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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

In March 1999, the United States Fish and Wildlife Service (USFWS), in accordance with Section 7 of the Federal Endangered Species Act (ESA) of 1973 (as amended), issued a Biological Opinion regarding the Solano Project Water Service Contract Renewal between the United States Bureau of Reclamation (USBR) and the Solano County Water Agency (SCWA). A USBR project, the Solano Project makes water available to SCWA and its contractors. The 25-year contract between the USBR and the SCWA provides for continued delivery of Solano Project water for agricultural, municipal, and industrial purposes throughout the SCWA contract service area (Plan Area), the geographic area where federal water can be delivered by contract (Figures 1-1 and 1-2). SCWA delivers Solano Project water in accordance with its eight Member Agency contracts. The Member Agencies are:

- City of Vacaville
- City of Fairfield
- Suisun City
- City of Vallejo
- Solano Irrigation District (SID)
- Maine Prairie Water District (MPWD)
- University of California, Davis
- California Medical Facility/California State Prison, Vacaville

The contract also provides for continued operations and maintenance of Solano Project facilities based on current operating parameters. These facilities include Lake Berryessa, Monticello Dam, Putah Diversion Dam, and Putah South Canal.

The USBR, SCWA, and the above-listed Member Agencies have agreed to implement conservation measures to ensure the protection of threatened and endangered species and their habitat within the SCWA contract service area by implementation of the conservation measures outlined in the Solano Project Water Service Contract Renewal Biological Opinion (Solano Project Biological Opinion). One of the main conservation measures of the Solano Project Biological Opinion is for SCWA and the Member Agencies to develop a Habitat Conservation Plan (HCP) for the Solano Project contract service area. The Solano HCP is intended to support the issuance of a Section 10(a)1(B) “incidental take permit” under the ESA for activities associated with future water use in the Plan Area. Entities participating in the HCP (Plan Participants) also intend to secure incidental take authorization from the California Department of Fish and Game (CDFG) for state listed species (CESA, Fish and Game Code §2081: Incidental Take Permit Process).

The Solano HCP addresses compliance with the Terms and Conditions of the Solano Project Biological Opinion for the following Plan Participants:

- SCWA
- City of Vacaville
- City of Fairfield
- Suisun City
- City of Vallejo
- SID
- MPWD

The following agencies have chosen to voluntarily participate in the HCP:

- City of Rio Vista
- City of Dixon
- Reclamation District No. 2068 (RD 2068)
- Dixon Resource Conservation District (RCD)
- Dixon Regional Watershed Joint Power's Authority (JPA)
- Vallejo Sanitation and Flood Control District (VSFCD)
- Fairfield-Suisun Sewer District (FSSD)

The University of California, Davis is preparing a separate HCP. The City of Vacaville's participation in this HCP will fulfill the obligations of the California Medical Facility, Vacaville and California State Prison, Vacaville because the impacts from these facilities are nested within the Covered Activities for the City of Vacaville and the City is the provider of the water to these facilities. The City of Benicia and the unincorporated areas of Solano County have elected not to participate in the Solano HCP, nor are they required to do so.

1.2 OVERVIEW OF THE PLANNING PROCESS

The development of the Solano HCP has been guided by input from the applicable Resource Agencies, the Plan Participants, general public and stakeholder groups (e.g., the Steering Committee), and the Science Advisors.

1.2.1 Plan Participants

The Plan Participants include the 6 cities and 8 special districts listed above. The Plan Participants have met on a monthly basis to discuss issues that arise during the planning process and will continue to meet throughout the remainder of the planning phase and into the implementation phases to ensure proper implementation of the Plan.

1.2.2 Steering Committee

In September 2001, a Steering Committee organized by SCWA and composed of representatives from various stakeholder interest groups was established. Their main objectives were to:

- Facilitate discussions of the varied interests and serve as a consensus building group;
- Gather and disseminate information;
- Facilitate and maintain open lines of communication between the Plan Participants and stakeholders; and
- Make recommendations on major actions to decision makers representing the Plan Participants.

Steering Committee members are (as of January 2009):

Agriculture/Landowners	Bruce Brazelton (Farm Bureau) Terry Riddle (Solano Resource Conservation District) Bill Peterson (Solano County Citizens Land Alliance) Alternate – Al Medvitz and Paul Lum (Farm Bureau) Alternate – Joe Moore (Ulati Resource Conservation District) Alternate – Don Pippo (Solano County Citizens Land Alliance)
Development Community	Bob Glover (Home Builders Association) Jim Coniglio (Discovery Builders) Tad Tobitt (Creegan & D’Angelo Engineers) Alternate – Sal Evola (Seeno Construction Co.) Alternate – Gary Andrews (Smith Ranch Co.)
Conservation Groups	Ted Swiecki (California Native Plant Society) Gerald Karr (Napa-Solano Audubon Society) Kathy Pratt (Suisun Marsh Natural History Association) John Hopkins (Institute for Ecological Health) Alternate – Carol Witham (California Native Plant Society) Alternate – Sue Wickham (California Native Plant Society)
Solano County Orderly Growth Committee	Horace (“Whit”) Whitman
Plan Participants	Erin Beavers (City of Fairfield) Alternate – Scott Sexton (City of Vacaville)

Resource Agencies also attend Steering Committee meetings but are not Steering Committee members:

- USFWS
- CDFG
- NOAA National Marine Fisheries Service (NOAA NMFS)

1.2.2.1 Steering Committee Goals and Issues. At an initial meeting, Steering Committee members provided input on their groups' goals and issues with respect to the HCP. The following summarizes the goals identified by the Steering Committee members:

