation Plan.

Development that proposes large concentrations of people or special needs individuals (such as stadiums or hospitals) in an area with increased hazards (such as a dam inundation area) could cause adverse effects related to the implementation of countywide and jurisdictional emergency plans. Further, certain tall structures can physically interfere with the implementation of emergency response if the height of the structure or tower interferes with the ability of emergency air support services to carry out missions associated with an emergency response. However, it is anticipated that environmental and planning reviews conducted of subsequent development projects under the No Project Alternative would require evaluation of potential hazards and land suitability, as well as the potential for emergency response plans to be impaired. These procedures would prevent construction of structures that would be hazardous to people working or residing in the area. The threat of wildfires from development of areas within CAL FIRE's responsibility is addressed through compliance with Title 14 of the California Code of Regulations, which sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply to damage to structures or people by reducing wildfire hazards. Standard construction mitigation includes notification of emergency responders where road closures are required. Where development is located near railroad tracks, emergency response plans may be amended to address the potential hazard.

Cumulative Effects

Planned development would proceed, and land use conversions would occur consistent with the general plans of Yolo County, West Sacramento, Davis, Winters, and Woodland, under the No Action Alternative. Although development that would occur under this alternative could require the use and transport of hazardous materials, compliance with existing regulations would limit the potential for any release of hazardous materials that would significantly contribute to a cumulative condition. Additional impacts could occur as a result of construction if the authorities are not properly notified, or if multiple projects are constructed at the same time, and therefore result in concurrent blockage of multiple roadways used for emergency routes. However, it is anticipated that environmental and planning reviews conducted of subsequent development projects under the No Project Alternative would require evaluation of the cumulative condition and mitigation for potential cumulative impacts to traffic. Further, as development is proposed on sites with known contamination, existing regulation would require remediation, which would have a beneficial impact on the cumulative condition.

ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)

Environmental Consequences/Environmental Effects

The Proposed Action Alternative (Alternative B) incorporates the same development-related activities identified for the No Action Alternative (urban projects and activities, rural projects and activities, and public and private operations and maintenance), with the HCP/NCCP providing a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Hazardous materials effects as a result of these activities would be the same as those described under the No Action Alternative.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and neighboring landowner protection program, as well as the required use of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. Components of the conservation strategy include habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural

lands to create habitat; construction of facilities necessary for management and maintenance; monitoring; and control of invasive nonnative species. These activities are not generally associated with use of substantial quantities of hazardous materials. As a result, the effects of activities included in the Proposed Action Alternative would be very similar to those described under the No Action Alternative. Further, while lands in the expanded Plan Area may be added to the reserve system, because no other activities related to the HCP/NCCP would occur in this corridor, the potential effect in this area would not differ from other reserves in the Plan Area.

The following impact discussions focus on the elements of the HCP/NCCP that differ from the No Action Alternative. From the perspective of potential effects related to use or discovery of hazardous materials, the primary result of the voluntary neighboring landowner protection program (as described in more detail in Chapter 2, *Proposed Action and Alternatives*), would be the general preservation of existing conditions on lands adjacent to reserve system lands. The program is not evaluated further in the impact discussions below because it would not change conditions related to potential hazards.

Effect HAZ-1: Create a significant hazard through the routine transport, use, or disposal of hazardous materials, including along existing transportation corridors and in proximity to school sites.

Development and operation of urban and rural projects and activities would result in transport, use, and disposal of hazardous materials. Adherence to existing regulations and compliance with safety standards would reduce any potential hazards associated with the routine use of such materials. The Proposed Action Alternative would result in use of the Plan Area (and expanded Plan Area) for agriculture and as managed open space. Pesticides and other chemicals are routinely used in the management of these areas. Use of pesticides is not a covered activity; therefore, authorization is not provided for pesticide use that would result in take of covered species.

Title 49 of the CFR, Hazardous Materials Regulations, includes requirements for the classification of materials, packaging, hazard communication, transportation, handling, hazardous materials employee training, and incident reporting. The California Department of Public Health regulates the haulers of hazardous waste. A valid registration issued by DTSC is required, unless specifically exempted, to transport hazardous wastes and DMV requires all hazardous materials transporters to possess a commercial driver's license with a hazardous materials endorsement. Vehicle Code Section 31303 outlines general routing and parking restrictions for hazardous material and hazardous waste shipments and CHP publishes a list of restricted or prohibited highways. FMCSA also maintains a Hazmat Route Registry that describes the highway routes that must be utilized for the transport of certain classes of hazardous waste that is monitored and regulated by the FMCSA field office and CHP.

Schools are considered a particularly sensitive receptor relative to hazardous material exposure because there is a concentration of children that is repeatedly exposed to environmental conditions at the school site for extended periods of time. During construction, demolition, and excavation activities, the projects would potentially produce hazardous air emissions or involve the handling of extremely hazardous wastes. As discussed above, the all projects would comply with federal and State regulations that are designed to reduce the potential for the release of large quantities of hazardous materials and wastes into the environment to an acceptable level. Existing protective measures and regulations would be sufficient to ensure that hazardous materials stored, used, transported, and disposed of as part of projects covered under the HCP/NCCP would not pose a significant hazard to the public or the environment, including children at schools, under normal conditions.

It is not known if reserves established under the Proposed Action Alternative would be located near existing or proposed schools because the precise location of reserve lands would be determined during implementation of the Plan. However, the high priority reserve system acquisition areas identified for the Proposed Action Alternative (see Figure 2-5 in Chapter 2, *Proposed Action and Alternatives*) are generally outside of established communities, where most schools are located. In addition, hazardous materials used on reserve system properties would occur in a manner consistent with applicable regulations such that no take of protected species would occur. This is anticipated to substantially limit the potential for effect to students attending nearby schools.

