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 implemention 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, 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 because of 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, habitat conservation projects, 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 2018).

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.

PROPOSED MODIFICATION TO THE DRAFT HCP/NCCP

Since release of the Draft HCP/NCCP on June 1, 2017, the Conservancy has proposed a number of changes to the HCP/NCCP. These proposed changes fall into several categories, and are described below. Where changes are specific to an individual chapter in the Final HCP/NCCP, the chapter is identified (e.g., Chapter 3).

This Final EIS/EIR evaluates the environmental effects of the Final HCP/NCCP, including the proposed changes since release of the Draft HCP/NCCP. In addition, an impact analysis specifically addressing the proposed HCP/NCCP changes is provided in Section 24.2, *Evaluation of Proposed Modifications to the Draft HCP/NCCP*. The analysis substantiates that the proposed changes to the HCP/NCCP do not alter the impact conclusions provided in the Draft EIS/EIR for environmental issue areas.

Copy Edits

The Final HCP/NCCP includes various copy edits identified by the lead agencies such as correction of spelling errors, punctuation, and grammar.

Minor Text Clarifications and Corrections

The Final HCP/NCCP incorporates various minor text clarifications and corrections identified by the lead agencies, such as, updating section numbering and titles and correcting cross references between various parts of the document.

Minor Numeric Corrections

The Final HCP/NCCP includes various corrections and modifications to numeric values identified by the Conservancy, such as:

- small adjustments to acreages of particular land cover types under existing conditions based on further review of GIS data and other data sources (Chapter 2),
- minor refinements to acreages of various covered activities (Chapter 3), and
- minor reduction in the allowable take limit of white-tailed kite nesting habitat (Chapter 5),

Providing Updated Information Since Release of the Draft HCP/NCCP

Since release of the Draft HCP/NCCP on June 1, 2017, updated information has become available on various topics. The Final HCP/NCCP incorporates the following updated information:

- relevant goals and policies from the *City of West Sacramento General Plan 2035* adopted in November 2016 (City of West Sacramento 2016) (Chapter 3),
- relevant goals and policies from the *City of Woodland General Plan Update 2035* adopted in May 2017 (City of Woodland 2017) (Chapter 3).
- since publication of the Draft HCP/NCCP, Yolo County has removed the Dunnigan Specific Plan from the County General Plan to allow for more incremental development of the Plan Area. While the Dunnigan Specific Plan is no longer a covered activity, the area remains a possible location for future development in Yolo County within the 50-year permit term because of its proximity to I-5 and the existing Dunnigan community, and its location outside of the floodplain, among other reasons. The Final HCP/NCCP maintains the location and amount of impact in the analysis in the event similar development is approved in the future. However, most instances of the title "Dunnigan Specific Plan" have been removed from the document. (Multiple chapters),
- additional information on past burrowing owl survey efforts in the Plan Area (Chapter 6),
- updated information on identified pre-permit reserve lands (Chapter 6), and
- updated information on the status of mitigation banks in Yolo County (Chapter 7)

Clarifications or Enhancements to Particular Plan Elements

Based on comments received in the Draft HCP/NCCP during public review, and further coordination and collaboration between the lead agencies, the Final HCP/NCCP includes text edits providing various clarifications or enhancements to elements of the HCP/NCCP. Examples include:

- clarifying the types of activities included in the "General Urban and Rural Development Operations and Maintenance" category of covered activities, such as including reference to mechanical and manual vegetation management, seeding and planting of disturbed areas, dust management, maintenance of fencing and lighting, and fuels management (Chapter 3),
- clarifying the details of the training program described in *AMM 6, Conduct Worker Training* (Chapter 4),
- expanding the description of *AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas* to clarify that it is applicable to all raptors and that restoration of temporarily disturbed areas will be with native species (Chapter 4),
- clarifying the implementation of buffers for sensitive natural communities described in *AMM9, Establish Buffers around Sensitive Natural Communities* (Chapter 4),
- clarifying the conditions where elderberry shrubs would be transplanted (Chapter 4),
- clarifying elements of implementation of AMM13 for California tiger salamander, such as providing the calendar dates for the survey period (Chapter 4),

- adding AMM14 for western pond turtle, which minimizes potential adverse effects to the species through identification and protection of potential nesting areas (Chapter 4),
- clarification that for bank swallow (AMM20) a 500-foot buffer is not necessary if a colony is not present, or has not been present for more than 5-years (Chapter 4),
- clarification of the process for determining buffer distances for burrowing owls and methods for burrowing owl exclusion and passive relocation in AMM18 (Chapter 4),
- removal of AMM21, *Implement Performance Standards of the Off-Channel Mining Plan and the Cache Creek Resources Management Plan* (Chapter 4),
- further explanation of measures to protect giant garter snake and western pond turtle during channel maintenance activities on cultivated lands in the reserve system (Chapter 4),
- further identification that rodenticide use is not a covered activity in the Yolo HCP/NCCP (Chapter 5),
- various clarifications to the amount or type of authorized effects on covered species (Chapter 5),
- additional information on designated critical habitat for threatened and endangered species in the Plan Area (Chapter 5),
- adding an upland habitat component to Biological Objective CTS1.3 for California tiger salamander (Chapter 6),
- providing additional detail on criteria for selecting natural community restoration sites, (Chapter 6),
- clarifying that natural community restoration efforts should use native seeds and plants from Sacramento Valley origin (Chapter 6),
- describing measures to be implemented by the City of Woodland for the protection of palmate-bracted birds'-beak in Woodland Regional Park (Chapter 6), and
- including information on a particular desirable location for planting of trees to improve Swainson's hawk nesting habitat (Chapter 7).