- Comply with the Solano Project Biological Opinion in order to continue to receive water.
- Streamline and simplify complex permit process for city activities as well as development.
- Coordinate with other agencies such as the CDFG, Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers (Corps).
- Improve land use planning to prevent the piecemeal approach to preservation/mitigation that limits habitat value. An HCP offers the potential to reduce long-term conflicts and provide better habitat value, reduce habitat fragmentation, and provide interconnection between habitat areas.
- Find a better way to direct growth rather than using the methods of the past. An HCP could identify areas where growth should not occur, such as high habitat value areas, recognizing that the mandates of other state agencies (e.g., fair housing shares).
- Recognize that protection of larger areas is better for the environment and is more cost-efficient than protecting smaller areas.
- Help breakdown barriers between landowners and advocates for conservation in order to promote conservation that is friendly to landowners; try to reestablish habitats on a cooperative basis with landowners.
- Provide opportunities to use conservation lands for recreation and agriculture, rather than locking up land for strict conservation purposes.
- Protect and preserve agriculture in Solano County.
- Consider the effects of the HCP on landowners/property rights, and the need to balance habitat conservation with property rights, continued growth, and the desire for development.
- Consider economic effects, such as the cost/benefit of actions and the effects on farming from declining property values if located next to a sensitive habitat area.
- Encourage incentive-based conservation to help agriculture.
- Leverage the HCP process with other efforts to preserve open space , such as farms and natural lands.
- Focus growth into cities.
- Preserve inter-city buffers.

While representing diverse interests, the Steering Committee exhibited remarkable consistency with respect to many conservation and growth issues and concerns for the County.

1.2.3 Science Advisors

Initially, Plan Participants considered doing a joint HCP/NCCP (Natural Community Conservation Plan). The State of California's Natural Community Conservation Planning Act (NCCPA; Fish and Game Code § 2835) mandates a process to solicit independent scientific expertise for the

development and credibility of each NCCP. The role of the Science Advisors is to establish science-based conservation and natural resource management standards to guide NCCP preparation. In compliance with NCCPA, a team of Science Advisors convened on August 19 and 20, 2002 in Vacaville to provide expert opinion, scientific information, and data analysis for the Solano HCP. Science Advisors were selected by the SCWA and the Resource Agencies to conduct the review based on their knowledge of the geographical area and its ecology and/or for their expertise in conservation biology and planning. The Science Advisors for the HCP were:

Name	Affiliation	Area of Expertise
Reed Noss	University of Central Florida, Conservation Science Inc.	Reserve Design/Lead Scientist
Sharon Collinge	University of Colorado	Vernal Pool Plant Ecology
Rick Grosberg	UC Davis	Vernal Pool Invertebrates
Dick Arnold	Environmental Consulting	Terrestrial Invertebrates
Ron Amundson	UC Berkeley	Soil Ecology
Brenda Grewell	UC Davis	Marsh Ecology
Michael Bradbury	Department of Water Resources	Ornithology
Phil Northen	Sonoma State University	Herpetology
Lester McKee	San Francisco Estuary Institute	Hydrology
Ron Yoshiyama	UC Davis	Salmonids
Tina Swanson	The Bay Institute	Splittail/Smelt

Collectively, they offered expertise in locally occurring species and natural communities (fishes, birds, reptiles, amphibians, terrestrial and vernal pool invertebrates, plants, vernal pools, grasslands, and marshes); key ecological processes and the physical environment (e.g., hydrology, soils, natural and anthropogenic disturbance regimes); landscape ecology; reserve design; monitoring; and resource management. As a result of the workshop, they prepared a report that provided a review of the quality of the data, planning principles, analytic techniques, and interpretation of the results of analyses (Noss et al. 2002). The results of their report were used to develop the conservation strategy, goals and objectives of the HCP.

1.2.4 Resource Agencies

In March of 1999, the Plan Participants and the Resource Agencies began meeting to discuss the scope, purpose, and guiding principles of the HCP. These meetings have continued throughout the planning process. The Resource Agencies have been actively involved in the development of the Solano HCP Conservation Program and have provided guidance and recommendations on each section of the Plan.

1.3 PURPOSE AND GUIDING PRINCIPLES

Plan Participant and Steering Committee input was used to develop the purpose statement and a list of guiding principles that form the basis for the decision making, conservation strategies, and implementation measures for the HCP.

1.3.1 Purpose

The purpose of the HCP is to promote the conservation of biological diversity and the preservation of endangered species and their habitats consistent with the recognition of private property rights; provide for a healthy economic environment for the citizens, agriculture, and industries; and allow for the on-going maintenance and operation of public and private facilities in Solano County.

1.3.2 Guiding Principles

The guiding principles for the Solano HCP conservation program are to:

1. Reduce conflicts between listed species and economic development, agriculture, and other land use activities to promote conservation of biological diversity and, to the maximum extent practicable, contribute to the recovery of plant and animal species addressed in the HCP.
2. Streamline the local, state, and federal regulatory processes to provide a consistent and predictable treatment of actions requiring discretionary approvals from participating agencies for obtaining incidental take permits and other required authorizations for modifications to natural communities and other habitats in a manner that is consistent with the conservation of Covered Species and existing regulations.
3. Lessen or avoid site specific and cumulative effects of development on Covered Species by replacing project-by-project mitigation with comprehensive, long-term strategies for conserving, protecting, and maintaining viable populations of Covered Species and natural habitats.
4. Promote the conservation and preservation of the Covered Species and the habitats upon which they depend for the benefit of current residents and future generations.
5. Promote retention and establishment of open space buffers and green belts consistent with the goals of local governments in order to: provide habitat linkages; separate designated urban areas; minimize the loss, fragmentation, and degradation of natural habitats; protect and enhance important habitats for Covered Species; and provide movement corridors and connectivity between the various habitat associations or eco-regions in the County.
6. Foster the continuation of land uses (e.g., agriculture and open space recreation) that are compatible with the protection of important habitats for Covered Species and, to the maximum extent practicable, maintain existing agricultural values on those lands that are affected by the HCP.
7. Establish reserves/protected habitat lands acquired only from willing sellers.
8. Comply with conservation regulations regarding the protection of air, water, and biological resources as well as other state- and federally- mandated laws and programs.
9. Recognize the importance of Travis Air Force Base to the economy of Solano County, promote compatible adjacent land uses and not preclude the potential for expansion of the facility, if necessary.