Since the development and conservation actions associated with establishing and maintaining a reserve system under the Proposed Action Alternative would be subject to the same regulations as development and conservation under the No Action Alternative, the alternatives would likely result in similar land uses and would have similar effects relative to hazards.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Further, because establishing and operating the reserve system would not result in a significant adverse effect related to the routine transport, use, or disposal of hazardous materials.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HAZ-2: Result in the release of hazardous materials from a site of known or potential contamination.

Known Sites of Contamination

The Plan Area includes over 70 sites that are actively under evaluation, remediation, or verification monitoring by DTSC or SWRCB; and many more that are waiting for evaluation and potential clean-up. Of the 70 active sites listed in Appendix F, 33 sites would be near covered activity areas and five would be within covered activity areas. Many of the road, levee, and other infrastructure improvements would occur in proximity of identified hazardous materials sites. In addition, other historical or undocumented sites could be within the covered activities areas and potentially effected by development that is reasonably anticipated to occur under the Proposed Action Alternative. All covered activities would be subject to established hazardous materials regulations and standards, and would undergo project-specific analysis to investigate the potential for contamination of nearby properties to effect conditions in the site.

Since the location of future reserve system lands is unknown, an evaluation of the potential for specific sites of known contamination within the Plan Area to be effected by reserve system activities cannot be conducted at this time. However, as evidenced in Appendix F, sites of known contamination are often associated with development and historical use of the property. Since reserve system lands would be frequently located on land that is in a semi-natural condition, there is a greatly reduced potential for these sites to be located on properties with known contamination. Potential contamination associated with agricultural lands is addressed below.

Agricultural Chemicals

Due to historical use for agricultural purposes, it is anticipated that residue from pesticides, fertilizers, and other agricultural chemicals may be present in the Plan Area. As detailed in the setting section above, current agricultural practices do not generally employ toxic chemicals with long persistence; however, chemicals formerly used in agriculture included heavy metals and organic compounds, such as DDT, which may persist in soil for decades. These residues could potentially pose a health risk to persons coming into contact with those chemicals. The HCP/NCCP includes a requirement that a Phase I Environmental Site Assessment would be conducted in general accordance with the American Society for Testing and Materials Standard Practice E1527-05 prior to the Conservancy acquiring lands for conservation (see Section 7.5.5.2 of the HCP/NCCP). This assessment would identify potential environmental contamination and provide recommendation regarding the need for further evaluation of the property.

Common Road and Railway Contaminants

Properties located adjacent to roadways may contain elevated concentrations of lead in exposed surface soils, which could pose a health hazard to construction workers and users of the properties. Lead is a State-recognized carcinogen and reproductive toxicant. Exposure of construction workers or future site occupants to lead in soil could result in adverse health effects, depending on the duration and extent of exposure. Substantial quantities of aerially-deposited lead are understood to be generally confined to within 30 feet of a roadway. Other potential contaminants, including herbicides associated with weed abatement and contaminated ballast rock, are generally confined to the immediate transportation right-of-way. Conservation

activities associated with the Proposed Action Alternative are unlikely to result in disturbance of ballast rock and soils in established transportation corridors that could result in the release of potentially hazardous materials.

Undocumented Contamination Sites

The disturbance of undocumented hazardous wastes could also result in hazards to the environment and human health. Grading and excavation activities may expose construction workers and the public to hazardous substances present in the soil or groundwater that are not anticipated based on information about existing conditions. If any previously unknown contamination is encountered during grading or excavation, the removal activities required could pose health and safety risks. Adverse impacts could result if reserve maintenance activities inadvertently disperse contaminated material into the environment. Potential hazards to human health include ignition of flammable liquids or vapors, inhalation of toxic vapors in confined spaces such as trenches, and skin contact with contaminated soil or water.

Many small sites that may have contained leaking underground storage tanks and similar types of contamination, and other sites (currently undiscovered) could be present. Disturbance of these sites could create a significant hazard to the public or the environment. Since the acquisition of sites with known or potential hazardous materials could influence the ability to conduct effective management, due diligence would be performed prior to acquisition so that the Conservancy understands the potential limitations before committing resources to the property (see Section 7.5.5.2 of the HCP/NCCP). In addition, minor remediation projects are included in the Proposed Action Alternative as part of the general urban and rural development operations and maintenance component (see Section 3.5.3.1 of the HCP/NCCP).

Summary

Standard consideration of potential site contamination would be necessary for projects considered covered activities under the Proposed Action Alternative. Implementation of this alternative would have no effect on the potential for reserve maintenance to encounter known or undocumented hazardous materials. As established in the HCP/NCCP, newly protected lands that would be included in the reserve system must not have hazardous materials or property encumbrances that conflict with HCP/NCCP goals and objectives (see Section 7.5.1 of the HCP/NCCP). In addition, as described in Appendix K of the HCP/NCCP, the conservation template easement includes language that requires landowners to verify to the best of their knowledge that land entering into an easement is free of hazardous materials and that the landowner will comply with all environmental regulations regarding hazardous materials.

If an ITP is issued, this would not change the potential for activities included in the Proposed Action Alternative to result in the discovery of unknown hazardous materials. Since the conservation actions under the Proposed Action Alternative and those under the No Action Alternative would be subject to the same regulations and policies and likely result in similar land use, it is likely that they would have similar effects relative to the potential discovery of hazardous materials.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

As indicated above, although the Proposed Action Alternative would result in land use that could expose people or the environment to existing contamination, established regulations and practices incorporated into the Plan would effectively reduce the potential for a significant adverse effect related to release of hazardous materials from a site of known or potential contamination.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

Effect HAZ-3: Result in a safety hazard for people residing or working in the project area because of proximity to public airports or private airstrips.