Increased Details on Plan Implementation

Based on comments received in the Draft HCP/NCCP during public review, and further coordination and collaboration between the lead agencies, the Final HCP/NCCP includes text edits providing further details and clarifications on implementation of the HCP/NCCP. Examples include:

- increasing the allowable acreage of temporary habitat losses from 66 acres to 266 acres (Chapter 5),
- providing additional information on the criteria for locating ponds intended to be used by California tiger salamander (Chapter 6).
- refining the required content of Reserve System Management Plans (Chapter 6),
- clarifying the process for development of a Management Plan for Swainson's hawk on pre-permit reserve cultivated lands (i.e., lands currently under public easement brought into the Yolo HCP/NCCP reserve system) (Chapter 7),
- further specifying the content to be included on the public website for the Yolo HCP/NCCP (Chapter 7),
- providing additional details on information to be included in the Implementation Handbook (Chapter 7),

- clarifying regulatory agency involvement in amendments to reserve system site-specific management plans (Chapter 7),
- various minor clarifications to implementation processes, including the schedule for major implementation tasks (Chapter 7),
- clarifying the policy on "Easement Stacking" related to placing a different or more restrictive habitat conservation easement on a property that has an existing agricultural conservation easement (Chapter 7),
- clarifying the relationship between the HCP/NCCP and the existing Yolo County Swainson's hawk mitigation fee program (Chapter 7),
- addressing situations where the Conservancy may not own mineral rights on a piece of reserve system property (Chapter 7), and
- clarifying the process for future administrative changes and minor modifications to the HCP/NCCP.

Updated Cost and Funding Information

Since release of the Draft HCP/NCCP there have been several updates to Chapter 8, *Costs and Funding*.

- cost factors used in various cost calculations were updated to reflect mid-2017 values based on changes in the Consumer Price Index, and, for some land cost factors, analysis of updated data on trends in agricultural land values,
- various plan implementation costs were updated based on recalculations using the updated cost factors,
- for the Draft HCP/NCCP the agricultural land cost factors were originally based on analysis of *2014 Trends in Agricultural Land and Lease Values* published by the California Chapter of the American Society of Farm Managers and Rural Appraisers (ASFMRA). The updated 2017 cost factors are based on analysis of *2017 Trends in Agricultural Land and Lease Values*,
- corrections to the existing management agency for some pre-permit reserve lands,
- additions to the list of pre-permit reserve lands,
- updating natural community restoration cost estimates,
- further consideration of costs of the Neighboring Landowner Protection Program and conservation easement defense,
- updated cost calculations for the funding plan,
- clarification on the timing of fee payment,
- update to the development fee costs,
- clarification on how applicant implemented wetland restoration may influence HCP/NCCP wetland fee costs,
- clarification on the regional Consumer Price Index to use for fee adjustments,
- clarification on coordination with Solano County if the Conservancy acquires any easements in Yolo County, and
- clarification on conditions for adjustments (up or down) to State and federal land acquisition targets.

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.

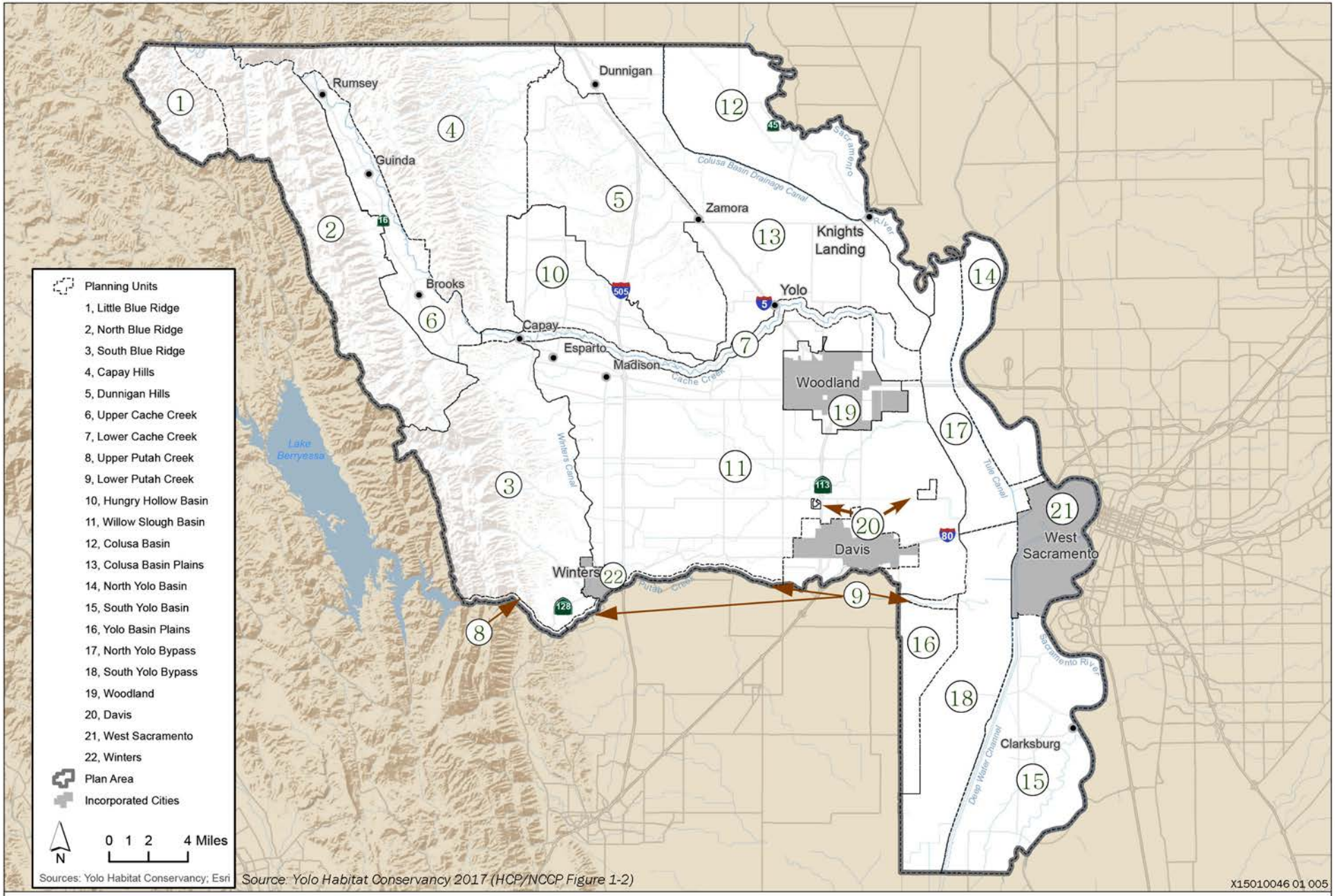
For the purposes of this EIS/EIR (and consistent with the organization in the HCP/NCCP), covered activities are organized into the following categories and subcategories.