10. Implement incentive-based financing and reserve acquisition strategies that distribute implementation of conservation costs equitably among all beneficiaries, do not infringe upon private property rights or overly burden agriculture, and are affordable to the region.

1.4 COVERED SPECIES

At a minimum, the HCP was required to protect the 17 federally listed species considered in the Solano Project Biological Opinion. The Plan Participants have elected to expand coverage under the HCP to include 37 species (Table 1-1). The majority of these additional species include: 1) species that became listed after March 1999 or were recently discovered in Solano County (i.e., San Joaquin Valley orcutt grass), 2) federally listed fish species under the jurisdiction of the NOAA NMFS, and 3) species listed as threatened or endangered under the California Endangered Species Act (CESA). The HCP further addresses other species of concern (i.e., species recognized by groups such as the CDFG and the California Native Plant Society (CNPS) as having declining or vulnerable populations, but not officially listed as threatened or endangered species). Inclusion of these species of concern as Covered Species in the HCP will provide coverage if, in the future, these species become federally listed. If they become State listed, inclusion in the HCP may facilitate the process of adding them to the State Incidental Take Permit.

Of the 37 species proposed for coverage under the Solano HCP, 25 are federally listed as either endangered, threatened or a candidate for listing; 16 are state listed as either rare, endangered, threatened or fully protected (12 of which are joint federal/state listed); 4 plant species are classified as List 1B species by the CNPS; and 3 animal species are listed as California Species of Special Concern by the CDFG (Table 1-1). The last species, the mid valley fairy shrimp, was proposed for federal listing in 2001, but the listing was found to be not warranted at that time. As it may warrant listing in the future, it was kept on the Covered Species list.

Only a subset of the species covered under the federal Section 10(a)1(B) "incidental take permit", will be covered by the State Permit issued under Section 2081 of the California Fish and Game Code. Twelve (12) species are currently listed as either threatened or endangered under CESA and two species are candidates for listing (Table 1-1). These 14 species are the only species that will be covered under the State Incidental Take Permit. For the three California Fully Protected Species (California black rail, California clapper rail, and salt marsh harvest mouse), take authorization is only being requested for Covered Activities associated with efforts to recover the species, such as habitat management, enhancement and restoration (See Section 2.5.5). For the two plant species (soft bird's-beak and Mason's lilaepsis) that are listed as rare under the California Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code Section 1900-1913), the Plan Participants are requesting a formal agreement, such as a Memorandum of Understanding, with the CDFG for impacts to these species resulting from Covered Activities.

The Solano Project Biological Opinion also includes a plant conservation measure that requires development of a comprehensive conservation program for the protection of special-status plant species in Solano County in coordination with the HCP. The conservation program for these additional species (referred to in this document as "special management species") is detailed in Appendix C. In addition to these 13 plant species, seven special-status plant species and 15 special-

status wildlife species have also been identified as Special Management Species and are addressed in Appendix C (Table 1-2). Special Management Species include species that were initially considered for inclusion in the HCP as Covered Species and are considered under CEQA Criteria 15380 to be threatened or endangered. However, the life history and/or habitat associations for such species may not be fully known. While these species will benefit from the broader community conservation provided for other Covered Species, sufficient information on their biology and management is not available to allow the federal agencies to make the necessary findings under the “No Surprises” assurances (see Section 10.7 for additional information) that the proposed Conservation Program and Covered Activities will not appreciably reduce the likelihood of survival and recovery of the species in the wild.

1.5 PERMIT HOLDERS/PERMIT DURATION

The following agencies are participants in the HCP and will have primary responsibility for assuring compliance with the HCP conservation measures within their respective jurisdictions and authorities:

HCP Coordination, Solano Project Water Contract Administration

- SCWA

Agricultural and Domestic Water Suppliers

- SID¹
- MPWD
- RD 2068
- Dixon RCD

Cities

- Dixon
- Fairfield
- Rio Vista
- Suisun City
- Vacaville
- Vallejo

Special Districts

- VSFCD
- FSSD
- Dixon Regional Watershed JPA

The Plan Participants anticipate the Resource Agencies will issue one set of permits: two Section 10(a)(1)(B) incidental take permits, one from the USFWS (to include participant-specific sections for each permittee) and one from NOAA NMFS for Covered Species within each agencies’ respective jurisdiction; and one 2081(b) incidental take authorization from the CDFG for activities occurring under each Plan Participant's (permittee’s) respective authorities. A single Implementing Agreement (IA) will be utilized and signed by all of the Plan Participants and the Resource Agencies to

¹ SID also provides municipal water to the City of Suisun City, Elmira, and Dixon.

implement the HCP. Plan Participants will not receive incidental take coverage under the respective permits until they have signed the IA and approved local ordinances adopting the HCP. Third parties and other entities undertaking urban development or other Covered Activities under the direct control of the Plan Participants and in compliance with the Solano HCP will be covered under the Plan Participant's permits. Specific Covered Activities for each of the Plan Participants and additional information on each Plan Participant are discussed in Section 2.0 of this document.

Estimates of future urban development are based on current city general plans and regional growth forecasts. Under State law, the maximum duration for any of these plans is 20 years. The term of the permits authorizing incidental take coverage is 30 years. The combination of the relatively large size (approximately 585,000 acres) and biological diversity of the Plan Area necessitates the longevity of the permit term. The Plan Area is diverse, encompassing four ecologically unique regions, numerous vegetation associations, and 37 Covered Species, and spans approximately 585,000 acres. At least 30 years will be required to fully implement the HCP, including implementation and assessment of all conservation measures and adaptive management. Prior to the end of the permit duration, it may be necessary to review and amend the take limits outlined in the HCP. A comprehensive review of the Conservation Program will be conducted following Year 15 of HCP Implementation, at the midway point of the permit's duration. By this time, the backbone of the HCP reserve system will be in place and considerable additional information/data will be available to refine the risk and conservation analysis in this HCP (see Sections 3.0 and 4.0). This information, the development of the reserve system, and the overall conservation goals established in the HCP will guide future planning efforts in order to minimize conflicts with species and natural community conservation goals and objectives.