The Proposed Action Alternative would include incidental take authorization for rural public services, infrastructure, and utilities projects near the Yolo County Airport. Potential rural projects in Monument Hills that could obtain incidental take coverage under the Plan are located adjacent to the runway at the Watts-Woodland Airport, and planned aggregate mining is identified immediately to the northeast. Planned

infrastructure projects are also identified adjacent to the CHP Academy Airstrip and the KOVR helistop. These planned land uses near airports would not change under the Proposed Action Alternative as compared to the No Action Alternative because the development is programmed in the applicable general plans and other planning documents.

The HCP/NCCP would result in a net gain of 44 acres of wetland natural community types, including 20 acres of riparian habitat and 24 acres of aquatic habitat for California tiger salamander (see Table 6-1(b) of the HCP/NCCP). The tiger salamander habitat, which would be in the Dunnigan Hills area, could attract waterfowl since they are attracted to open bodies of water. There are no public airports or private airstrips in that area, however. Therefore, this would have no effect on the potential for hazardous conditions associated with bird-aircraft collisions. Given the proposed creation of wetlands would not be located near an existing airport or airstrip, there is no potential increase in bird aircraft strike hazard.

Since the conservation actions under the Proposed Action Alternative and those under the No Action Alternative would be subject to the same regulations and policies and likely result in similar land use, it is likely that they would have similar effects relative to airspace hazards.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishment and management of a reserve system under the Proposed Action Alternative would not result in significant adverse safety hazards associated with public airports or private airstrips.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HAZ-4: Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

Establishing and operating a reserve system, as planned under the Proposed Action Alternative, is unlikely to impair implementation of emergency response or evacuation plans because such plans are typically geared towards urban areas. Although the Proposed Action Alternative would provide incidental take coverage for selected development activities, the amount and location of development anticipated to occur with implementation of the Proposed Action Alternative would be consistent with the projections used to establish applicable emergency response and emergency evacuation plans and would be required to comply with adopted emergency response plans, including the Yolo County Emergency Operations Plan and the Yolo County Operational Area Multi-Jurisdictional hazard Mitigation Plan. The reserve system is unlikely to affect implementation of emergency response plans and implementation of the Proposed Action Alternative is not anticipated to influence the quantity or character of development that would otherwise occur.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

Potential effects from establishing and managing a reserve system under the Proposed Action Alternative would not result in significant interference with an adopted emergency response plan.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HAZ-5: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

As discussed above for the No Action Alternative, existing regulations help prevent damage to structures and people by reducing wildfire hazards. Further, as part of the public and private operations and maintenance covered activities, the Proposed Action Alternative includes weed abatement to manage fire hazards outside the reserve system, including the removal of dead and dying wood, trees, and vegetation in agricultural areas; and fuel management activities, including the maintenance of fire management zones along existing

infrastructure. The conservation strategy also includes fire management, including prescribed burning, mowing, and fuel-break establishment and maintenance. This would reduce the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Effect HAZ-6: Substantially affect public health due to increased presence of potential natural disease vectors.

The practice of flooding previously dry land that can be part of restoration or creation of aquatic habitats can create favorable mosquito development habitat. High temperatures may promote rapid mosquito development, as well as amplification of some vector-borne viruses (e.g., West Nile Virus). In addition, dense emergent vegetation in aquatic habitats may also increase the numbers of mosquitoes produced, and impede the success of mosquito control practices such as the use of larvicides and mosquito fish.

The Plan Area is within the jurisdiction of the Sacramento-Yolo Mosquito Vector Control District. Control activities would be consistent with the BMPs in the District's Mosquito Reduction Best Management Practices Manual. The HCP/NCCP anticipates ongoing use of approved pesticides, herbicides, and other agro-chemicals in accordance with EPA labels on HCP/NCCP reserve lands. For rice land application, the recommended application shall not be harmful to mammals, reptiles, and amphibians (use of these chemicals is not a covered activity under the Yolo HCP/NCCP). Public health would not be adversely affected because the implementation of mosquito-reducing BMPs would prevent or reduce mosquito production in areas where standing water may occur.

Although implementation of the Proposed Action Alternative could result in more area preserved as open space and wetland habitat than the No Action Alternative, which could provide habitat for mosquitoes, the Proposed Action Alternative allows for mosquito abatement (Section 7.5.5.4) if it does not result in incidental take of listed or Covered Species and as long as the intended conservation benefits and conservation values of the reserve lands are not compromised. Although pesticide use would not be considered a covered activity (i.e., the Permittees may not cause take of a State or federally listed species as a result of pesticide use), Permittees may use pesticides in accordance with labeling instructions.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

No mitigation is required.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative. The contribution to cumulative effects from reasonably foreseeable future projects is also the same as described for the No Action Alternative. The potential impacts associated with the Proposed Action Alternative (e.g., acquiring lands containing hazardous materials, unearthing hazardous materials during restoration and other reserve system activities, and using hazardous materials as part of reserve system management) are site-specific in nature, and are expected to comply with applicable regulations, as described above. The cumulatively considerable contribution to cumulative effects from the Proposed Action Alternative would not be appreciably different from those identified for the No Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is **less than significant**.

CEQA Level of Significance: As compared to Existing Conditions, this impact is **less than significant**.

ALTERNATIVE C - REDUCED TAKE ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Take Alternative (Alternative C) would include the same categories of development-related activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative there are eight areas designated for development under the Proposed Action Alternative in which activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative.