- 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*.



Source: Yolo Habitat Conservancy 2017 (HCP/NCCP Figure 1-2)

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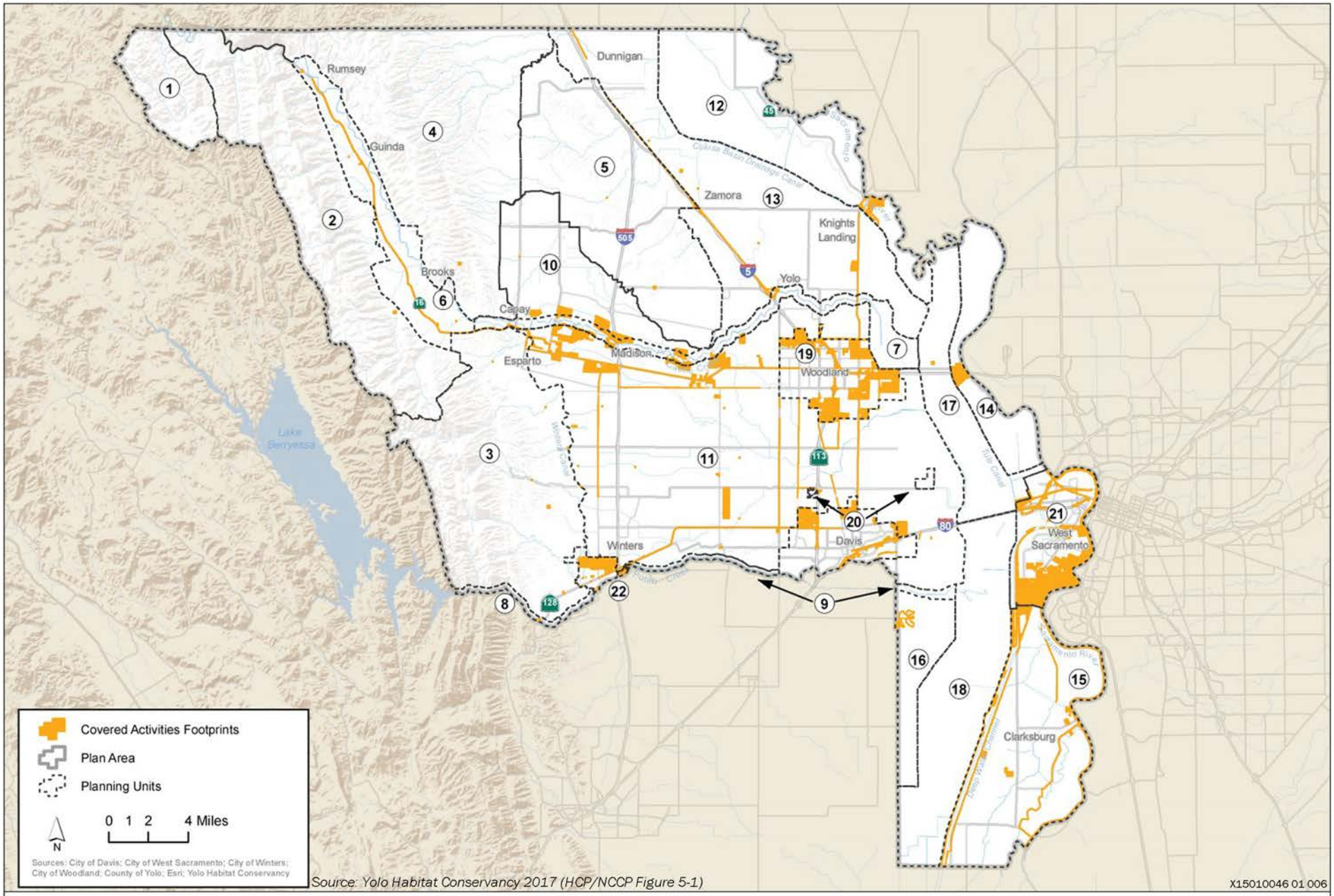
Exhibit 2-1 **Planning Units**



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

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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 718 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.

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 outside of Planning Unit 21 and additional acreage within Planning Unit 21, 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, habitat conservation projects, 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.