Given the duration of the permit, the interim reporting and monitoring measures included in the HCP, the conservation goals and objectives, and the commitment by Plan Participants for conservation to 'stay ahead' of development, the HCP is designed to provide the Resource Agencies with assurances that the HCP will remain on track.

1.6 SOLANO HCP PLAN AREA

The Solano HCP establishes a framework for complying with state and federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. It will account for all activities undertaken by or under the permitting authority and control of the Plan Participants within the approximately 585,000²-acre Plan Area, which encompasses approximately 577,000 acres of Solano County and approximately 8,000 acres of Yolo County (Figure 1-4). The Plan Area extends into Yolo County to encompass facilities maintained by RD 2068, Dixon RCD, and Dixon Regional Watershed JPA. Covered Activities in Yolo County are limited to activities undertaken by or under the permitting authority and control of these three Plan Participants and do not include any future urban development in Yolo County. In addition, Covered Activities proposed in the area of Yolo County within the Plan Area do not conflict with the Yolo County NCCP/HCP planning efforts and fall outside of Yolo County's proposed urban expansion areas.

² Numbers in this section are rounded to the nearest 1,000 acres.

To adequately address the varying activities undertaken by or under the permitting authority and control of the Plan Participants and the presence of non-participating agencies with land use authority over portions of the Plan Area (i.e., Solano County, Yolo County and the City of Benicia), the Plan Area has been divided into three implementation zones (Figure 1-4). Different types of activities affecting Covered Species will be authorized within each of these three zones:

Zone 1: Urban Zone. The urban zone (87,000 acres) encompasses the existing and identified potential urban development areas within the Plan Participant cities of Dixon, Fairfield (excluding Travis Air Force Base), Rio Vista, Suisun City, Vacaville, and Vallejo. The urban development areas (Figure 1-4) for each Plan Participant were derived from the following sources:

- City of Dixon: 1993 General Plan
- City of Fairfield: 2002. Comprehensive Amendment to the City of Fairfield General Plan
- City of Rio Vista: 2001 General Plan
- Suisun City: 1992 General Plan and adopted sphere of influence
- City of Vacaville: 1990 General Plan, Amended in November 1999
- City of Vallejo: 1999 Vallejo General Plan

In addition to city participation, two special districts within the urban boundary are also participating in the HCP. These additional Plan Participants are the FSSD and VSFCD (Figure 1-4). Within Zone 1, all Covered Activities (see Section 2.0) affecting covered plant and animal species and habitats conducted in compliance with the goals, objectives, and conservation strategies described in the HCP and implemented under the authority/control of the Plan Participants would be authorized.

Zone 2: SCWA and Irrigation and Reclamation District Zone. This zone (160,000 acres) consists of the lands outside of Zone 1 that are within the boundaries of SCWA, SID, MPWD, RD 2068, Dixon RCD, Dixon Regional Watershed JPA, FSSD, VSFCD, and any existing and future flood control channels/facilities maintained by the cities that extend beyond their city limits. Zone 2 areas also include right-of-ways extending beyond SID and MPWD boundaries. Covered Activities within this zone relate primarily to ongoing operation and maintenance of irrigation and flood control facilities, construction of new irrigation and flood control facilities, and irrigation district service area inclusions (lands within the irrigation district service area that do not currently receive service) and annexations (lands currently outside of the irrigation district service area that may be included in the future). The portion of the Plan Area located in Yolo County falls within Zone 2.

Zone 3: Remainder of the County. Covered Activities within this zone (338,000 acres) relate primarily to implementation of the HCP reserve system, including adaptive management and monitoring, habitat enhancement, habitat restoration and creation, collection of seed for restoration purposes and other associated compatible activities (Sections 4.0 and 5.0 of this document contain additional details on compatible activities) on designated reserves/preserves, mitigation sites/banks, open space lands and adjacent lands. Plan Participants may also extend incidental take coverage for Covered Activities conducted by third parties who fall under their

direct regulatory control. Third party applicants seeking authorization under the HCP for Covered Activities must complete a participating special entity process (see Section 10.4). Agricultural lands within 0.5 miles of property acquired as habitat mitigation for the HCP, including institutional and commercial mitigation banks established and certified by SCWA for conservation purposes, have the option of receiving permit coverage as part of the Solano HCP Good Neighbor Policy (see Section 10.5.6). Other Covered Activities within this zone include non-agricultural activities carried out under the authority of or participation by the Plan Participants on lands outside of the designated urban boundaries (i.e., non-commercial communication towers, water supply reservoirs such as underground storage tanks, and recreation facilities management).

1.7 REGULATORY FRAMEWORK

The following summarizes the primary state and federal laws and regulations governing the Solano HCP: the ESA, National Environmental Policy Act (NEPA), the CESA, California Environmental Quality Act (CEQA), and NCCPA.

Although the HCP is not intended to directly address other state and federal regulatory programs governing endangered species and their habitats, the HCP has been designed to incorporate regulatory procedures that provide a framework for compliance with these interrelated (and often overlapping) state and federal laws and regulations.

These additional regulations and administering agencies include:

USFWS

- Migratory Bird Treaty Act

CDFG

- Streambed Alteration Agreement, Fish and Game Code
- Sections 3503 and 3503.5, Fish and Game Code
- Sections 3511, 4700, 5050 and 5515, Fish and Game Code

Corps

- Section 404 of the Federal Clean Water Act
- Section 10 of the Rivers and Harbors Act of 1899

RWQCB

- Section 401 of the Federal Clean Water Act
- Porter-Cologne Water Quality Act

Administratively, Solano County occurs within two separate Corps and RWQCB districts. These boundaries are based on broader watershed or hydro-geomorphic boundaries. In general, lands within the eastern portion of the County that drain into the Sacramento River and Delta are within the

jurisdictions of the Sacramento District of the Corps and the Central Valley RWQCB. Lands draining into Suisun Bay and San Pablo Bay are within the jurisdictions of the San Francisco District of the Corps and the San Francisco Bay RWQCB. All of Solano County falls within the Central Delta Region (Region 3) of the CDFG. The Sacramento USFWS office administers activities within the entire County of Solano. All of California falls within the Southwest Region of NOAA NMFS, of which the nearest offices are in Sacramento and Santa Rosa.