Effects related to hazardous materials as a result of implementation of the Reduced Take Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. The Reduced Take Alternative would have the same potential to disturb known sites of contamination (as identified in Appendix F) as the Proposed Action Alternative. The alternative would also be near, or include, the same airports as the Proposed Action Alternative. However, activities that could result in take (e.g., development) would not be allowed on approximately 1,335 acres within the Plan Area in general, and in specific areas in the vicinity of existing development (such as Clarksburg, West Sacramento, and the Woodland Elkhorn Specific Plan area). In these areas, it is less likely that land disturbing activities that could encounter undocumented hazardous materials would occur.

There is a potential that development would be displaced from the eight areas where activities that would result in take of covered species would not be permitted under the Reduced Take Alternative and could occur in other parts of the Plan Area. This displaced development would generally have similar potential to create a hazard due to routine use of hazardous materials, or result in the release of hazardous materials from a site of known or potential contamination as identified for the No Project Alternative. Development would temporarily increase the regional transport, use, storage, and disposal of hazardous materials and petroleum products that are commonly used at construction sites. In addition, due to the presence of documented contamination sites, historical land use within the Plan Area, and the presence of major roadways and railroad tracks, previously unknown hazardous materials could be encountered during construction. It is anticipated that environmental and planning reviews conducted for such displaced development would require evaluation of potential hazards and land suitability, as well as the potential for emergency response plans to be impaired. These procedures would prevent construction of structures that would be hazardous to people working or residing in the area. Effects HAZ-1 through HAZ-5 would not be appreciably different from what is described for the Proposed Action Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar/greater/less and is **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects regarding hazards and hazardous materials under the Reduced Take Alternative are not appreciably different from those described for the Proposed Action and the No Action Alternatives. Therefore, implementation of the Reduced Take Alternative, like the Proposed Action Alternative, would not result in a cumulatively considerable contribution to significant cumulative effects.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

ALTERNATIVE D - REDUCED DEVELOPMENT ALTERNATIVE

Environmental Consequences/Environmental Effects

The Reduced Development Alternative (Alternative D) would include the same categories of development-related activities as the Proposed Action Alternative (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan Specific Plan Area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development that results in take of listed species in these locations would be required to obtain authorization under the Federal and State Endangered Species Acts, as appropriate, on a project by project basis. (See Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative.)

The Reduced Development Alternative would have the same potential to disturb known sites of contamination (as identified in Appendix F) as the Proposed Action Alternative and Reduced Term Alternative, and would be near, or include, the same airports. Effects related to hazardous materials that could result from implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action Alternative, Proposed Action Alternative, and Reduced Term Alternative. To the extent that preclusion from the HCP/NCCP drives development that would occur in the Dunnigan and Elkhorn Specific Plan Areas under the Proposed Action Alternative to occur elsewhere, the effects would be as disclosed above for the Reduced Take Alternative.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The individual effects regarding hazards and hazardous materials under the Reduced Development Alternative are not appreciably different from those described for the Proposed Action and the No Action Alternatives. Therefore, implementation of the Reduced Development Alternative, like the Proposed Action Alternative, would not result in a cumulatively considerable contribution to transportation significant cumulative effect.

NEPA Level of Significance: As compared to the No Action Alternative, this impact is similar and is **less than significant**.

CEQA Level of Significance: As compared to the Proposed Action Alternative, this impact is similar and is **less than significant**.

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20 OTHER REQUIRED NEPA AND CEQA ANALYSES

20.1 INTRODUCTION

NEPA requires an EIS and CEQA requires an EIR to evaluate a number of other types of environmental impacts and issues in addition to those already addressed in the resource chapters. The analysis required under NEPA and CEQA is in many cases similar; therefore, the NEPA and CEQA required analyses in this section are combined, as appropriate.

20.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

20.2.1 NEPA Level of Significance

None of the action alternatives have significant and unavoidable impacts when comparing the action alternatives to the No Action Alternative. This is identified as the “NEPA Level of Significance” for each impact evaluation in Chapters 4 through 19).

20.2.2 CEQA Level of Significance

As described in Chapter 6, *Agricultural Resources*, when comparing the Proposed Action Alternative to Existing Conditions (identified as the “CEQA Level of Significance for each impact evaluation in Chapters 4-19), the conversion of up to 702 acres of cultivated land and up to 210 acres of land potentially suitable for grazing to habitat as part of implementation of habitat restoration elements of the HCP/NCCP Conservation Strategy is a significant and unavoidable impact (see discussion of Effect AG-1: Potential to convert farmland to non-agricultural use). The Proposed Action Alternative would result in permanent protection of over 21,500 acres of agricultural lands as habitat for various species. This would result in a net increase in protected agricultural land in the Plan Area due to the Conservation Strategy. While the Proposed Action Alternative would result in permanent protection of thousands of acres of agricultural land, the loss of agricultural land is permanent. Permanently protecting some agricultural land cannot fully mitigate for the conversion of other agricultural land to non-agricultural use. Therefore, the impact is considered significant and unavoidable.

The Reduced Take Alternative and Reduced Development Alternative could result in less conversion of agricultural land to other uses compared to the Proposed Action Alternative. However, the amount of any reduction would be dependent on any changes in land uses that ultimately might occur under these alternatives, and the extent and location of any development that is displaced to another part of the Plan Area (see the discussions of these alternatives in Chapter 6, *Agricultural Resources*). Although the total conversion of agricultural land could be less under these alternatives, conversions would still occur with no feasible means to fully mitigate for the impact. Therefore, when comparing these alternatives to Existing Conditions (i.e., the “CEQA Level of Significance”), this impact remains significant and unavoidable for these two alternatives.