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

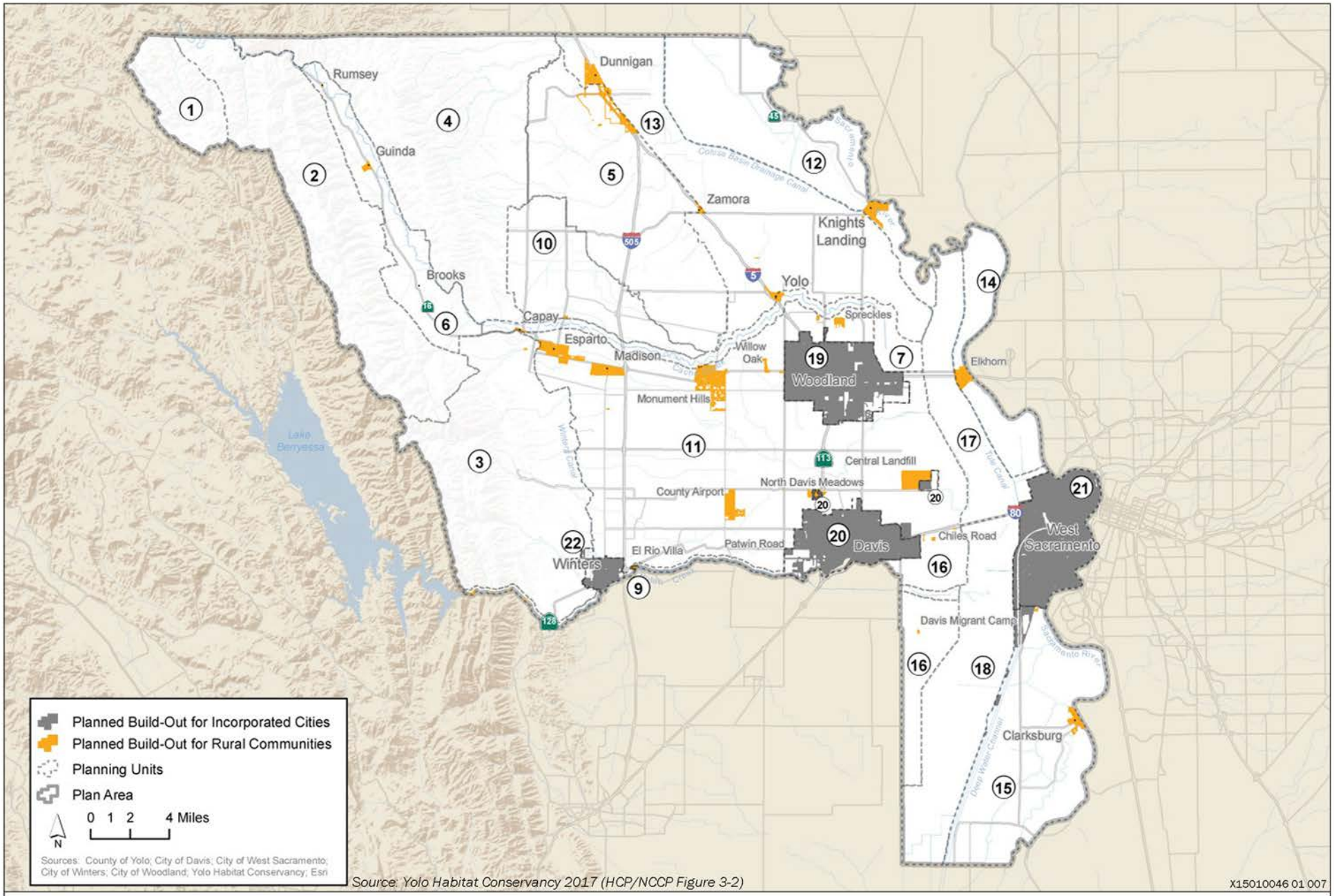
The types of future development that could occur in these areas are the same as those described for Urban Projects and Activities, because the land uses in these areas are non-agricultural. In general, the unincorporated communities are not expected to experience significant growth beyond existing conditions. 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)



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

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Exhibit 2-3 **City and Rural Community General Plan Buildout**

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

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 runaway 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.

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;
- mechanical and manual vegetation management.
- seeding or planting of disturbed areas.
- dust management.

