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San Joaquin River Parkway Master Plan Update ESA/CESA Compliance Strategy White Paper

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Section 1.0 Introduction

The San Joaquin River Conservancy (SJRC) is currently in the process of updating the San Joaquin River Parkway Master Plan (Master Plan), originally approved in 1997 and recompiled in 2000 (SJRC 2000). The purpose of the Master Plan update is not only to present updated goals, objectives, and policies for the planned 22-mile (mi) regional natural and recreation area, but also to envision potential future uses, improvements, features, facilities, and management measures to be implemented. The purpose of this white paper is to develop recommendations for a permitting strategy that facilitates the application of consistent avoidance, minimization, and mitigation requirements across individual projects, recognizes the cumulative and long-term benefits of implementation of the updated Master Plan, and streamlines the permitting process and implementation of the Master Plan. Recommendations are developed based on an analysis of the various mechanisms that could be employed to ensure compliance of Master Plan projects with the Endangered Species Act (ESA), California Endangered Species Act (CESA), California Fish and Game Code, and other applicable laws and regulations relating to biological and natural resources within the Plan area.

It is important to note that although individual projects implemented under the Master Plan may have adverse effects on sensitive biological resources, the majority of projects will be beneficial to biological resources and the adverse impacts will limited to the short term construction or active restoration phase. Further, when considering the functions and values of the existing conditions (baseline) within the Plan area compared to the cumulative post-project condition, projects will result in a net long-term environmental benefit, helping to maintain and increase populations of sensitive species through preservation, restoration, and long-term management of suitable habitat and habitat linkages.

This document is organized into the following six sections:

- Section 1.0 Introduction – An introduction to the Master Plan and the purpose of this white paper.
- Section 2.0 Master Plan Actions – A description of potential Master Plan actions that may require natural resources permits.
- Section 3.0 Permitting Mechanisms – A general overview of the applicable laws and regulations that pertain to natural resource permitting including descriptions of available permitting mechanisms.
- Section 4.0 Potentially Affected Federal and State Listed Species – A discussion of the special-status species that may be affected by projects covered under the Master Plan and for which federal and/or state permits may be required.
- Section 5.0 Permitting Options – A discussion of the permitting options for the Master Plan.
- Section 6.0 Recommended Permitting Strategy – A discussion of the recommended permitting strategy, including the development of an overall San Joaquin River Parkway conservation strategy and project-specific management plans.

Section 2.0 Master Plan Actions

The San Joaquin River Parkway Plan area extends along an approximately 22-mi portion of the San Joaquin River in Fresno and Madera counties, encompassing the river and its floodplain and extending to the top of the bluffs. The width of the Plan area varies from a narrow corridor where the bluffs are steep and close to the river, to areas over 1.5 mi wide. For the purposes of ensuring evaluation of all potential direct, indirect, and cumulative effects on biological resources, the biological resources study area (study area) was expanded north of Friant Dam beyond the Plan area boundary to include a portion of Millerton Lake reservoir (hereafter Millerton Lake) and the surrounding basin.

The Master Plan is a long-term, large-scale plan that will be constructed incrementally and in phases over many years. Master Plan development and implementation may consist of the following:

1. Acquisition of a total of 5900 acres of public conservation lands for San Joaquin River Parkway purposes.

    a. Creation of a contiguous wildlife habitat and wildlife movement corridor.

    b. Creation of contiguous lands for a connected recreational trail system consisting of a 22-mi long primary multiple-purpose trail, connected public open spaces, nature trails, river access spurs, and other secondary trails.

2. Restoration and enhancement of self-sustaining riparian, wetland, floodplain and upland habitats on SJRC and other public lands, potentially including the following:

    a. Grading of floodplain, ponds, and swales

    b. Installation of wells, pumps, and irrigation systems

    c. Planting of native plants

    d. Eradication of non-native species

    e. Installation of fencing and other infrastructure

    f. Performance of hydrologic modifications and water resource management

    g. Construction of berms to isolate abandoned gravel ponds from the river as feasible.

    h. Demolishment of abandoned buildings and infrastructure.

    i. Development, operation, and maintenance of Native American cultural gardens and restoration areas.

3. Development, operation, and maintenance of a 22-mi multiple-use primary trail, consisting of a paved 12-foot wide surface and a separate, parallel-unpaved surface for equestrian uses.

4. Rehabilitation of inadequate bridges and crossings and development, operation, and maintenance of permanent, temporary, and seasonal bridges and crossings (including weirs, fords, culverts, pedestrian decks on vehicle bridges, and other types of crossings) for pedestrian, bicycling, equestrian, maintenance, and management uses as necessary and feasible to connect the primary trail system, provide separation from roads, and improve safety related to vehicle traffic.

5. Development, operation, and maintenance of a river boating trail consisting of interspersed trailered boat launches and take-outs, hand-carried boat launches and take-outs, canoe docks, and rest stops with picnic tables and restrooms, and provide for boating on internal ponds (primarily non-motorized watercraft and fishing boats with small motors).

6. Development, operation, and maintenance of designated campgrounds, including tent camping and RV hookups and services.

7. Development, operation, and maintenance of areas to facilitate safe swimming and wading.

8. Development, operation, and maintenance of ancillary facilities and features to support recreational uses and Parkway infrastructure, including but not limited to gates, fences, entrances and access roads; trailheads, parking, and staging areas; restrooms; kiosks; children's play equipment; way-finding, and regulatory signs; water service and other utility connections; on-site stormwater drainage, swales, and erosion control; drinking fountains; picnic areas and shade structures; Americans with Disabilities Act (ADA)/universal access accommodations; golf courses, if such facilities are acquired for Parkway purposes; equestrian trail riding; non-motorized boating and paddling; and bicycling.

9. Development, operation, and maintenance of ancillary facilities and features to support educational uses, including but not limited to outdoor classrooms and small group amphitheaters; bus parking and turnarounds; interpretive signs; turfed areas; displays, exhibits, and outdoor museum features.

10. Development, operation, and maintenance of vista points, observation decks, and fishing piers and docks.

11. Development, operation, and maintenance of Parkway offices; small storage facilities; shops/interfaces for visitor amenities, information and recreational rentals; nurseries; stewardship and park host residences; and equipment maintenance yards.

12. Development, operation, and maintenance of visitor and interpretive centers as feasible.

13. Development, operation, and maintenance of agriculture uses compatible with resources protection and multiple-use, multiple-benefit land management.

Section 3.0 Biological Resources Permitting Mechanisms

3.1 Endangered Species Act/California Endangered Species Act

Actions that require ESA/CESA permits are those that could result in "take" of ESA and CESA listed threatened and endangered species (Table 1). Without the appropriate incidental take permit (ITP), it is illegal to conduct activities that result in take of listed species, so projects that may result in take could be subject to prosecution and are vulnerable to third party lawsuits. ITPs can be issued for take that results from, but is not the purpose of, carrying out an otherwise lawful activity. ITPs are approved by either the National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) for federally listed species and the California Department of Fish and Wildlife (CDFW) for state listed species. NMFS and USFWS share responsibility for regulating federally listed species; generally, USFWS manages terrestrial and freshwater species, while NMFS manages marine and anadromous species including salmonids.