The following provides a summary of these principal laws and regulations.

1.7.1 Federal Endangered Species Act

The ESA and its implementing regulations prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. ESA defines “take” as “*harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.*”

Federal regulation 50 CFR 17.3 defines the term “harass” as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50 CFR §17.3). Furthermore, federal regulation 50 CFR 17.3 defines “harm” as an act that either kills or injures a listed species. By definition, “harm” includes habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 217.12).

Section 10(a) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish. Incidental take is defined by ESA as take that is “*incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.*” Preparation of a habitat conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. The USFWS and NOAA NMFS have joint authority under the ESA for administering the incidental take program. NOAA NMFS has jurisdiction over anadromous fish species and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA 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 species listed under the ESA, or result in the destruction or adverse modification of its habitat. Technically, the issuance of an incidental take permit pursuant to Section 10 is an authorization subject to Section 7. Consequently, in conjunction with its review of the Section 10 permit application, USFWS must conduct an internal Section 7 consultation. The internal consultation is developed by the USFWS concurrent with the HCP, which is developed by a nonfederal entity (Plan Participant). Provisions of Sections 7 and 10 of the ESA are similar, but Section 7 requires consideration of several factors not explicitly required by Section 10. Specifically, Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on critical habitat (ESA requires that the USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered). The internal consultation results in a Biological Opinion prepared by the USFWS stating whether implementation of the HCP will result in jeopardy to any HCP Covered Species or will adversely modify critical habitat.

1.7.2 The Section 10 Process – Habitat Conservation Plan Requirements and Guidelines

The Section 10 process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit processing phase; and (3) the post-issuance phase. During the HCP development phase, the project applicant (Plan Participants) prepares a plan that integrates the proposed project or activity with the protection of Covered Species. An HCP submitted in support of an incidental take permit application must include the following information:

- Impacts likely to result from the proposed taking of the species for which permit coverage is requested.
- Measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances.
- A description of “alternative actions to such take”.
- Additional measures required by the USFWS or NOAA fisheries as necessary or appropriate for purposes of the HCP.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of: 1) an HCP, 2) an IA, 3) a permit application, and 4) a fee from the applicant (Plan Participant). The Federal Agencies (USFWS and NOAA NMFS) must also publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. The Federal Agencies also prepare an Intra-Service Section 7 Biological Opinion and a Set of Findings that evaluate the Section 10(a)(1)(B) permit application in the context of the permit issuance criteria (see below). USFWS prepares an Environmental Assessment (EA) or Environmental Impact Statement (EIS) that serves as the Federal Agencies’ record of compliance with NEPA. The EA or EIS undergoes a 60-day to 90-day public comment period; no further NEPA review is required. An IA is required for each HCP unless the HCP qualifies as a low-effect HCP.

A Section 10 incidental take permit is granted upon a determination by the Federal Agencies that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that:

- the taking will be incidental,
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable,
- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided,
- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild,
- the applicant (Plan Participant) will provide additional measures required by USFWS and NOAA NMFS as being necessary or appropriate, and
- the USFWS have received assurances (as may be required) that the HCP will be implemented.

The public is notified of permit issuance by means of the Federal Register and the Final EA or EIS is made available.

During the post-issuance phase, the Plan Participants (permittees) and other responsible entities implement the HCP, and the USFWS and NOAA NMFS (as applicable) monitor the Plan Participant's compliance with the HCP as well as the long-term progress and success of the HCP.

1.7.3 National Environmental Policy Act

NEPA requires that federal agencies analyze the environmental impacts of their actions (in this instance, issuance of an incidental take permit) and include public participation in the planning and implementation of their actions. NEPA compliance is obtained through one of three actions: 1) preparation of an EIS (generally prepared for high-effect HCPs), 2) preparation of an EA (generally prepared for moderate-effect HCPs), or 3) a categorical exclusion (allowed for low-effect HCPs). The NEPA process helps federal agencies make informed decisions with respect to the environmental consequences of their actions and ensures that measures to protect, restore, and enhance the environment are included, as necessary, as a component of their actions. Low-effect HCPs, as defined in the HCP Handbook, are categorically excluded under NEPA, as specified by the Department of Interior Manual 516DM2, Appendix 1, and Manual 516DM6, Appendix 1.

In compliance with NEPA, an EIS will be prepared for the Solano HCP. The USFWS will serve as the lead agency for the NEPA review.

1.7.4 California Endangered Species Act

The CESA (Fish and Game Code § 2050 *et seq.*), administered by the CDFG, is analogous and parallel to the ESA in many respects. CESA also allows for the issuance of “incidental take” permits for species listed as threatened or endangered under CESA. Several options allow the “incidental taking” of a species listed under CESA. First, “incidental taking” of a species listed under CESA can be authorized if the species is also listed under ESA provided that: 1) an incidental take permit has been issued under ESA, 2) the person receiving the permit notifies the Director of the CDFG and provides a copy of the federal incidental take permit, and 3) the Director determines that the “incidental taking” is consistent with the CDFG standards under § 2080 *et seq.* (minimized and fully mitigated) and adopts the federal findings/incidental taking authorization (Fish and Game Code §2080.1).

Second, the CDFG may issue its own permit for taking of CESA-listed species that is “incidental to an otherwise lawful activity,” regardless of whether that species is also listed under ESA, if the impacts of the proposed taking would be “minimized and fully mitigated” (Fish and Game Code § 2081(b)).