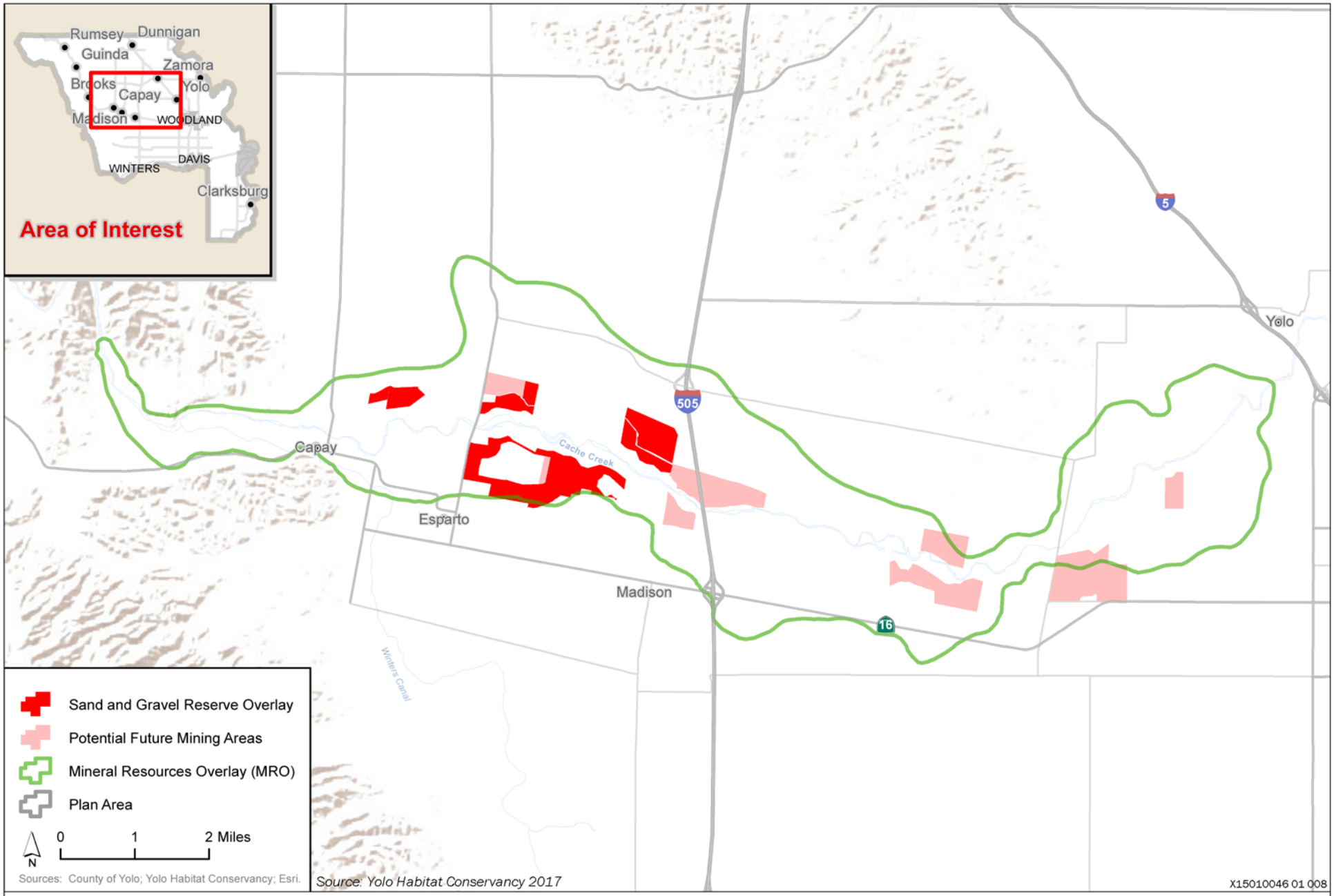

Exhibit 2-4

Cache Creek Aggregate Mining Area

- maintenance of fencing
- maintenance of lighting.
- fuel management activities, including the maintenance of fire management zones along existing infrastructure (e.g., roads))
- 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 and is not part of the federal action. Any pesticide use must comply with all existing applicable judicial orders related to use of pesticides;
- 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). Pesticide use is assumed to comply with all existing applicable judicial order related to the use of pesticides;
- 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 because of 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

Lawful and routine agricultural practices on reserve lands are covered agricultural 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, Section M-1*. Appendix M lists routine agricultural practices that qualify as covered agricultural activities. The seasonal descriptions in Appendix M 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. If any lawful and routine agricultural practice does not appear in Appendix M, the Conservancy may allow the practice (as a covered agricultural activity) provided it does not result in impacts not analyzed in the HCP/NCCP and the conservation easement (subject to wildlife agency approval) also allows the activity. All such agricultural practices on reserve lands must avoid and minimize effects on covered species as described in HCP/NCCP Section 4.3.6, *AMMs for Agricultural Practices 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, Section M-2.* 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 because of 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; and
- 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 (although rodenticide use is not a covered activity in the Yolo HCP/NCCP), 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	*Chloropyron palmatum*[b]	E/E/1B
Invertebrates			
2	Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T/-/-
Amphibians			
3	California tiger salamander (Central California DPS)	*Ambystoma californiense*	T/T/-
Reptiles			
4	Western pond turtle	*Actinemys marmorata*	-/CSC/-
5	Giant garter snake	*Thamnophis gigas*	T/T/-
Birds			
6	Swainson's hawk	*Buteo swainsoni*	-/T/-
7	White-tailed kite	*Elanus leucurus*	-/FP/-
8	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T/E/-
9	Western burrowing owl	*Athene cunicularia hypugaea*	-/CSC/-
10	Least Bell's vireo	*Vireo bellii pusillus*	E/E/-
11	Bank swallow	*Riparia riparia*	-/T/-
12	Tricolored blackbird	*Agelaius tricolor*	-/C/-

[a] Status:

Federal
E = Listed as endangered under the FESA
T = Listed as threatened under the FESA
- = No designation

State
C = Candidate for listing under the CESA
CSC = California species of special concern
E = Listed as endangered under the CESA
FP = Fully protected under California Fish and Game Code
T = Listed as threatened under the CESA
- = No designation

Other:
1B = California Native Plant Society (CNPS) designation for species that are rare or endangered in California and elsewhere.
- = No designation

[b] Formerly *Cordylanthus palmatus*.

DPS = distinct population segment: FESA = Federal Endangered Species Act; CESA = California Endangered Species Act

Source: Yolo Habitat Conservancy 2018

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 adaTAbptive 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.