Fundamental differences between the ESA and CESA that affect permitting are summarized in Table 1. For example, the definition of incidental take differs slightly between the ESA and CESA: for the ESA, take includes harm and harassment, whereas for CESA the definition of take is narrower and does not include harm and harassment. Another difference between the ESA and CESA is that critical habitat may be designated for federally listed species (ESA) but not for state listed species (CESA), and actions that affect critical habitat must be considered during ESA permitting. ESA/CESA permitting requires that the permit applicant define the activities, species, and geographic area to be covered, and the timeline for covered activities.

Table 1. Primary Differences between ESA and CESA that may Affect Permitting

	ESA	CESA
Definition of take	Harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct of a federally threatened or endangered species. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Take is limited to threatened or endangered animal species. For listed plants, there are no Federal prohibitions under the ESA for their take on non-Federal lands, unless taking of those plants is in violation of state law. However, before the USFWS issues a permit via Section 7 or Section 10 of the ESA (defined below in Section 3.1), the effects on listed plants must be analyzed to ensure that issuance of the permit does not jeopardize any listed species, including plants.	Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a state listed threatened or endangered plant or animal species
Critical habitat	May be designated for Federally threatened and endangered species. Critical habitat includes designated areas that have the physical or biological features essential to the conservation of the species and may require special management considerations or protection. Federal agencies are required to consult with the USFWS and/or NMFS on actions they carry out, fund, or authorize to ensure that their actions will not destroy or adversely modify critical habitat.	Not designated for state listed species

For Federally listed species, permitting mechanisms include ESA Section 7 consultation for actions with a Federal nexus and ESA Section 10 for actions without a Federal nexus. For state listed species, permitting mechanisms include a 2081 ITP, 2080.1 Consistency Determination, and Natural Community Conservation Plan (NCCP), any of which can be used by federal, state, local government, or private entities. California also has a classification of "fully protected species" and the only way that incidental take can be permitted for those species is through a NCCP (Section 2835 of the Fish and Game Code). These permitting mechanisms are described further in Sections 3.1 and 3.2.

3.1.1 Endangered Species Act Permitting Mechanisms

The following permitting mechanisms can be used to obtain ITPs for federally listed species. These descriptions are adapted from the *Endangered Species Consultation Handbook* (USFWS and NMFS 1998) and the *Habitat Conservation Planning Incidental Take Permit Processing Handbook* (USFWS and NMFS 1996).

Section 7 Consultation. For a proposed action with a "federal nexus" (i.e., a federal agency is undertaking, funding, permitting, or authorizing actions that could affect a federally listed species), the lead federal agency would consult with USFWS and/or NMFS on the potential action effects. Consultation is facilitated through the lead agency's submission of a biological assessment (BA) for the project. During this process, USFWS and/or NMFS may provide technical assistance to project proponents to clarify the potential effects on federally listed species or critical habitat and make recommendations to reduce or avoid adverse effects. USFWS and/or NMFS can concur, in writing, that the proposed action will have "no effect" or "is not likely to adversely affect" federally listed species or critical habitat. In this case, no incidental take statement would be issued because it has been determined that take is unlikely to occur. If the USFWS and/or NMFS or the lead federal agency determines that the project may adversely affect federally listed species or critical habitat, formal consultation will be initiated to ensure that the actions are not likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Minimization measures are required as a part of the project action to reduce take, but mitigation measures are not required. The process generally concludes with the issuance of a biological opinion (BO) and an incidental take statement by the USFWS and/or NMFS.

Section 10 HCP. For proposed actions conducted by a non-federal entity (i.e., actions with no "federal nexus" as defined above), a Habitat Conservation Plan (HCP) must accompany an application for an ITP ("HCP permit application") for impacts on federally threatened or endangered species or designated critical habitat. An HCP must minimize and mitigate effects on listed species to the maximum extent practicable. The five-point policy, which is an addendum to the *Habitat Conservation Planning Incidental Take Permit Processing Handbook*, contains guidance for items to be included in an HCP, including biological goals and objectives, adaptive management, monitoring, permit duration, and public participation (USFWS and NMFS 2000). The biological goals and objectives guide the HCP's operating conservation program and should also support the recovery goals of listed species covered by the HCP. Adequate funding must be provided to implement the minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures. HCPs have a "no surprises" policy that provides regulatory assurances that no additional land use restrictions

or financial compensation will be required of the permit holder with respect to covered species, if unforeseen circumstances arise indicating that additional mitigation is desirable. To process an HCP permit application, the USFWS issues an ITP and writes BO under Section 7 of the ESA confirming that the incidental take does not jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

Section 10 Safe Harbor Agreement. A Safe Harbor Agreement (SHA) is a voluntary agreement between private or other non-federal property owners and the USFWS (SHAs are only available through USFWS; NMFS does not issue SHAs for listed species under their jurisdiction). In exchange for actions that contribute to the recovery of federally listed species by improving baseline conditions on privately-owned lands, the participating property owners receive formal assurances from the USFWS that if they fulfill the conditions of the SHA, the USFWS will not require any additional or different management activities by the participants without their consent. In addition, the USFWS will authorize a Section 10 ITP. Take associated with a SHA can be ongoing take that results from the conservation measures that are implemented, the property owner's other activities, or a return to the baseline condition that occurs after conservation benefits have accrued for a period of time. This permit would allow participants to take individual listed plants or animals or modify habitat to return population levels and habitat conditions to those agreed upon as baseline at the end of the agreement period. In other words, these agreements essentially relieve landowners of liability under the ESA if conservation practices on their land attract and/or perpetuate federally listed species.

3.1.2 California Endangered Species Act Permitting Mechanisms

The following are permitting mechanisms that are used to obtain ITPs for California state listed plant and animal species. These descriptions are from the CDFW website (CDFW 2012).

2081 Incidental Take Permit. The CDFW can issue a 2081 ITP for a state listed species. The impacts of the authorized take must be minimized and fully mitigated, and adequate funding must be provided to implement the minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures. The issuance of the ITP must not jeopardize the continued existence of a state listed species. A 2081 ITP may not authorize take of "fully protected" species and "specified birds." If a project is planned in an area where a fully protected species or a specified bird occurs, the applicant must design the project to avoid all take. A take permit for take of fully protected species, however, may be issued via the NCCP process (see below).

2080.1 Consistency Determination. For species that are listed under both the ESA and CESA, an applicant who has obtained a federal ITP via ESA Section 7 or 10 can submit the permit to the CDFW for a determination as to whether it is "consistent" with CESA. The CDFW can then issue a 2080.1 Consistency Determination if they determine that the conditions specified in the permit are consistent with CESA.

Natural Community Conservation Plan. An NCCP identifies and provides for regional or area-wide protection of plants, animals, and their habitats, in perpetuity, while allowing compatible and appropriate economic activity. An NCCP must include independent scientific analysis and input to identify foundational principles for landscape and habitat conservation, species protection, and adaptive management. An NCCP can be used to obtain an ITP for state listed species, including those designated as fully protected. NCCPs provide regulatory assurances that no additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources will be required without the consent of plan participants, unless CDFW determines that the plan is not being implemented consistent with the terms of the implementation agreement, even if unforeseen circumstances arise indicating that additional mitigation is desirable.