Finally, the NCCPA allows CDFG to permit the taking of a CESA-listed species if conservation and management for that species is provided in a CDFG-approved NCCP (Fish and Game Code § 2835).

1.7.5 California Environmental Quality Act

The primary intent of CEQA (CEQA; Pub. Res. Code §21000 et seq.) is to develop and maintain a high-quality environment now and in the future. For California's public agencies, the specific goals of CEQA are to: 1) identify the significant environmental effects of their actions; and, either 2) avoid those significant environmental effects, where feasible; or 3) mitigate those significant environmental effects, where feasible.

CEQA applies to "projects" proposed to be undertaken or requiring approval by State and local government agencies. "Projects" are activities that may have a physical impact on the environment and could include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps. Actions taken under CESA (e.g., issuance of a take permit by CDFG) are also considered projects subject to CEQA.

Where a project requires approvals from more than one public agency, CEQA requires one of these public agencies to serve as the "lead agency." A "lead agency" must complete the environmental review process required by CEQA. Basic steps of the environmental review process are to:

1. Determine if the activity is a "project" subject to CEQA.
2. Determine if the "project" is exempt from CEQA.
3. Perform an Initial Study to identify the environmental impacts of the project and determine whether the identified impacts are "significant." Based on its findings of "significance," the lead agency prepares one of the following environmental review documents:
 - a. Negative Declaration if it finds no "significant" impacts.
 - b. Mitigated Negative Declaration if it finds "significant" impacts but revises the project to avoid or mitigate those significant impacts.
 - c. Environmental Impact Report (EIR) if it finds "significant" impacts.

While no ironclad definition of "significance" is provided, the State CEQA Guidelines, Article 5, establishes criteria to assist lead agencies in determining whether a project may have significant environmental effects. The purpose of an EIR is to provide State and local agencies and the general public with detailed information on the potentially significant environmental effects resulting from a proposed project, ways in which the significant environmental effects may be minimized, and potential alternatives to the proposed project.

For the Solano HCP, SCWA will serve as the lead agency for the CEQA review. The CEQA process will also provide CEQA compliance for related actions such as issuance of 2081 incidental take permit by the CDFG and adoption of local implementing ordinances and regulations by other Plan Participants.

1.7.6 Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act, administered by USFWS, states that it is unlawful to: pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver; or cause to be shipped, exported, imported, transported, carried or received any migratory

bird, part, nest, egg or product unless permitted by regulations. Most bird species within California fall under the provisions of the Federal Migratory Bird Treaty Act. Nonnative species such as the house sparrow, starling and ring-necked pheasant, and native species such as quail are excluded from protection under the Federal Migratory Bird Treaty Act.

1.7.7 Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify the CDFG of such proposed activity. Based on information contained in the notification form and a possible field inspection, CDFG may propose reasonable modifications to the proposed activity in order to protect fish and wildlife resources. Upon request, the parties may meet to discuss these modifications. If the parties cannot agree and execute a Lake/Streambed Alteration Agreement, then the matter may be referred to arbitration.

Generally speaking, the notification requirement applies to any work undertaken within the bed and/or bank of a wash, stream, or lake. Usually these features contain, or historically contained, fish and wildlife or supports, or historically supported, riparian vegetation.

If an activity involves the routine maintenance and operation of water supply, drainage, flood control, or waste treatment and disposal facilities, the applicant agency may enter into a Routine Maintenance Agreement with CDFG for such activities. The subsequent notice to and agreement with the CDFG for future operation and maintenance activities shall not be required if the applicant had a Routine Maintenance Agreement with CDFG prior to January 1, 1977 and CDFG has been provided a copy or proof of the Routine Maintenance Agreement (Section 16012(b)(2)). CDFG may enter into agreements with Plan Participants for a term, usually five years or less, for the performance of routine operation and maintenance activities. The terms of the agreement may be renegotiated at any time by mutual consent of the parties. Each agreement shall be renewed automatically by CDFG at the expiration of its term unless CDFG determines that a substantial change in conditions has occurred. The fee requirements for Routine Maintenance Agreements are substantially less than the fees required for individual Lake or Streambed Alteration Agreements.

Notification requirements do not generally apply to emergency situations. Notification by the agency or public utility performing any of the following emergency projects shall be made to the CDFG within 14 days from the date of the commencement of the project:

- Immediate emergency work necessary to protect life or property.
- Immediate emergency repairs to public service facilities necessary to maintain service as a result of a disaster in a disaster-stricken area in which a state of emergency has been proclaimed by the Governor pursuant to Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code.
- Emergency projects undertaken, carried out, or approved by a public agency to maintain, repair, or restore an existing highway, as defined in Section 360 of the Vehicle Code, except for a highway designated as an official state scenic highway pursuant to Section 262 of the Streets and Highways Code; within the existing right-of-way of the highway; or damaged as a result of fire,

flood, storm, earthquake, land subsidence, gradual earth movement, or landslide, within one year of the damage. This paragraph does not exempt from this section any project undertaken, carried out, or approved by a public agency to expand or widen a highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide.

1.7.8 Migratory and Nesting Birds and Birds of Prey (Fish and Game Code 3503, 3503.5 and 3513)

Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Federal Migratory Bird Treaty Act. These regulations, in combination with the requirements under the federal Migratory Bird Treaty Act, provide the regulatory basis for nest avoidance measures for species such as the burrowing owl and Swainson's hawk.

1.7.9 California Fully Protected Species (Fish and Game Code Sections 3511, 4700, 5050 and 5515)

In the 1960s, the State of California created the Fully Protect Species classification in an attempt to identify and provide additional protection to those animals that were considered rare or faced possible extinction. Lists were created for fish, mammals, birds, amphibians and reptiles. However, this listing/review process was not as rigorous as required under CESA and a number of Fully Protected Species in California are actually fairly common. Fully Protected Species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collection associated with scientific research and relocation of bird species to protect livestock.