20.3 SHORT-TERM USES OF THE ENVIRONMENT VERSUS MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY (NEPA AND CEQA)

In accordance with NEPA, Section 102 (40 USC 4332), an EIS must include a discussion of the relationship between the short-term uses of the environment and the maintenance and enhancement of long-term productivity. CEQA Section 15065(a)(2) requires lead agencies determine whether a project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

The action alternatives are fundamentally designed to ensure the long-term productivity of the environment is ensured, despite the short-term uses of the environment. In the short-term, a wide range of covered activities would be implemented according to local plans. As explained throughout this document, the activities would result in a loss of habitat and the take of sensitive species; however, each of the action alternatives includes a comprehensive conservation strategy which would avoid, minimize, and mitigate for impacts on sensitive species and natural communities from covered activities.

20.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES (NEPA)/SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES (CEQA)

In accordance with NEPA, Section 102 (40 USC. 4332), an EIS must explain which environmental impacts of the action alternatives are irreversible or would result in an irreversible commitment of resources, such as consumption of fossil fuels. CEQA similarly requires an EIR to discuss significant irreversible environmental changes, including changes to land use that would commit future generations, irreversible changes from environmental actions, and consumption of nonrenewable resources that would occur during the initial phases and the continued operation of a project (State CEQA Guidelines Section 15126.2[c]).

The action alternatives would result in an irreversible commitment of fossil fuel resources for habitat restoration and enhancement activities, as well as irreversible commitment of fossil fuels to perform surveys, manage the administrative functions of the action alternatives, and maintain and operate the reserve system. Reserves would be established under the action alternatives to provide for ecosystem viability and species enhancement. Reserves may be purchased in-fee or may be accomplished through conservation easements. While establishing a reserve through a conservation easement would commit the land to this use for the future, changes could be made at the agreement of the Conservancy and both Wildlife Agencies. If an agreement is made, land could be removed from a conservation easement if similar land is used to replace the first.

No specific development activities are authorized under the action alternatives that would result in the irreversible commitment of resources; however, urban development as described by the County and City general plans is included as a covered activity. The conversion of existing agricultural or other land to urban uses is considered an irreversible environmental commitment. Conversion of land to urban uses is among the covered activities included in the action alternatives, but such conversion is not specifically authorized by the action alternatives. The irreversible commitment of lands to urban uses and of nonrenewable and renewable resources was evaluated in the County and City general plan EIRs, as described below. While the general planning horizons end well before the 50-year study period of the Yolo HCP/NCCP EIS/EIR, it is reasonable to assume future general plan updates would authorize development that would cause similar types of resources being irreversibly committed and similar significant irreversible environmental changes.

- Yolo County. Development allowed under the Yolo County General plan would represent a significant irreversible change to the physical environment. Although some of these changes have been addressed by mitigation measures, the potential for disturbance represents an irreversible change. The land use designations in the general plan would result in commitment of these areas to the designated uses for the foreseeable future (i.e., commit future generations). Land use and development consistent with the

general plan would result in irreversible changes by increasing densities and introducing development onto sites that are presently undeveloped. Land uses allowed under the Yolo County General Plan would also result in increased traffic and as a result, increased air pollution and noise emissions. Other irreversible changes associated with the Yolo County General Plan would be the use of non-renewable resources during construction, including nonrenewable concrete, glass, plastic, and petroleum products. In addition, irreversible changes to the physical environment could occur from the accidental release of hazardous materials associated with development activities and from mining and resource extraction activities. The conversion of agricultural land to uses that place structures, cement, asphalt, and similar materials in and over the soil (i.e., urban and related uses) would also be an irreversible change to the environment. Potential environmental impacts associated with implementation of the Yolo County General Plan were described and evaluated within the topical sections presented in the Yolo County General Plan EIR. Agricultural lands would be converted to urban land uses, open space, and trails. Non-renewable energy sources would also be consumed during the operation of future uses associated with the Yolo County General plan. Build-out of the Yolo County General plan would generate additional demand for electricity, natural gas, and propane supplies and distribution (Yolo County 2009).

- ▲ City of Davis. Implementation of the City of Davis General Plan would result in the commitment of nonrenewable natural resources used in construction (such as gravel, petroleum products, and others) and slowly renewable resources (such as wood products for individual project construction). Development and operation of specific projects in the planning area also would result in a commitment of energy resources in the form of fossil fuels, including fuel oil, natural gas, gasoline for automobiles, and facility utility services. For the City, an increased commitment of public services (e.g., expansion of fire infrastructure and personnel, increases in police personnel, and so forth) and public maintenance services also would result from implementation of the general plan update. Additionally, the general plan will convert prime farmland to urban use and would result in the loss of existing natural resources and biological habitat (City of Davis 2000).
- ▲ City of West Sacramento. Land use planning and regulatory actions associated with development of the general plan would result in an irretrievable commitment of nonrenewable resources—such as fossil fuel-based energy supplies and construction-related materials—as a result of future development that would occur pursuant to the general. Energy resources would be used for construction, heating and cooling of buildings, transportation of people and goods, heating and refrigeration, lighting, and other associated energy needs. There would be an irretrievable commitment of labor, capital, and materials used in construction, and open space would be permanently lost over time. Nonrenewable resources would be committed—primarily in the form of fossil fuels (oil, natural gas, and gasoline) used to support the additional development associated with implementation of the general plan. The consumption of other nonrenewable or slowly renewable resources include, but would not be limited to, lumber and other forest products, sand and gravel, asphalt, steel, copper, and water. Development of lands generally would result in their future and permanent commitment to urban and suburban uses (City of West Sacramento 2016).
- ▲ City of Winters. With implementation of the City of Winters General Plan, the city will encompass a substantially larger urban area, and transform agricultural lands into new residential neighborhoods and commercial and industrial districts, in turn promoting a much larger population than currently exists. Construction of new housing, places of business and other facilities will result in the consumption of non-renewable construction materials, water, and energy resources. The use of these resources would be ongoing over the life of the City of Winters General Plan (City of Winters 1992b).
- ▲ City of Woodland. Conversion of prime agricultural soils and conversion of wildlife habitat areas are considered irreversible environmental changes of the general plan. Uses of nonrenewable resources during the period of the general plan may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Roadway improvements and other actions would commit future generations to similar uses. (City of Woodland 1996).