3.2 Migratory Bird Treaty Act

Almost all native bird species occurring in the Plan area are protected by the federal Migratory Bird Treaty Act (MBTA; 16 USC, Section 703, Supplement I, 1989), which prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA protects active nests from destruction and nests, whether active or not, cannot be possessed. The trustee agency that addresses issues related to the MBTA is the USFWS.

3.2.1 Migratory Bird Treaty Act Permitting Mechanisms

Unlike the ESA and CESA, the MBTA has no incidental take permit or its equivalent. Rather, take permits are issued only for very specific purposes, such as falconry and scientific collecting.

3.3 Clean Water Act

Clean Water Act permits are issued for the placement of dredged or fill materials into waters of the United States, including wetlands, and in areas below the Ordinary High Water Mark (OHWM) of rivers and streams. The Clean Water Act permitting program is administered by the U.S. Army Corps of Engineers (USACE) subject to and using the Environmental Protection Agency's (EPA's) environmental guidance and is authorized by Section 404 of the Clean Water Act.

3.3.1 Clean Water Act Permitting Mechanisms

Clean Water Act permits issued by the USACE include Nationwide Permits, Individual Permits, and Programmatic Permits.

1. Nationwide General Permits are a series of permits that cover a broad range of activities that will have minimal environmental impacts and must meet the terms of the permit and comply with general, regional, and case-by-case conditions.

2. Individual Permits are typically issued for larger projects that exceed the threshold for impacts under the Nationwide Permit program.

3. Programmatic Permits include Regional General Permits and Programmatic General Permits. Regional General Permits are issued by USACE Districts or Divisions and follow standard processing procedures for a group of activities within a region that are similar in nature and cause minimal environmental impacts, reducing duplicative regulatory control by state and federal agencies. Programmatic General Permits are founded on existing state, local, or federal agency programs. They are issued by Divisions of the USACE, are valid for five years and local, state, or other federal agencies assume partial USACE responsibility. They are designed to streamline the regulatory process as the agency holding the permit becomes the permitting authority.

3.4 California Fish and Game Code

The California Fish and Game Code Section 1601–1603 requires a Streambed Alteration Agreement (SAA) for the fill or removal of material within the bed and banks of a watercourse or waterbody and for the removal of riparian vegetation.

Fish and Game Code Sections 3503, 3503.5, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Non-game mammals are protected by Fish and Game Code Section 4150, and Fully Protected Species are protected by Sections 3505, 3511, 4700, 5050, and 5515.

3.4.1 California Fish and Game Code Permitting Mechanisms

The following types of SAAs are issued by CDFW, allowing for the alteration of a lake, or bed, bank and channel of a watercourse:

1. Standard Agreements are project specific and allow activities to take place within a five-year period.

2. Standard Long-Term Agreements are similar to Standard Agreements but allow activities to take place beyond a five-year timeframe.

3. Master Agreements are agreements that generally cover large –scale projects with many phases or smaller projects covering a variety of activities that are not defined in detailed at the issuance of the agreement.

Similar to the MBTA, the California Fish and Game Code has no incidental take permit or its equivalent for native non-game birds. Rather, take permits are issued only for very specific purposes, such as scientific collecting. Further, fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for scientific purposes or when a NCCP that covers the fully protected species has been approved.

Section 4.0 Potentially Affected Federal and State Listed Species

Actions that require ESA/CESA permits are those that result in take of federally and state listed threatened and endangered species. Species that should be covered by an ESA/CESA permit include those whose distribution and habitat overlaps the project area and could be subject to take (defined in Table 1) by project actions. In addition, if there is designated critical habitat for a federally listed species in the project area, regardless of whether the species has been detected in the project area, potential impacts on critical habitat should also be addressed during permitting.

This analysis of ESA/CESA permitting strategies considers not only federally and state listed species, but also non-listed species including federal candidate species, California fully protected species, California species of special concern, and rare plants known to occur in the project area. These species could become federally and/or state listed at some point during Master Plan implementation, so it is advisable to consider such species as some potential Master Plan projects may not be constructed for many years. There are no federal candidate species known to occur in the project area, but there are a number of California species of special concern and rare plants known to occur there. Species that should be considered for permitting for the Master Plan due to their presence or potential presence in the project area are described in Appendix A.

Note that although both the Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and the Central Valley steelhead (*Oncorhynchus mykiss*) are currently absent from the project area, we recommend addressing these species in the project's ESA/CESA permitting strategy as they are likely to be present in the future with the successful implementation of the San Joaquin River restoration program. As part of a settlement agreement to restore the mainstem of the San Joaquin River by 2025, NMFS plans to reintroduce Chinook salmon to the San Joaquin River in early 2013 (SJRRP 2011). On January 16, 2013, NMFS published a proposed rule in the Federal Register ("Endangered and Threatened Species: Designation of a Nonessential Experimental Population of Central Valley Spring-Run Chinook Salmon Below Friant Dam in the San Joaquin River, CA; Notice of proposed rulemaking," 78 Federal Register 11 [16 January 2013], pp. 3381-3389.) to designate a non-essential experimental population of Central Valley spring-run Chinook salmon under Section 10(j) of the ESA in portions of the San Joaquin River and establish take exemptions. As a result of the experimental population designation, NMFS may issue comprehensive authorization of incidental take for certain activities in the San Joaquin River (e.g., otherwise lawful activities within the Parkway that could potentially result in incidental take, such as operating recreational boat launches and providing public recreational access to the river). For Master Plan permitting, it will be important to consider any potential changes in Chinook salmon listing status and/or distribution that could occur. In addition, as a potential result of ongoing San Joaquin River restoration efforts, Central Valley steelhead, although they are not being reintroduced to the San Joaquin River, could also begin using the river.

Section 5.0 Biological Resources Permitting Options

5.1 Endangered Species Act/California Endangered Species Act

Potential options for ESA permitting of Master Plan actions include Section 7 consultation, Section 10 HCP, and Section 10 SHA. Potential options for CESA permitting include a 2081 ITP, 2080.1 Consistency Determination, and NCCP. However, for many activities take can be avoided. These options are discussed further below. In addition, potential permitting approaches for non-listed species that could become listed in the future are also discussed.

5.1.1 Take Avoidance

Many of the Master Plan actions, particularly short-term actions such as construction of facilities (e.g., roadways and parking areas, bathrooms, bridges, canoe facilities, equestrian facilities, signage, and buildings), could potentially be conducted without resulting in incidental take of listed species by utilizing conservation measures such as avoiding construction in areas where listed species potentially occur and by using "work windows" to minimize the temporal overlap between construction activities and sensitive life stages of listed species. Take of listed species as a result of longer-term actions, such as recreation and public use, could also potentially be avoided by conducting surveys for listed species and siting facilities and trails to avoid sensitive areas and minimize erosion into waterways, minimizing lighting at night in sensitive areas, managing trash, and preventing introduction of non-native plants and animals. Given the nature of the Master Plan actions, the emphasis on open space and habitat restoration, and the plan's relatively small potential footprint, complete avoidance is a reasonable approach that would greatly reduce the need for ESA and CESA permitting.