1.7.10 Section 404 of the Clean Water Act

Section 404 of the Federal Clean Water Act requires authorization from the Secretary of the Army, acting through the Corps, for the discharge of dredged or fill material into all waters of the United States. Waters of the United States include traditionally navigable waters, interstate waters, their tributaries, and adjacent wetlands. These categories include most wetlands, intermittent and ephemeral streams where there is an established ordinary high water mark, and areas subject to the ebb and flow of the tide.

Discharges of fill material generally include, without limitation: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as rip-rap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; excavation or dredging where the material has the effect of either replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water; and any

other work involving the discharge of fill or dredged material. A Corps permit is required whether the work is permanent or temporary.

1.7.11 Section 10 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the Corps, for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States, and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessels, tunnels, artificial canals, boat ramp, aids to navigation, and any other permanent or semi-permanent obstacles or obstructions.

In general, activities regulated under Section 10 of the Rivers and Harbors Act are similar to Section 404 of the Clean Water Act, but the geographic extent of jurisdiction is much more restricted and is limited to identified navigable waters of the United States. In Solano County, navigable waters are limited to the current and historic (as of 1899) tidal channels in Suisun Bay, Suisun Marsh, the Delta, and the Sacramento River.

1.7.12 Section 401 of the Federal Clean Water Act/Porter-Cologne Water Quality Act

Pursuant to Section 401 of the Clean Water Act, projects that require a Corps permit for discharge of dredge or fill material must obtain water quality certification or waiver that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and its nine branches of the RWQCBs. The state also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Act.

1.8 HCP ORGANIZATION

The Solano HCP is organized into thirteen sections with four appendices. At the heart of the document is the Conservation Program, which consists of avoidance and minimization measures (Section 5.0), biological goals, objectives, and conservation measures (Section 6.0), and monitoring and adaptive management (Section 7.0). The Conservation Program is designed to fully mitigate for impacts to Covered Species and Natural Communities for designated activities undertaken by or under the permitting authority/control of the Plan Participants within the Planning Area and applicable Covered Activity Zones. The following sections of this document address the required components of the HCP.

Section 2.0: Land Use and Covered Activities. This section provides background information on the historic and current land uses within the Plan Area and a description of proposed land uses as

established in the general plans of the participating cities. This section also provides a breakdown of Covered Activities that may result in the incidental take of species covered under the HCP (including species that are listed and not listed under ESA and CESA), by each Covered Activity Zone within the Plan Area.

Section 3.0: Environmental Setting, Biological Resources and Covered Species. This section summarizes the environmental and biological resources present within the Plan Area. General environmental conditions in Solano County are discussed including climate, topography, geology, and hydrology (rivers, streams, etc.). The process of developing the list of species to be covered under the Plan and a final list of the 37 Covered Species is also provided. Finally, this section includes information on existing preserved or protected lands within the Plan Area and an assessment of the risk for loss or change of the primary natural community associations based on review of the general plans of the County and applicable cities.

Section 4.0: Conservation Analysis. This section presents the results of the Conservation Analysis conducted for the Solano HCP. The purpose of this analysis is to guide the development of the biological goals, objectives and conservation measures detailed in the Conservation Strategy (Section 5.0). The Conservation Analysis synthesizes biological information at three levels (species, natural community and landscape) and combines it with information on current and projected land use practices, to identify conservation needs for each natural community and/or species and to establish priority areas for future protection within the Plan Area.

Section 5.0: Avoidance and Minimization. This section details the specific Avoidance and Minimization Measures designed to first avoid and then minimize impacts to Covered Species and their habitats. The focus or intent of the HCP is to conserve, protect, and maintain viable populations of Covered Species and natural habitats through establishment of larger reserves and to prevent the piecemeal fragmentation of habitats and establishment of “postage stamp” preserves in areas that are unlikely to have long-term viability. However, some instances occur in which avoidance is desirable for contributing to the conservation of the natural community (e.g., where vernal pools abut reserve/preserve land or preserved riparian or stream corridors). This section also outlines Best Management Practices (BMPs) for work in and near sensitive habitat areas, such as riparian, stream and freshwater marsh habitats, in order to minimize new disturbances to prevent erosion, off-site degradation, increased sedimentation, and to reduce overall impacts.

Section 6.0: Conservation Strategy. This section describes the conservation program, the essential component of the HCP. It describes the actions proposed by Plan Participants to fully mitigate impacts to Covered Species. The Solano HCP has taken, for the most part, a habitat-based conservation approach. For most of the Covered Species, the primary conservation measures are described by habitat or community association (e.g., vernal pool ecosystem, riparian, coastal marsh, etc.). Additional species-specific conservation measures are also included where necessary to achieve the biological objectives for that species. For more widespread species that rely on a variety of habitat types, such as the Swainson’s hawk, separate, species-specific conservation measures are provided. Each community or species section includes a brief summary of the key conservation issues followed by a description of the biological goals for that community/species association. After the goals, specific and measurable biological objectives, are identified followed by the conservation measures to be implemented by the Plan Participants. The conservation measures, when implemented collectively, are designed to achieve the biological goals and objectives.

Section 7.0: Monitoring and Adaptive Management. This section addresses the Monitoring, Reporting, and Adaptive Management Program that will be implemented to document compliance with the HCP biological goals and objectives and to ensure that conservation strategies are being appropriately implemented such that the optimum conservation benefit is being achieved.

Section 8.0: Impact Assessment. This section assesses the direct, indirect, and cumulative impacts resulting from the activities covered under this HCP. This section estimates the requested level of take for each of the Covered Species by the proposed Covered Activities. An assessment of the Solano HCP's contribution to the overall recovery of each species is also provided. This discussion is included to facilitate the Federal Agencies' findings that the take resulting from the Covered Activities will not appreciably reduce the likelihood of survival and recovery of the species in the wild.