Due to the irreversible commitment of resources and significant irreversible environmental changes that would occur as a result of covered activities, irreversible commitment of resources and significant irreversible environmental changes are expected to occur under all alternatives.

20.5 GROWTH INDUCEMENT (CEQA)

CEQA requires an EIR discuss the extent to which a proposed action would directly or indirectly foster economic or population growth or the construction of new housing, including removing obstacles to growth that may result in significant environmental effects (State CEQA Guidelines Section 15126.2[d]). The action alternatives include covered activities that would have direct growth-inducing impacts. The action alternatives also include covered activities that would not directly cause growth to occur, but rather would accommodate growth that is already planned in the County's and Cities' general plans.

Future development that is included as a covered activity under the action alternatives is considered planned development because it is derived directly from the County's and Cities' general plans and from transportation plans adopted by regional transportation authorities. The direct and indirect impacts of this planned growth and any mitigation requirements is provided under the general plan EIRs for each jurisdiction, as well as under project-specific environmental compliance that would be required for specific developments in the future. In general, the local jurisdictions made the following growth inducing findings in the various general plan EIRs.

- ▲ Yolo County. The General Plan would allow growth to occur in an orderly and regulated manner, consistent with the policies of the County and with agencies that regulate development of lands within the County. All of the urban growth that would occur in unincorporated Yolo County would be directed to the areas within the identified growth boundaries of existing community areas. Land uses and development consistent with the General Plan would result in additional housing, commercial, industrial, and public services and infrastructure development within the unincorporated area. Development consistent with the general plan would result in increased population in the County. While the General Plan would be growth inducing to the extent that it would accommodate this projected growth; it would not, in and of itself, serve to induce future growth within the unincorporated area beyond what is currently projected because urban growth would not be allowed outside of the defined growth boundaries (Yolo County 2009).
- ▲ City of Davis. The City of Davis General Plan would result in growth-inducing impacts. Development proposed under the General Plan would foster economic growth in Davis and the surrounding area as new employers create increased demand for goods and services. The provision of new housing also would directly result in population growth within the City. Regarding population growth, the City of Davis General Plan includes policies designed to limit population growth in Davis. The City of Davis General Plan would increase demand for existing community facilities and services. (City of Davis 2000).
- ▲ City of West Sacramento. The City of West Sacramento General Plan would result in growth-inducing impacts due to enabling additional development of residential, commercial, industrial, and public/quasi-public uses. However, the general plan would provide the framework by which public officials will be guided in making decisions relative to future development in West Sacramento (City of West Sacramento 2016). City of Winters. The City of Winters General Plan would enable the development of new residential, commercial, industrial and other land use development within the city of Winters. It is assumed that the city may develop residential uses more rapidly than employment-generating uses in the short term, while a jobs/housing balance is a long-term goal requiring steady initiative on the part of the City and other interests (e.g., Chamber of Commerce). With an imbalance of more housing than jobs, there would be marginal demand for residential development outside of the city, with the possible exception of limited growth in retirement or vacation homes near Lake Berryessa or elsewhere in and along the Vaca Mountains, the residents of which could more easily obtain commercial services in Winters. In the long term, as a city with many more services and job opportunities, and a closer

jobs/housing balance, Winters could potentially emerge as a “sub-regional” center, to which a proportion of persons employed in Winters may commute from other surrounding areas. The construction activity and commercial and industrial development could over time create substantial numbers of jobs, possibly resulting in more demand for housing than the General Plan envisions, and resulting in demand for housing (as well as other urban and commercial services) outside of the city. Some of this demand might be met in other city jurisdictions, such as Vacaville, Woodland or Davis, while other pressures could be placed on rural areas to be developed with urban land uses. This demand, or growth-inducing impact, however, would be managed, or mitigated, through the land use policies of the Yolo County General Plan, assuming their implementation is effective. Those policies would prevent urban land uses in areas other than those immediately adjacent to existing urban areas, such as Winters. (City of Winters 1992.)

- City of Woodland. The City of Woodland General Plan is growth-inducing because one of Woodland’s objectives in updating its General Plan is the promotion of economic development and accommodation of demand for residential growth. In promoting such development and accommodating such growth, the General Plan, however, attempts to address the potentially adverse implications through policies, programs, and proposals for adequate infrastructure, promoting a reasonable balance between jobs and housing, and protection of environmentally-sensitive resources (City of Woodland 1996).

The 50-year term of the action alternatives and the incidental take permits would extend beyond the planning horizon of the local general plans. General plans would provide for growth while the action alternatives would provide authorization for take associated with lawfully undertaken covered activities associated with this growth. The action alternatives would provide a streamlined mechanism for specific projects to comply with FESA and CESA. An improved permitting mechanism would not remove a barrier to growth but would perhaps lower it, as described in the following text. Under the action alternatives, development applicants could secure FESA permit approval more efficiently, resulting in improved project efficiencies and potential development cost savings. The efficiencies and cost savings under the action alternatives would affect different types of development projects differently. For example, development of lands where there are few species concerns would not be substantially affected by the action alternatives since FESA and CESA permitting without the action alternatives would be a minor issue. Projects with a greater level of species concerns would be most affected by implementation of the action alternatives since these projects would benefit most by streamlined FESA and CESA permit approvals. Nevertheless, without the action alternatives, these projects would presumably still be able to proceed under the existing case-by-case permit approval process. Given the current rate of development and growth being experienced in the Plan Area, the cost of issuing permit approvals on a project-by-project basis does not appear to be a meaningful disincentive to development. Thus, the action alternatives may influence the speed with which development could proceed, but not the extent of development. The speed of development would be more substantially influenced by larger economic conditions, population growth, the housing market, as well as local land use and growth-management controls.