For example, vernal pool branchiopods, as well as critical habitat for these species, could be avoided as vernal pool habitat occurs only along the periphery of the Plan area. In addition, the two listed plant species known to occur in grasslands in the project area, Hartweg's golden sunburst (*Pseudobahia bahiifolia*) and San Joaquin adobe sunburst (*Pseudobahia peirsonii*), could likely be avoided by implementing pre-construction surveys in suitable habitat and non-disturbance buffers around known occurrences. Incidental take of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), which has been petitioned for delisting ("Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To Delist the Valley Elderberry Longhorn Beetle; Notice of 90-day petition finding and initiation of status review," 76 Federal Register 161 [19 August, 2011], pp. 51929 -51931.), could also likely be avoided by protecting (working around) its host plant, elderberry (*Sambucus spp.*) that occurs in riparian habitats.

5.1.2 Section 7 Consultation

For any Master Plan actions that have a federal nexus and that could affect federally listed species, a Section 7 consultation would be the appropriate permitting mechanism. The federal nexus is most likely to originate

from the USACE. The USACE is the federal agency for actions requiring a 1) Section 404 permit under the Clean Water Act for discharge of any dredge or fill materials into waters of the United States, including wetlands and 2) Section 10 permit under the Rivers and Harbors Act for the construction of any structure in or over any navigable water of the U.S. Master Plan actions that may have an USACE (federal) nexus include, but are not limited to the following:

- Construction of bridges
- Construction and maintenance of boat ramps
- Creation and management of ponds and wetlands
- In-stream habitat restoration

The valley elderberry longhorn beetle, Central Valley spring-run Chinook salmon, and Central Valley steelhead are the primary species that may be affected by these actions and could require consultation under Section 7 of the ESA. Although neither the Central Valley spring-run Chinook salmon nor the Central Valley steelhead currently occurs in the San Joaquin River, Chinook salmon are expected to occur in the river in the near future as a result of the San Joaquin River reintroduction, and steelhead may naturally recolonize the river as a result of river restoration actions. Because Central Valley spring-run Chinook salmon are proposed as an experimental, non-essential population, the Section 7 regulatory requirements will be different than other (non-experimental) ESA listed species, at least for the first few years of the reintroduction. NMFS has responsibility for regulating federally listed salmonids; therefore, it would be necessary to coordinate with NMFS regarding effects on this experimental population as well as on Central Valley steelhead.

Section 7 consultations generally require much less investment in time and money to develop and implement than Section 10 HCPs. There are no requirements for mitigation, only avoidance and minimization measures to reduce impacts on listed species (although mitigation is typically included as part of permitting). Ongoing costs generally include those to implement the avoidance and minimization measures, and monitoring may be required to demonstrate the impacts on the species or any take that occurs. However, the duration of the ITPs are generally shorter than Section 10 ITPs and only last the length of the specific proposed project, especially if consultations are done on a project-by-project basis, necessitating additional consultations each time a new or related project is proposed. Where a number of projects can be anticipated and described in advance, as with the Master Plan, it may be worth the time and effort to secure a programmatic Section 7 consultation if there is an appropriate lead federal agency to assume responsibility. A programmatic Section 7 consultation can be in effect for many years (i.e., 10 years or more), and each individual project that falls under the programmatic consultation would likely only need minimal additional effort to secure the permit for that particular project. Thus, for Master Plan actions with a federal nexus that are likely to be repeated over the course of several years, a programmatic Section 7 may be the best approach.

5.1.3 Section 10 Habitat Conservation Plan or Safe Harbor Agreement

For actions without a federal nexus and for which incidental take of federally listed species cannot be avoided through avoidance and minimization measures, a Section 10 HCP or Section 10 SHA would be an

appropriate permitting mechanisms. Master Plan actions that likely lack a federal nexus and for which it may be difficult to avoid take include:

- Large-scale control and removal of exotic plants
- Large-scale habitat restoration and revegetation with native plants

Section 10 HCPs are generally used for projects where incidental take is expected to occur and cannot be avoided, and mitigation is needed to compensate for these impacts. HCPs often take several years and a significant amount of money to develop. However, once completed, the permit term can be many years (typically 30–50 years). HCPs require that impacts on listed species are mitigated to the maximum extent practicable and that long-term funding assurances are provided for required impact mitigation and minimization measures. Baseline or existing conditions need to be determined at the start of the HCP permit duration such that take can be determined, and there are stringent success criteria, and compliance and effects monitoring that must demonstrate that the HCP is being implemented properly and effectively. Ongoing costs include mitigation and monitoring, which can be significant. Given the considerable time, expense, and difficulty in developing an HCP, it may not be the best permitting strategy for Master Plan actions due to the project's generally low potential for incidental take.

It is also worth noting that Section 10 permits do not cover herbicide and pesticide applications so it is possible that exotic plant control and removal would not be fully covered by an HCP; however, these activities are generally covered by nationwide Section 7 consultations between the Environmental Protection Agency and USFWS/NMFS. The agency using these herbicides and pesticides is responsible for complying with all applicable laws regarding their use.

A potential alternative to a Section 10 HCP would be an SHA (see Section 3.1.3), which could be used for Master Plan actions that could result in incidental take, but would ultimately benefit the species (e.g., riparian restoration that could harass listed species in the short term but improve their habitat in the long term). A limitation of an SHA is that the ITPs issued through an SHA must be issued to the fee title/landowner, so any actions permitted must be through the landowner and not through a management agency. In addition, there are no SHA implementing regulations for NMFS; thus, it is not currently possible to obtain an SHA for species managed by NMFS (USFWS 2000; e.g., listed salmonids). However, it is worth exploring the potential for an SHA for effects on listed terrestrial species managed by USFWS if incidental take cannot be avoided because the general effects on the species will be beneficial in the long term.

5.1.4 California Endangered Species Act Permitting

Although CESA permitting in conjunction with ESA permitting could be necessary, the CESA permitting mechanism appropriate for Master Plan actions is not dependent upon the project activity, entity, or agency carrying out the project as is the case for ESA permitting (i.e., ESA permitting mechanisms are largely determined based on whether project actions have a federal nexus). Thus, any non-federal or federal entity or

agency is eligible to apply for any type of CESA permit, including a Fish and Game Code Section 2081 ITP, Fish and Game Code 2080.1 Consistency Determination, or NCCP.

In order to obtain a 2081 ITP for a state listed species, the impacts of the authorized take must be minimized and fully mitigated, and adequate funding must be provided to implement and monitor the minimization and mitigation measures. However, many of the Master Plan actions, particularly the short-term actions such as construction of facilities, could likely be conducted without resulting in incidental take of state listed species by avoiding construction in areas where listed species potentially occur. This would eliminate the need to mitigate these actions or provide long-term funding for mitigation.