Section 9.0: Alternatives. This section describes the four alternatives that were considered by the Plan Participants. These include:

- **Alternative 1: No Action Alternative.** Under the No Action Alternative, an HCP would not be implemented. As a result, USWFS, NOAA NMFS, and CDFG would consider the issuance of individual take authorization on a case-by-case basis for each project that may adversely affect those species designated under ESA and CESA. SCWA and the Plan Participants would continue to implement the short-term conservation measures detailed in the Solano Project Biological Opinion (USFWS 1999a).
- **Alternative 2: Coverage of Species Listed in the Solano Project Biological Opinion Only Alternative.** Alternative 2 consists of implementing an HCP that addresses only the 17 formally-listed threatened and endangered species required to be considered at the time of the issuance of the USFWS's 1999 Solano Project Biological Opinion. The USFWS would issue individual take permits for these species as provided under the ESA. Species listed as threatened or endangered under the CESA, and other species of concern (i.e., species recognized by groups such as CDFG and CNPS) would not be covered. Anadromous fish species (steelhead and salmon) under the jurisdiction of NOAA NMFS would not be covered nor would species listed or proposed for listing prior to issuance of the 1999 Biological Opinion (e.g., California tiger salamander). Separate authorizations would be required for individual projects that may adversely affect the species not included in the HCP.
- **Alternative 3: Reduced Potential for Incidental Take Alternative.** Under this alternative, the 37 species covered by the Preferred Alternative would be covered. However, this alternative would reduce potential impacts to Covered Species and habitat by decreasing the extent of urban development as compared to the extent of development outlined in the Preferred Alternative. The conservation strategies would be qualitatively the same as the Proposed Action; however, the amount of mitigation required (e.g., the amount of habitat set aside for protection that is needed for mitigation) would be less due to the reduced impact resulting from the Covered Activities. The USFWS and NOAA NMFS would issue individual take permits, and CDFG would authorize incidental take (Fish and Game Code §2081) that could result from the reduced level of development. Under Alternative 3, the HCP and associated permits would be in effect for a 30-year term.
- **Alternative 4: Combined HCP/NCCP Alternative.** This alternative would include preparation of a NCCP. Implementation of this alternative would result in greater conservation as

compensation for the loss of habitat than is included in the Proposed Action (Preferred Alternative), as required to meet the recovery standard for Covered Species under the NCCPA (e.g., greater acreage of land/habitat set aside for species conservation). Under Alternative 4, the HCP/NCCP would cover 37 species and would be in effect for a period of 30 years.

Section 10.0: Plan Implementation. This section outlines the implementation of the HCP. It describes the roles and responsibilities of the Plan Participants, the role of the Solano HCP Advisory Committee, procedures for determining conservation requirements and third party coverage under the HCP, phasing of conservation actions, procedures for dealing with changed and unforeseen circumstances, and permit renewal and modifications for the HCP.

Section 11.0: Plan Funding. This section describes how adequate funding will be provided to fully implement the HCP.

Section 12.0: Definitions. This section provides a glossary/definitions of terms used in the HCP.

Section 13.0: Literature Cited and Staff Preparation. This section provides a list of citations used in the HCP and the background/source information for the Figures used in the HCP. This section also lists the staff involved in preparing the HCP.

Appendix A: Routine Operational and Maintenance Activities. Maintenance of the existing facilities within the Plan Area is a Covered Activity discussed in Section 2.0. This appendix provides additional information and detail on the types of routine operation and maintenance activities performed by the Plan Participants, descriptions of these routine activities, and the extent of existing facilities within the Plan Area that are maintained by each Plan Participant.

Appendix B: Natural Community and Covered Species Accounts. This appendix provides information on the species covered under the Solano HCP and their associated natural communities. Because the Solano HCP has taken a natural community approach, each natural community identified in the HCP has a natural community account that provides information on the background, geographic extent, and associated Covered Species as well as a preliminary narrative conceptual model. Each Covered Species is assigned a primary natural community association and the natural community accounts are followed by species accounts. Each species account details information on the status, range distribution, habitat and ecology, population levels and occurrences in the Solano HCP Plan Area, and a discussion of key conservation issues.

Appendix C: Special Management Species Accounts. Special Management Species are species that were considered for inclusion in the HCP as Covered Species and whose life history and/or habitat association allow for their conservation along with the conservation provided for other Covered Species, but had insufficient information on their range wide distribution and population status for the federal agencies to make a determination that the Covered Activities will not appreciably reduce the likelihood of survival and recovery of the species in the wild. While not officially covered under the HCP, the Plan Participants acknowledge the need to protect and manage for these species. Appendix C identifies additional conservation efforts for these Special Management Species. The conservation program relies primarily on the reserve system that will be established as part of the HCP, but also recognizes that additional management actions may be needed to provide suitable habitat for them. Appendix C details these additional management actions and provides a commitment from the Plan

Participants to monitor and track the status of these Special Management Species in the reserve system.

Appendix D: Operations and Maintenance Manual. Pursuant to the Solano Project Biological Opinion, a manual must be developed that provides guidance on routine operation and maintenance activities at existing facilities (e.g., levees, channels, roads, pump stations, reservoirs, etc.) in order to avoid or minimize adverse effects to federally-listed species within the SCWA contract service area as well as other agencies and organizations participating in the Solano HCP. Appendix D consists of this “Operations and Maintenance Manual” and is intended to be used as a reference guide by supervisory personnel when planning routine operation and maintenance activities for irrigation and flood control facilities as well as other public facilities such as roads, trails, bike paths, and parks and recreational facilities owned and maintained by agencies participating in the Solano HCP. The manual provides information handouts regarding threatened and endangered species and appropriate avoidance and protection measures that can be used by field personnel when conducting such activities on a daily basis.

Figure 1-1: Regional Location

Figure 1-2: Solano Project Service Area and Voluntary Participants

Figure 1-3: Place and Location Names

Figure 1-4: Covered Activity Zones

Table 1-1: Covered Species List and associated Federal, State and CNPS status

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Table 1-2: Special Management Species