20.6 ENVIRONMENTALLY PREFERABLE/SUPERIOR ALTERNATIVE

The State CEQA Guidelines (Section 15126.6([e][2]) require an environmentally superior alternative be identified from the alternatives considered. The environmentally superior alternative is generally defined as the alternative that would result in the least adverse environmental impacts on the project site and the surrounding area.

NEPA regulations require that when an agency has concluded an EIS and the decision is recorded in a public Record of Decision (ROD) (40 CFR Section 1505.2), the ROD needs to “identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable” (40 CFR Section 1505.2[b]). The agency must discuss all factors essential to the agency decision and discuss how those factors influenced the agency’s decision (40 CFR Section 1505.2[b]). The environmentally preferable and superior alternative is the alternative that would result in the least damage to the environment.

Based on the analysis presented in Chapters 4 through 19, the conservation strategy provided by each of the three action alternatives ensure each of the three action alternatives is environmentally superior to the No Action Alternative. The action alternatives would provide the most comprehensive approach to habitat conservation, with the greatest potential to provide long-term benefits to the covered species.

All action alternatives result in two significant impacts, one related to potential conflicts between the Yolo HCP/NCCP and the Solano HCP, and the second related to the conversion of agricultural land to a non-agricultural use. All other impacts are less than significant. Under each action alternative impacts related to potential conflicts between the Yolo HCP/NCCP and the Solano HCP are reduced to a less than significant level with implementation of Mitigation Measure LAND-1. Impacts related to conversion of agricultural land to a non-agricultural use are significant and unavoidable for all action alternatives as there is no feasible means to create new agricultural land to replace agricultural land that is lost (see Section 20.2 above).

Although all three action alternatives result in the same number of less than significant, significant, and significant and unavoidable environmental impacts, for many of the impacts there is the potential for the Reduced Take Alternative and the Reduced Development Alternative to result in less of an environmental effect than the Proposed Action Alternative. Whether a reduced effect were to occur is dependent in large part on whether any changes in the type or extent of development in the locations considered under each alternative (see descriptions of alternatives in Chapter 2, Proposed Action and Alternatives) results in development being displaced to another location, and the conditions at the new development location. Because the limitations on take included in the Reduced Take Alternative are assumed to apply to both the areas specifically considered as part of the alternative, and locations where displaced development would occur, there is a greater potential for the Reduced Take Alternative to result in reduced levels of impact than for the Reduced Development Alternative. In addition, the Reduced Take Alternative includes the assumption that although the amount of authorized take would be less than under the other action alternative, the conservation strategy, including the amount and type of conservation lands, would be the same as for the Proposed Action. Because the Reduced Take Alternative has the potential to result in reduced environmental impacts compared to the Proposed Action and Reduced Development Alternatives while maintaining the same conservation benefits as the Proposed Action Alternative, it is considered the environmentally preferable/environmentally superior alternative.

20.7 EXECUTIVE ORDERS

In support of the requirements of NEPA, executive orders relevant to the action alternatives are described below.

20.7.1 Executive Order 11988—Floodplain Management

Executive Order 11988, Floodplain Management, requires federal agencies to prepare floodplain assessments for proposed actions located in or affecting floodplains. An agency proposing to conduct an action in a floodplain must consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative involves siting in a floodplain, the agency must minimize potential harm to or development in the floodplain and explain why the action is proposed in the floodplain. The action alternatives include covered activities that would allow future development that may occur in floodplains within the incorporated cities. However, the HCP/NCCP does not authorize these activities but provides an alternative endangered species act compliance mechanism.

Portions of the reserve system are likely to be located within floodplains. Because most of the reserve system lands would continue to be managed for agriculture consistent with biological goals and objectives, no floodplain impacts are expected. Habitat restoration is unlikely to affect floodway capacity and if it could, this would be evaluated with the Central Valley Flood Protection Board and other relevant flood control agencies.

20.7.2 Executive Order 11990—Protection of Wetlands

Executive Order 11990, Protection of Wetlands, requires federal agencies to prepare wetland assessments for projects located in or affecting wetlands. Agencies must avoid undertaking new construction in wetlands unless no practicable alternative is available and the action alternatives include all practicable measures to minimize harm to wetlands.

The action alternatives have been designed to address impacts on federal and state jurisdictional waters, including wetlands, and on state jurisdictional streams and lakes. Specific biological goals and objectives for wetlands and streams have been developed, and the conservation strategy includes a range of specific measures to avoid and mitigate for impacts on these resources (see Chapter 4, *Biological Resources* and Chapter 9, *Hydrology and Water Quality*, for more information). Specific measures included in the action alternatives include the following.

- ▲ AMM1, Establish Buffers
- ▲ AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces
- ▲ AMM9, Establish Buffers around Sensitive Natural Communities
- ▲ AMM10, Avoid and Minimize Effects on Wetlands and Waters
- ▲ AMM14, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake
- ▲ AMM21, Implement Performance Standards of the Off-Channel Mining Plan and the Cache Creek Resources Management Plan

These measures, implemented in concert, would provide adequate protection for existing and created wetlands in the Plan Area.

20.7.3 Executive Order 12898—Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities. Potential impacts related to environmental justice are discussed in Chapter 11, *Socioeconomics and Environmental Justice*.