Section 2080.1 Consistency Determinations can be done based on a completed ESA Section 7 consultation only for species that are both state and federally listed. Unlike Section 2081 ITPs, Section 2080.1 Consistency Determinations do not require independent California Environmental Quality Act (CEQA) review (although the projects themselves typically go through CEQA review). Recently, the CDFW has been using 2080.1 Consistency Determinations less often for several reasons, primarily because 1) in the federal consultations, mitigations are not always appropriately defined and CDFW cannot add to the federal consultation (i.e., the federal consultation has to be complete before CDFW conducts its 2080.1 Consistency Determination); 2) in a federal consultation, plants are only included if the action jeopardizes them, which is inconsistent with CESA; 3) for CESA, incidental take must be fully mitigated, which can be a higher "bar" than "mitigation to the maximum extent practicable" under a Section 10 HCP permit or the "no jeopardy" clause under the Section 7 consultation process; and 4) adequate funding assurances must be identified for CESA. Consistency Determinations can also be conducted on an HCP for co-listed species (species that are both federally and state listed). There are a few co-listed species in the Plan area; however, it is likely that incidental take of these species can be avoided by avoiding construction in areas where listed species potentially occur.

For NCCPs, a key concern is identifying an appropriate geographic scope that addresses the NCCP Act's need to address ecosystems, landscapes, ecological processes, and communities rather than just species and habitats. Because of this, the CDFW may not allow an NCCP to be implemented for a project with a somewhat limited geographic distribution such as the Master Plan. However, incidental take of most or all state listed species can likely be avoided through avoidance and minimization measures. If a state fully protected species (e.g., ringtail [*Bassariscus astutus*], white-tailed kite [*Elanus leucurus*], golden eagle [*Aquila chrysaetos*], or American peregrine falcon [*Falco peregrinus anatum*]) may be taken and an ITP is needed, the only avenue is through a NCCP; however it is also likely that take of these species can be avoided altogether. Therefore, if a CESA permit is necessary, a 2081 ITP or 2080.1 Consistency Determination is most likely to be the appropriate permitting mechanism.

5.2 Clean Water Act Permitting

The USACE is responsible for issuing permits under Section 404 of the Clean Water Act, for activities that result in the placement of discharge into waters of the U.S.; these include wetlands, creek, rivers, and drainages, among other features. The Sacramento District of the USACE is responsible for issuing permits in Fresno County out of its South Branch. There are generally three Clean Water Act permitting options: Nationwide Permits, Individual Permits, and Regional General permits.

5.2.1 Nationwide Permit

The USACE has recently (19 March 2012) issued a new set of NWPs that are in effect until March 2019. On 16 March 2012, the Sacramento District of the USACE issued regional conditions for the new NWPs. There are 52 different NWP's covering such activities as bridge construction, boat ramps, mining activities, housing developments, maintenance, restoration, aids to navigation , mooring buoys, bank stabilization, utility line construction, clean-up of hazardous waste, road crossing, outfall structures, dredging and sediment removal, among other activities. Each NWP has specific criteria for use and specific thresholds and conditions, however, most NWPs are generally limited to activities that discharge no more than 0.5 acre of fill within wetlands and other waters, and 200-300 linear feet of impact, although some NWP's only allow 0.1 acre of impact and many other restrictions may apply including limits of cubic yardage, type of material discharged, etc.

The USACE has pre-approved numerous NWP's that can be used without notification if certain criteria are met; yet other NWP's only require notification if the discharge exceeds a certain threshold, these are termed "non-notification" NWP's and certain criteria must be met in order for an applicant to utilize such permits. The remainder require preparation and submittal of the 404 NWP permit package, which generally includes a wetlands delineation, purchase of mitigation bank credits or development of habitat restoration mitigation and monitoring plans when mitigation bank credits are not available. The time to acquire a NWP varies but generally takes between three and six months on average. It is important to note that NWP's are reauthorized every five years.

Most if not all of the activities that would occur under the Master Plan would have limited impacts on USACE jurisdictional areas and as a result would qualify for a NWP. The NWP program is designed to minimize the time and effort necessary to qualify for the permit(s) and as result is generally considered a reasonably efficient means to obtain approval to work within USACE jurisdictional areas.

5.2.2 Individual Permit

Individual permits are valid between five and ten years and are generally used for projects that require a longer permit timeline and/or exceed the maximum allowed fill under the NWP program. Individual permit application materials include preparation and submittal of a Section 404(b)(1) Alternatives Analysis. This analysis requires that applicants perform an off-site alternatives analysis (considering different locations for the improvement) and an on-site alternatives analysis (in which several different project designs for the

improvement are analyzed). The processing period for the Individual Permit is longer than a NWP, generally six to nine months, and includes preparation and issuance of a Public Notice, during which the public can review and comment on the project.

5.2.3 Regional General Permit

The USACE issues two types of programmatic permits including Regional General Permits and Programmatic General Permits.

Regional General Permits (RGP's) are permits issued by USACE Districts or Divisions that follow standard processing procedures for a group of activities within a region that are similar in nature, cause minimal environmental impacts, and reduces duplicative regulatory control by state and federal agencies. This type of permit can be issued to the general public or to specific entities such as flood control districts or city or county agencies. These permits are generally issued for specific activities such as sediment removal, mosquito abatement, or levee repair. They do not cover the broad spectrum activities anticipated for the Master Plan. For this reason, and because RGPs generally require up to two years to develop, a RGP would not facilitate implementation of the Master Plan.

The State Water Resources Control Board, through its nine California Regional Water Control Board offices (including the Region 5 Fresno Branch), issue Section 401 Water Quality Certifications, and/or Waste Discharge Requirement permits for activities that result in placement of fill materials or degradation of water quality. On 19 April 2012, the State Board issued a list of 13 different NWPs that are "blanket" certified, if certain conditions are met. These activities include some improvements that may be conducted under the Master Plan, such as construction of boat ramps. We anticipate that the vast majority of the proposed improvements under the Master Plan can be permitted via 401 Water Quality Certification using one of the various NWPs. For wetlands and other waters that are disclaimed by the USACE or for activities that have the potential to have relatively large impacts on water quality, the Water Board may elect to permit Master Plan activities via issuance of a Waste Discharge Requirement.

5.3 Streambed Alteration Agreement Permitting

Given the long-term duration of the Master Plan and the nature of the projects that will be implemented, a Master SAA is the most appropriate SAA permitting mechanism. Master SAAs allow repetitive work to be conducted without the need to repeat the application and approval process for impacts to CDFW jurisdictional habitats. In addition, the use of a Master SAA facilitates more consistent management of environmental resources and consideration of the large-scale benefits of implementation of the Master Plan.

5.4 Non-listed Species

There are a number of California species of special concern and California Native Plant Society (CNPS) rare plants that may be present in the Plan area; these species could become federally or state listed in the future

and be affected by Master Plan actions. These species cannot be permitted through a federal Section 7 consultation or Section 10 SHA but they can be included in a Section 10 HCP. At the state level, they cannot be permitted through a Section 2081 ITP, but can be included in an NCCP. Similarly, fully protected species may be present in the Plan area and cannot be permitted through Section 7 or Section 10, but can be covered under an NCCP. In order to include non-listed species in a Section 10 HCP or NCCP, they must be covered in the permitting document as if they were listed such that if they became listed in the future, an ITP could readily be issued. This can be difficult because information about the status of non-listed species and thus the potential effectiveness of mitigation measures is often unknown or limited. Further, these species will need to be considered during the CEQA/NEPA process as well, and it is likely that mitigation measures for these species will be described during CEQA/NEPA process.