The Conservancy is preparing a Regional Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) in parallel with the HCP/NCCP. The RICS/LCP is a compatible but separate plan from the Yolo HCP/NCCP that guides the conservation of a selected range of plant and animal species that are not covered by the HCP/NCCP and the natural communities upon which they depend. The RCIS/LCP establishes conservation priorities that help focus implementation efforts to conserve other biological resources. The RCIS/LCP is not a part of the HCP/NCCP, and implementation of the strategy is voluntary. Although the Yolo HCP/NCCP will benefit many of these species and natural communities, the RCIS/LCP 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 *mitigation lands* 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 *conservation lands* are those the Conservancy will protect above and beyond the *mitigation land* 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 *mitigation lands* 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).	A sufficient number of acres to achieve a 1:1 ratio for wetlands, open water, and riparian ≤ 912
		Restored/created *conservation lands* are those that the Conservancy will restore or create above and beyond the *mitigation land* 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 *conservation lands.* They will not count toward *mitigation.*	8,000
		TOTAL	**33,362[a]**

[a] This assumes restoration of the full 912 acres that are dependent on effect.

Source: Yolo Habitat Conservancy 2018, 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	500 acres giant garter snake habitat
		200 acres of tricolored blackbird nesting habitat and two active tricolored blackbird nesting colony (colonies may be on pre-permit reserve land) (Table 6-2(b), *Pre-permit Reserve Lands Commitments*).
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 2018, 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 2018, 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, *Palmate-Bracted Bird's Beak*.
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, *Acquisition Process*. 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, *Stay Ahead Provision*).
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 2018 (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 because of 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 *Semiagricultural/Incidental to Agriculture* 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 35 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, *Alkali Prairie Natural Community and Baseline Public and Easement Lands*).
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 occupied breeding pools are discovered or established in the Dunnigan Hills area and protected in the Dunnigan Hills area, with sufficient surrounding uplands to support the individuals using the protected aquatic habitat.
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-LR.1.1), 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 WTKI.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 reverse 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 2018, 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.

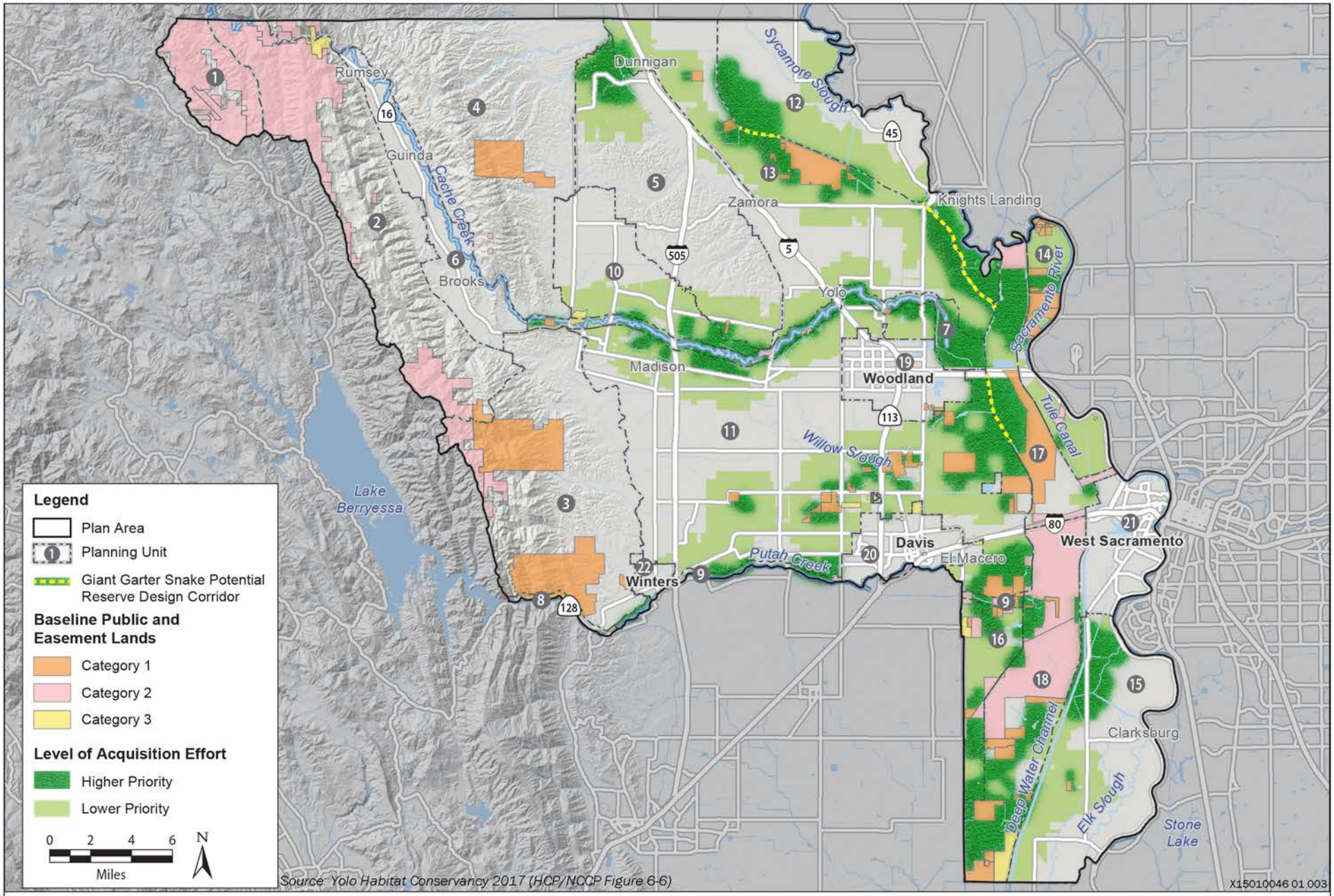

Exhibit 2-5 **Reserve System Priority Acquisition Areas**

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 five categories; AMMs for (1) General Project Design, (2) General Construction and Operations and Maintenance, (3) Sensitive Natural Communities, (4) Covered Species, and (5) Activities Within 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 fifth 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 Western Pond Turtle
AMM15, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake
AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite
AMM17, Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo
AMM18, Minimize Take and Adverse Effects on Western Burrowing Owl
AMM19, Minimize Take and Adverse Effects on Least Bell's vireo
AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow
AMM21, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird

[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). 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]
0–1 year	Train Conservancy and Permittee staff members to review and process HCP/NCCP applications. This task will be ongoing.	Conservancy
	Develop implementation handbook	Conservancy
	Develop database for tracking take coverage	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 submitted to the Conservancy. This task will be ongoing.	Conservancy
	Collect Yolo HCP/NCCP fees. This task will be ongoing.	Cities and County, Conservancy
	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, *Costs and Funding*. 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
	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
	Every five 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, *Conservation Strategy*. Conservancy must prepare plans within 5 years of the first parcel acquired in each reserve unit and reviewed no less than every five 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 five years).	Conservancy

Table 2-8 Schedule for Major Implementation Tasks

Time Period	Tasks and Milestones	Responsible Party[a]
	Develop framework for landowner incentive program for Swainson's hawk foraging habitat.	Conservancy
	Complete enrollment of pre-permit reserve lands (the Conservancy will initiate this process prior to Year 6 and complete the enrollments by Year 5.	Conservancy
6–50 years	Continue coordination of annual audit, including reports to the Conservancy Board.	Conservancy
	Ten-year comprehensive reviews.	Conservancy
	Finalize post-permit implementation structure prior to Permit expiration (Chapter 8, Section 8.4.4.5, *Funding for Post-Permit Management and Monitoring*).	Conservancy
More than 50 years	Continue adaptive management and limited monitoring of biological resources to ensure management actions are working.	Conservancy

Source: Yolo Habitat Conservancy 2018

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 $218 million over the permit term, or about 54 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]	**$218,376,000**	$4,367,520
Restore Natural Communities[c]	**$68,150,000**	$1,363,000
Manage and Enhance[d] Easement and Pre-Permit Reserve Lands[c]	**$14,468,000**	$289,360
Monitoring, Research, and Scientific Review (except restored lands)[d]	**$18,802,000**	$376,040
Plan Administration	**$34,145,000**	$682,900
Local Partner Activities in Riparian Corridors	**$21,520,000**	$430,400
Contingency Fund	**$30,727,000**	$614,540
Total	**$406,187,000**	**$8,123,740**

Notes: In 2017 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 2018, 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*;

- 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*; and

- 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 $280 million, or roughly 66 percent of total Plan funding. Local, state, and federal sources would be the next highest funding category, totaling approximately $135 million, or roughly 32 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, Dunnigan, 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 because of 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