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21 CONSULTATION AND COORDINATION

This chapter provides an overview of the agency consultation and other regulatory requirements and the scoping and public involvement process for the action alternatives.

21.1 CONSULTATION AND REQUIREMENTS

21.1.1 Federal Endangered Species Act

Threatened and endangered species are listed under the provisions of Section 4 of the Federal Endangered Species Act (FESA); prohibitions in Section 9 provide for substantial protection of these listed species. Through Section 7 and Section 10 processes, U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) ensure that activities undertaken by federal agencies and nonfederal entities do not result in jeopardy of listed species or adverse modification of critical habitat.

If federally listed species may be affected, the federal lead agency must informally consult with USFWS and/or NMFS to assess the consequences of its actions and to determine whether formal consultation is warranted. USFWS is proposing to issue a Section 10 incidental take permit (ITP), which is a federal action that triggers Section 7 consultation requirements under the action alternatives. As the federal action agency for the action alternatives and permit, USFWS would consult internally pursuant to Section 7.

USFWS would initiate internal consultation following the submission of the Section 10 permit application package by the Yolo Habitat Conservancy (Conservancy). If USFWS concludes that a chosen action alternative is not likely to adversely affect a listed species, then no formal consultation would be conducted and no biological opinion (BO) would be prepared. If the chosen action alternative is likely to result in adverse effects on a listed species, then USFWS would prepare a BO describing how the chosen action alternative will affect the listed species. The USFWS's opinion would be either a jeopardy opinion or a no-jeopardy opinion. A jeopardy opinion concludes the chosen action alternative would jeopardize the continued existence of a federally listed species or would adversely modify designated critical habitat. Under this finding, the BO must suggest "reasonable and prudent alternatives" that would avoid jeopardy.

If the USFWS issues a no-jeopardy opinion, this opinion may include "reasonable and prudent measures" to minimize adverse effects on listed species and an "incidental take statement" that specifies the allowable amount of take that may occur as a result of the chosen action alternative.

21.1.2 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires federal agencies to take into account the effects of their undertaking on properties eligible for listing in the National Register of Historic Places (NRHP). The issuance of an ITP is a federal undertaking subject to Section 106 of the NHPA. The potential effects of the action alternatives on cultural resources, including properties listed or eligible for the NRHP, and any necessary measures to avoid or reduce impacts on these resources, are described in Chapter 12, *Cultural Resources*. As presented in that chapter, the action alternatives are not expected to result in any significant effects on cultural resources. Due to the regional nature of the Proposed Action Alternative, the location of individual projects cannot be known at this time and based on requirements of existing policies (as described in Chapter 12, *Cultural Resources*), USFWS has made a preliminary determination that the Proposed Action Alternative will have a less-than-significant effect on historical properties. When the Permittees identify site-specific projects that contain specific information, the

type of activities and where they occur, the Conservancy will review the work plan for those activities and assess the level of work that may be necessary to ensuring compliance with Section 106 on a site specific project-by-project basis with the State Historic Preservation Officer (SHPO).

21.1.3 Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) of 1981 requires federal agencies to consider action alternatives that minimize or avoid adverse impacts on important farmland. As described in Chapter 6, *Agricultural Resources*, the FPPA does not apply to federal permitting (7 CFR § 658.2[a][1][i]).

21.1.4 Clean Air Act

Section 176(c) of the Clean Air Act (CAA) requires federal agencies to ensure their actions are consistent with the CAA and with federally enforceable state implementation plans (SIPs), also known as air quality management plans. The conformity review process is intended to ensure federal agency actions will not cause or contribute to new violations of any federal ambient air quality standards; will not increase the frequency or severity of any existing violations of federal ambient air quality standards; and will not delay the timely attainment of federal ambient air quality standards.

The action alternatives are within an area designated by EPA as severe nonattainment for the eight-hour ozone standard, moderate nonattainment for the PM_{2.5} standard, and attainment for the one-hour ozone, PM₁₀, and CO standards (EPA 2016). Consequently, to fulfill general conformity requirements, EPA requires a general conformity applicability analysis to identify whether the total ozone emissions for the action alternatives are subject to the General Conformity rule. As described in Chapter 15, *Air Quality*, a general conformity applicability analysis was performed, and emissions were evaluated to determine if they would exceed the applicable de minimis levels. A General Conformity Determination is not required, as it was concluded emissions would likely not exceed the de minimis thresholds.

21.1.5 Migratory Bird Treaty Act

Migratory birds are protected by USFWS under the provisions of the Migratory Bird Treaty Act (MBTA) of 1916 as amended (16 U.S.C. Chapter 7, 703-712) which governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over utilization.

Section 704 of the MBTA states the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take. The Secretary of the Interior, in adopting regulations, is to consider such factors as distribution and abundance to ensure take is compatible with the protection of the species. This guidance would be utilized in informal consultation on any such activities within the Plan Area for any action alternative.

21.2 LEAD AND COOPERATING AGENCIES AND STAKEHOLDERS

The Yolo HCP/NCCP EIS/EIR was prepared under the combined efforts of the following partners.

- ▲ USFWS
- ▲ CDFW
- ▲ Yolo Habitat Conservancy

Yolo Habitat Conservancy is the CEQA lead agency. USFWS is the federal lead agency pursuant to NEPA. CDFW is a CEQA responsible and trustee agency. To comply with both CEQA and NEPA, these agencies combined efforts to notify stakeholders, the public, agencies, and tribes of the proposed permits and intent to prepare a joint EIS/EIR.

For more information on the public input process and NEPA/CEQA scoping, please review Section 1.10.1, *EIS/EIR Public and Agency Involvement Process* through Section 1.10.3, *Draft EIS/EIR Public Review* in Chapter 1, *Introduction*.

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