Thus, the best permitting strategy is to avoid effects on these species, through pre-construction surveys and avoidance during construction of facilities, and by incorporating these species into long-term management plans. If take of these species as a result of the long-term activities can be avoided, then it would reduce the need for future ESA/CESA permitting should the species become listed.

Similarly, most of the birds present in the Master Plan area are protected by the MBTA and Fish and Game Code and may be affected by Plan actions. There is no mechanism for permitting the incidental take of these species; therefore, impacts must be avoided.

Section 6.0 Recommended Permitting Strategy

Biological resources regulatory compliance on the individual properties and projects that will eventually make up the San Joaquin River Parkway could be facilitated by creating a "conservation strategy" that provides a summary of the conservation priorities that would be utilized by the SJRC during project-level planning and describes not only a broad, coordinated approach to conservation efforts throughout the Plan area but also addresses project-level avoidance, minimization, and mitigation for potential impacts on species and habitats, detailing the pre-construction survey methodology, avoidance and minimization measures, approach to habitat compensation, and best management practices that will be utilized to avoid take as part of Master Plan actions. In conjunction with the conservation strategy, the Plan area-wide inventory of biological resources contained in the EIR for the Master Plan would allow proposed projects to be reviewed by resource agencies with a standardized regional context and with consistency across multiple projects.

Subsequently, for individual properties, more specific "management plans" could be created that 1) include site-specific information and survey results about listed species occurrence and 2) tailor conservation measures for specific properties and related projects. The conservation strategy would be used as a framework to assist in preparation of individual management plans and to ensure consistency in conservation measures throughout the Plan area. Additionally, as described below, the conservation strategy may be used to facilitate a Section 7 consultation.

An example of the conservation strategy concept is the East Alameda County Conservation Strategy (EACCS), which is being developed by federal, state, and local entities as a collaborative effort to preserve endangered species and guide long-term habitat protection for 270,000 acres in east Alameda County (ICF International 2010). The EACCS will assess areas across east Alameda County for their habitat conservation value and work with willing landowners to implement long-term conservation in the form of permanent conservation easements that would offset impacts from local land use, transportation, or other infrastructure projects. In addition to the EACCS, the USFWS has agreed to prepare a programmatic biological opinion through Section 7 consultation with the USACE for future projects in east Alameda County with the need for USACE permits. These future projects would tier off the initial BO if they qualify for permit inclusion. To qualify, conservation actions following the EACCS will need to be incorporated into the project design. Individual BOs, Section 10 HCP permits, and/or CESA ITPs may also be issued for projects in the future and it is expected that permitting for these projects will be greatly streamlined if they incorporate the EACCS in project design and implementation.

Thus, we recommend an ESA/CESA permitting approach for the Master Plan similar to the EACCS, in which a conservation strategy is used to plan and guide future project actions, avoid take, and streamline ESA/CESA permitting when take cannot be avoided. We further recommend that the Master Plan's conservation strategy be broadened to address not only federal and state listed species, but also California species of special concern, fully protected species, and birds covered under the MBTA and/or California Fish

and Game Code. The conservation strategy should establish guidelines for how biological resources in the Plan area are to be conserved through the broad goals and objectives of the Master Plan, project permitting process, and through non-regulatory Master Plan actions.

In order to maximize the ability of the conservation strategy to streamline the permitting process, the SJRC should seek the participation of the resource agencies in the development of the conservation strategy so that clear standards for lawful incidental take of species listed as threatened or endangered pursuant to the federal ESA and the CESA, and clear habitat compensation for focal species and sensitive habitats, can be established and agreed to by the SJRC and all participating resource agencies far in advance of the initiation of individual projects. The standardized avoidance, minimization, and mitigation measures for impacts on biological resources in the Plan area would give the SJRC more certainty of regulatory expectations and costs, and provide the resource agencies with greater certainty that the proposed project mitigation measures will adequately address project impacts, shortening the permit negotiation process.

We do not recommend pursuing a SHA, HCP, or programmatic Section 7 consultation with the USFWS for federally listed species in the Plan area because impacts to terrestrial species will generally be avoidable and it is not currently possible to obtain a SHA for species managed by NMFS. Moreover, the unintentional take of Central Valley spring-run Chinook salmon within the nonessential experimental population below Friant Dam caused by otherwise lawful activities is likely to be exempt from the take prohibitions under section 9.

Most if not all of the projects that would occur under the Master Plan would qualify for a NWP. Because all Master Plan activities are proposed to occur within and adjacent to the San Joaquin River, it is unlikely that the USACE would disclaim any features; thus, we anticipate that the Water Board approach to permitting would be through issuance of a Section 401 Water Quality Certification for the activities allowed under the NWP program. Thus, because the NWP program is generally considered a reasonably efficient means to obtain approval to work within USACE jurisdictional areas, we recommend that individual projects be permitted under the NWP program, if applicable, and a regional general or individual permit not be pursued for Master Plan projects. As mentioned above, many of the proposed activities may have reduced reporting requirements or may be eligible for expedited permit processing through various programs now in place with the Sacramento District of the USACE.

Further, we recommend that a Master SAA be obtained. This agreement would result in substantial time and cost savings and provide a measure of surety that proposed projects will be approved by CDFW and mitigation requirements will not substantially differ between projects.

This approach is expected to provide the following advantages (1) streamline and increase the predictability of the permitting process, reducing the overall cost and allowing the focus to be on conservation within the Plan area; (2) facilitate the consideration of Plan area-wide benefits of implementation of the updated Master Plan during the permitting process; and (3) facilitate the consideration of mitigation opportunities on a Plan area scale that will result in more productive conservation than a project-by-project mitigation process.

In conclusion, the recommended biological resources permitting strategy for the Master Plan includes:

1. Create a framework "conservation strategy" for the entire Plan area that provides a broad, coordinated approach to conservation efforts for the Master Plan as well as addressing project-level mitigation for potential impacts on species and habitats. The conservation strategy should:
    a. Set priorities for mitigation and conservation to contribute to the protection of focal species[1] and sensitive habitats in the Plan area.
    b. Establish a set of standards to preserve, enhance, restore, manage, and monitor focal species and the habitats and ecosystems upon which they depend.
    c. Emphasize avoidance of incidental take of federally and state listed species for both short-term and long-term actions through pre-construction surveys and avoidance and minimization measures.
    d. Capitalize on existing stewardship practices and benefits derived from the implementation of the Master Plan. This would including habitat restoration projects and land management activities designed to enhance the biological resources of Conservancy Lands.
    e. Establish best management practices to be implemented at the Project level to avoid and minimize impacts on sensitive species and their habitats.
    f. Integrate migratory bird conservation principles, measures, and practices into Master Plan activities, and avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources.
    g. Develop a Master SAA with the CDFW to streamline the permitting of projects and Master Plan implementation

[1] The conservation strategy should address the conservation of wide range of natural resources, including native species that are common and rare, while focusing conservation efforts on species that are the focus of standard regulatory processes.