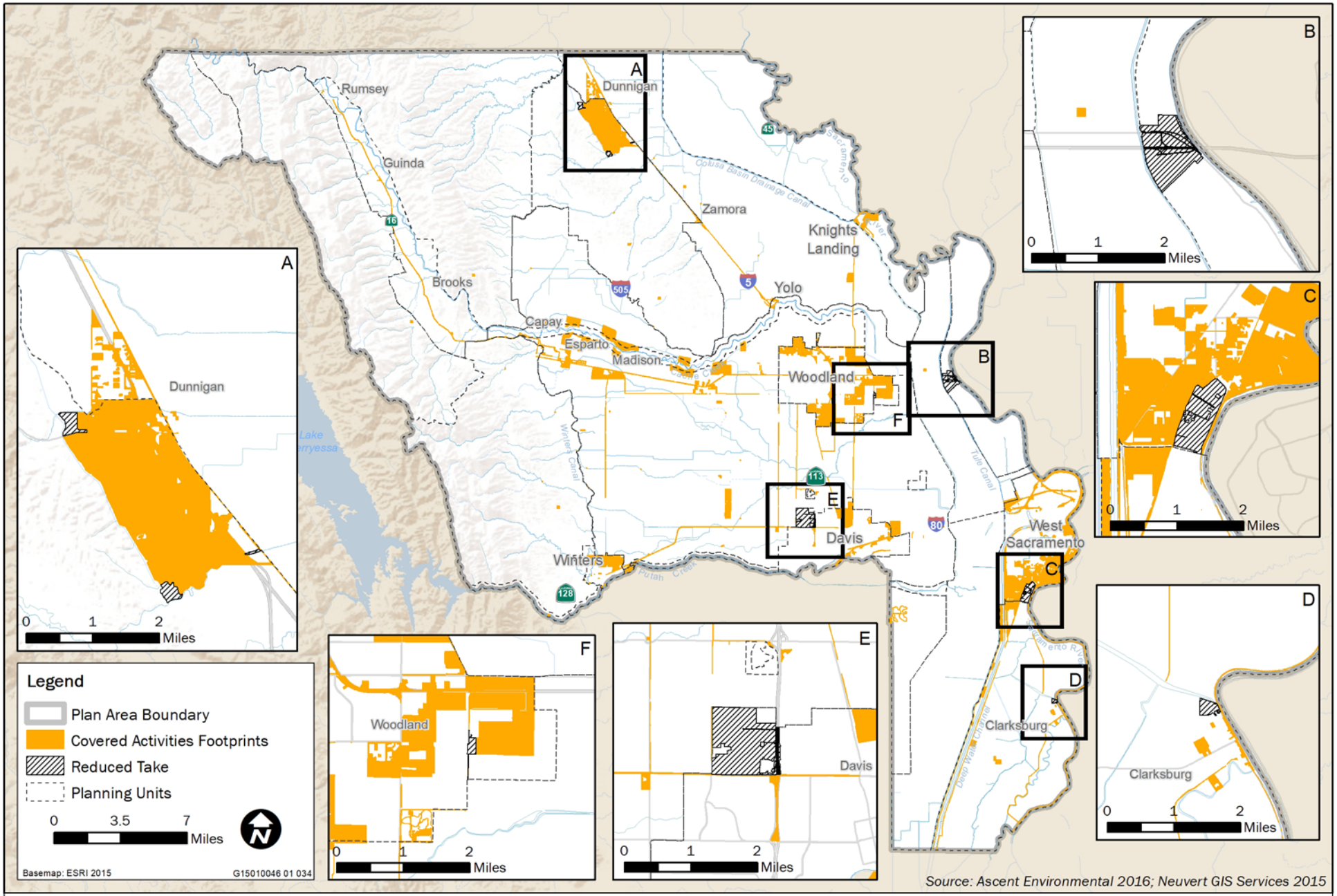

Exhibit 2-6

Reduce Take Alternative

ASCENT ENVIRONMENTAL

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 Area A	48 acres	Inset A in Exhibit 2-6. Parcel in the northwest corner of the Dunnigan covered activity area
Dunnigan Area B	40 acres	Inset A in Exhibit 2-6. Parcel in the southwest corner of the Dunnigan covered activity area
Dunnigan Area C	5 acres	Inset A in Exhibit 2-6. Parcel in the southeast corner of the Dunnigan covered activity 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 covered activity 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 covered activity area 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.

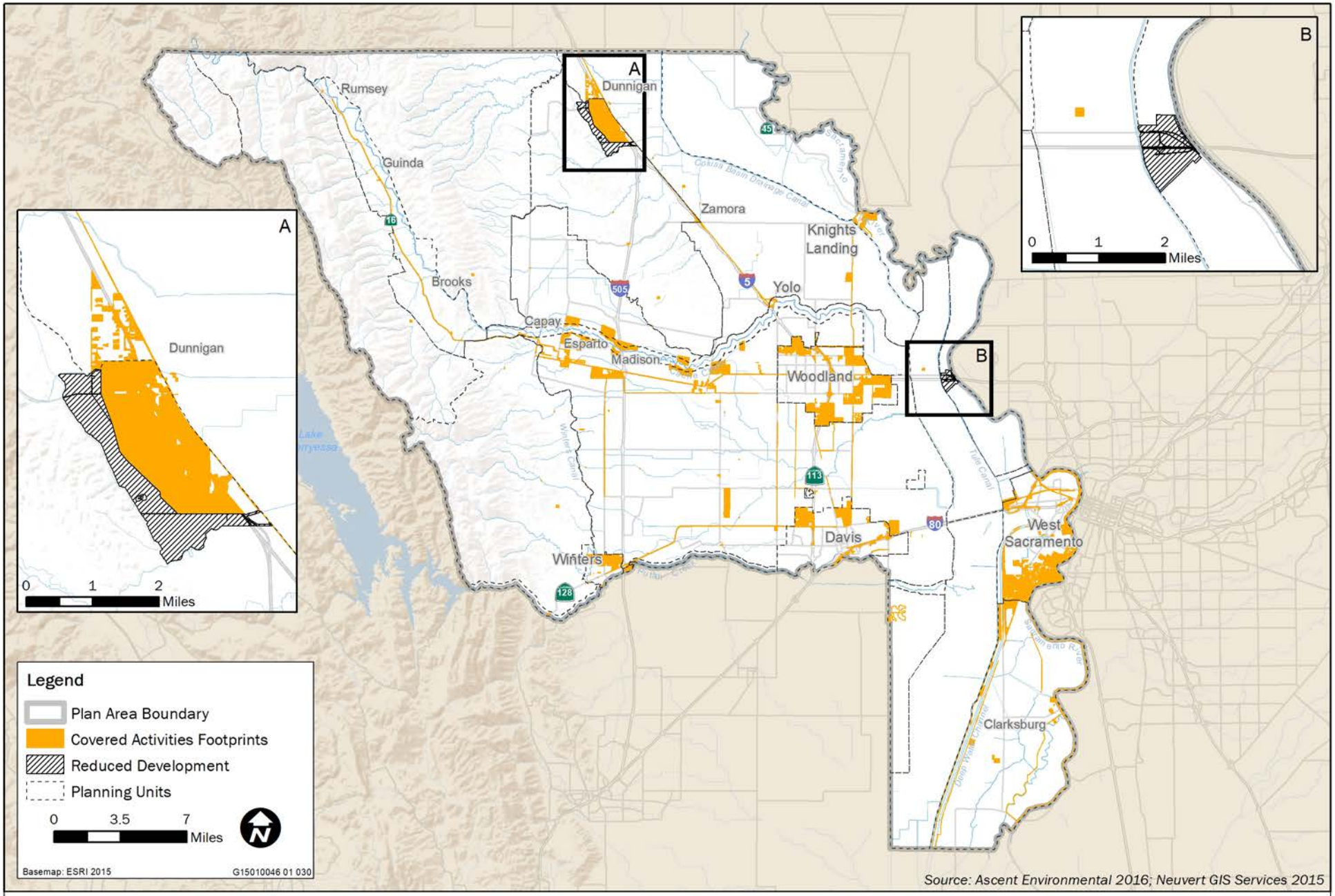

Exhibit 2-7 **Reduced Development Alternative**

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