Section 7.0 Literature Cited

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Appendix A. Special-status Species, Status, and Potential Occurrence in the Study Area

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Name	Status*	Habitat	Potential for Occurrence
Federal or State Endangered or Threatened Species			
Succulent's owl's-clover (*Castilleja campestris* ssp. *succulent*)	FT, SE CNPS 1B.2	Moist places in vernal pools and valley and foothill grassland, often in acidic soils.	**Absent.** Vernal pools are not known to occur within the study area. However, suitable habitat may be present immediately adjacent if vernal pools occur on the bluffs above the river corridor. The nearest recorded occurrence of this species is located approximately 0.1 mi east of the study area, about 0.25 mi east of Friant Road, and 0.5 mi south of Little Dry Creek (CNDDB 2012). Designated **critical habitat** is located within the study area on the west side of the river.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	SE CNPS 1B.2	Vernal pools and freshwater marshes and swamps on clay soils, sometimes on lake margins.	**May be Present.** Suitable habitat is not present in the Plan area but may be present within the larger study area (i.e., on the margins of Millerton Lake). Suitable habitat may also be present immediately adjacent to the study area on the bluffs above the river corridor).
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT, SE CNPS 1B.1	Vernal pools.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).
Hairy Orcutt grass (*Orcuttia pilosa*)	FE, SE CNPS 1B.1	Vernal pools.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).Designated **critical habitat** is located to the west of the river, encompassing a portion of the study area.
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	FE, SE CNPS 1B.1	Clay soils, predominantly on northern slopes of knolls, also along shady creeds or near vernal pools in valley and foothill grassland and cismontane woodland.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent(i.e., in the grasslands on the bluffs above the river corridor where clay soils are present). The nearest recorded occurrence of this species is located approximately 0.2 mi east of the study area near the eastern terminus of North Fork Road (CNDDB 2012).
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, SE CNPS 1B.1	Grassy valley floors and rolling foothills in heavy clay soils in valley and foothill grassland and cismontane woodland.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., grasslands on the bluffs may provide suitable undisturbed heavy adobe clay soils).
Green's tuctoria (*Tuctoria greenei*)	FE, SR CNPS 1B.1	Dry bottoms of vernal pools in open valley and foothill grassland.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).

Appendix A. Special-status Species, Status, and Potential Occurrence in the Study Area

Name	Status*	Habitat	Potential for Occurrence
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Grass or mud-bottomed swales, earth slump or basalt-flow depression pools in grasslands.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., if vernal pools are present on the bluffs above the river corridor). There are CNDDB records of this species within 0.3 mi of the study area. Critical habitat has been designated near the study area on the east side of Friant Road north of Little Dry Creek.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Grass or mud-bottomed swales in grasslands on old alluvial soils underlain by hardpan.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., if vernal pools are present on the bluffs above the river corridor). However, there are no records of the species within or adjacent to the study area, despite numerous surveys in potentially suitable habitat (as evidenced by the many records of vernal pool fairy shrimp in the Project vicinity)(CNDDB 2012). The nearest extant record is located approximately 3.5 mi to the northeast (CNDDB 2012). Thus, although the potential presence of the species within the study area cannot be ruled out, it is considered unlikely.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Elderberry shrubs associated with riparian forests that occur along rivers and streams.	**Present.** These beetles and their exit holes have been confirmed on at least 2 sites in the study area (CNDDB 2012).
Central Valley Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	FT, ST	Spawns in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating to the ocean.	**Absent.** Chinook salmon have been extirpated from the San Joaquin River upstream from the Stanislaus River (Moyle 2002). However, Spring-run Chinook salmon are being reintroduced to the San Joaquin River as a non-essential experimental population under Section 10(j) of FESA and will likely become established in the study area (SJRRP 2011).
Central Valley steelhead (*Oncorhynchus mykiss*)	FT	Spawns in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating to the ocean.	**Absent.** Steelhead have been extirpated from the San Joaquin River upstream from the Stanislaus River (Moyle 2002). However, steelhead will likely occur in the study area in the future as a result of the San Joaquin River Restoration Program (SJRRP 2011).

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Name	Status*	Habitat	Potential for Occurrence
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands.	**May be Present.** Suitable temporary pools may be present within the Plan area and suitable vernal pools may be present immediately adjacent to the study area (i.e., if vernal pools occur within the grasslands on the bluffs above the river corridor). In addition, vegetation communities within the Plan area provide suitable upland dispersal and refugial habitat for the species. Critical habitat borders the study area north of the Hwy 41 bridge in Madera County and is very near the study area on the east side of Friant Road from Friant Dam wrapping around the town of Friant . There are CNDDB records within 0.5 mi of the study area.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE, FP	Open, sparsely vegetated areas within non-native grassland, valley sink scrub, valley needlegrass grassland, and alkali playa communities on the floor of the San Joaquin Valley.	**Absent.** Suitable habitat is not present in the study area.
Giant garter snake (*Thamnophis gigas*)	FT, ST	Freshwater marshes and low gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	**Absent.** The study area is not within the species' known range.
Bald eagle (*Haliaeetus leucocephalus*)	SE (nesting and wintering)	Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags and large trees for perching and nesting.	**Absent as Breeder.** Bald eagles winter throughout the study area. They are most common where waterfowl, especially American coots, congregate on open water such as the larger gravel ponds.
Swainson's hawk (*Buteo swainsoni*)	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; forages in adjacent livestock pasture, grassland, or grain fields.	**Absent as Breeder.** Has been observed in migration and the nearest confirmed nest is just within 5 mi to the northeast along Hwy 41 near Road 208.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, ST	Open, dry grasslands, shrub-steppe and alkali shrublands; also in agricultural landscapes including orchards, fields and sometimes near adjacent developed areas.	**Absent.** Suitable habitat is absent from the study area. The 2 CNDDB (2012) records adjacent to the study area are from the early 1990s and are the result of drive-by vehicle sightings that were not confirmed. No modern, confirmed records are present in the vicinity of the study area.
California Species of Special Concern			

Appendix A. Special-status Species, Status, and Potential Occurrence in the Study Area

Name	Status*	Habitat	Potential for Occurrence
Kern brook lamprey (*Lampetra hubbsi*)	CSSC	Rivers, canals, and sloughs in the Kern and San Joaquin River drainages.	**May be Present.** There appears to be suitable habitat in the study area; however, surveys in reaches of the San Joaquin River below Friant Dam have not detected the adult form of Kern Brook lamprey.
San Joaquin Roach (*Lavinia symmetricus ssp.*)	CSSC	Small warm intermittent streams and isolated pools in tributaries of the San Joaquin River from the Consumnes River south.	**May be Present.** It is known from tributaries above Friant Dam and could potentially occur below the dam. It is unlikely, though, to be a regular part of the fish community in the study area.
Hardhead (*Mylopharodon conocephalus*)	CSSC	Sacramento-San Joaquin and Russian River drainages.	**May be Present.** Sampled in very low numbers in 1981, though now thought to be absent from the Valley reaches of the San Joaquin River (Moyle 2002).
Western spadefoot (*Scaphiopus hammondii*)	CSSC	Grasslands and occasionally valley-foothill hardwood woodlands; vernal pools or similar ephemeral pools required for breeding.	**May be Present.** Suitable habitat may be present if seasonal pools occur within the grasslands in the study area. There are CNDDB records within 0.5 mi of the study area.
Silvery legless lizard (*Anniella pulchra pulchra*)	CSSC	Areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland; or sycamores, cottonwoods, or oaks that grow on stream terraces.	**May be present.** Appropriate habitat is present in the study area and it is known from other reaches of the San Joaquin.
Western pond turtle (*Actinemys marmorata*)	CSSC	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Requires an upland oviposition site in the vicinity of the aquatic site.	**Present.** Have been observed in gravel ponds and other backwaters within the study area.
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	**Absent as Breeder.** Northern harriers have been confirmed in the winter though nesting has never been confirmed.
Burrowing owl (*Athene cunicularia*)	CSSC	Grasslands and ruderal habitats.	**May be Present.** There is suitable habitat for burrowing owls in the grassland portions of the study area.

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Name	Status*	Habitat	Potential for Occurrence
Long-eared owl (*Asio otus*)	CSSC (nesting)	Riparian bottomlands with tall, dense willows and cottonwood stands (also dense live oak and California Bay along upland streams); forages primarily in adjacent open areas.	**Present.** Long-eared owls have been confirmed in the winter though nesting has never been confirmed, though there is suitable nesting habitat in the study area.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	**Present.** Has been observed nesting on the study area.
Yellow warbler (*Setophaga petechia*)	CSSC (nesting)	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**Absent as Breeder.** The quality of the riparian habitat and more importantly the prevalence of brown-headed cowbirds in the study area eliminate yellow warblers as potential nesters, though they are quite common in spring and fall migrations.
Yellow-breasted chat (*Icteria virens*)	CSSC (nesting)	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**Absent as Breeder.** The quality of the riparian habitat and, more importantly, the prevalence of brown-headed cowbirds (*Molothrus ater*) in the study area eliminate yellow warblers as potential nesters, though they are quite common during spring and fall migrations.
Tricolored blackbird (*Agelaius tricolor*)	CSSC (nesting colony)	Breeds near fresh water in dense emergent vegetation.	**Present.** Nesting colonies have been confirmed in reclaimed gravel ponds.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	CSSC (nesting)	Nests in freshwater marshes.	**Present.** Has been observed in nesting season in marsh habitat on gravel company property.
Grasshopper sparrow (*Ammodramus savannarum*)	CSSC (nesting)	Can occur in a variety of grassland habitats, but generally prefers short to middle-height, moderately open grasslands with scattered shrubs. Grasshopper sparrows are sparsely distributed in the Sierra Nevada Foothills and typically do not use the same site year to year.	**May be Present.** There is marginally suitable habitat in the grassland habitats of the study area.
Western red bat (*Lasiurus blossevillii*)	CSSC	Prefers sites with a mosaic of habitats that includes trees for roosting and open areas for foraging. Strongly associated with riparian habitats.	**May be Present.** There appears to be suitable habitat in the riparian habitats of the study area.

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Name	Status*	Habitat	Potential for Occurrence
Spotted bat (*Euderma maculatum*)	CSSC	Ponderosa pine region of the western highlands. Prefers cracks/crevices of high cliffs and canyons for roosting.	**May be Present**. Habitat in the study area appears to be marginal for this bat, though there is a CNDDB (2012) record from 1970 of an individual with rabies collected at the San Joaquin fish hatchery.
Townsend's western big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. The species forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting, maternity and hibernacula sites free from disturbance by humans.	**May be Present.** The study area is marginal for this bat, as appropriate breeding sites appear to be rare, though this bat is likely to at least occasionally forage on the study area.
Pallid Bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in buildings, large oaks or redwoods, rocky outcrops and rocky crevices in mines and caves.	**May be Present.** The study area is marginal for this bat as appropriate breeding sites appear to be rare, though this bat is likely to at least occasionally forage on the study area.
Western mastiff bat (*Eumops perotis*)	CSSC	Found in central and south coastal California. Roosts primarily in cliffs or high buildings.	**Absent as Breeder.** The study area is marginal for this bat as appropriate breeding sites appear to be absent, though this bat is likely to at least occasionally forage in the study area.
American badger (*Taxidea taxus*)	CSSC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	**Present.** There is suitable habitat for badgers, particularly in the grassland portions of the study area and they have been observed along Hwy 99 within the study area.
State Protected Species, CEQA Rare Species, and CNPS Species			
Vernal pool smallscale (*Atriplex persistens*)	CNPS 1B.2	Alkaline soils in vernal pools.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).
Dwarf downingia *Downingia pusilla*	CNPS 2.2	Vernal lake and pool margins (mesic sites) in valley and foothill grassland.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).
Spiny-sepaled button-celery *Eryngium spinosepalum*	CNPS 1B.2	Vernal pools within valley and foothill grassland some sites on granitic clay soils.	**Absent.** Suitable habitat is not present in the study area but may be present immediately adjacent (i.e., on the bluffs above the river corridor).

Appendix A. Special-status Species, Status, and Potential Occurrence in the Study Area

Name	Status*	Habitat	Potential for Occurrence
California satintail *Imperata brevifolia*	CNPS 2.1	Mesic sites, alkali seeps, and riparian areas in coastal scrub, chaparral, riparian scrub, Mojavean scrub, and meadows and seeps.	**May be Present.** The riparian scrub in the study area may provide suitable habitat for this species.
Forked hare-leaf *Lagophylla dichotoma*	CNPS 1B.1	On gravelly roadsides, loam soil, and dry clay in openings in valley and foothill grassland and cismontane woodland.	**May be Present.** Grasslands within the study area may provide suitable habitat for this species.
Madera leptosiphon *Leptosiphon serrulatus*	CNPS 1B.2	Dry slopes, often on decomposed granite in cismontane woodland and lower montane coniferous forest.	**May be Present.** Suitable habitat is not present in the Plan area but may be present within the larger study area adjacent to Millerton Lake.
Orange lupine *Lupinus citrinus* var. *citrinus*	CNPS 1B.2	Rocky, decomposed granitic outcrops, usually open areas, on flat to rolling terrain in chaparral, cismontane woodland, and lower montane coniferous forest.	**May be Present.** Suitable granitic habitat is not present in the Plan area but may be present in the larger study area along the eastern edge of Millerton Lake.
Sanford's arrowhead *Sagittaria sanfordii*	CNPS 1B.2	Standing or slow-moving freshwater ponds, marshes, and ditches; generally in marshes and swamps.	**May be Present.** Wetlands within the study area provide suitable habitat for the species.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	CNPS 1B.1	Alkaline clay in valley and foothill grassland.	**Absent.** Suitable habitat is not present in the study area. Further, the grasslands on the bluffs above the river corridor are unlikely to contain appropriate alkaline clay soils.
White-tailed kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees, forages in grasslands, agricultural fields, and marshes.	**Present.** Has been observed nesting in the study area.
Golden eagle (*Aquila chrysaetos*)	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas.	**Absent as Breeder.** Although some of the valley oak, cottonwood, and eucalyptus trees in the study area are large enough to support golden eagle nests, there is not enough open foraging habitat nearby to support nesting golden eagles. However, golden eagles have occasionally been observed in the study area outside the nesting season.