

# **HUD Tank Replacement Project**

## **Biological Assessment**

**Fresno County  
City of Firebaugh**

**July 2018**

## Summary of Findings, Conclusions, and Determinations

This Biological Assessment (BA) has been prepared by Garcia and Associates for the City of Firebaugh (City), in support of the HUD Tank Replacement Project (Project). Because the City proposes to utilize federal funds for the Project and must obtain a federal permit for work that is proposed within federal jurisdictional waters, it must also comply with federal laws.

The purpose of the Project is to improve water quality and the existing water system to provide adequate fire flows (GOUVEIA 2014) while minimizing adverse effects on the environment in the surrounding area.

The proposed Project has the potential to affect several biological resources within the Area of Potential Effect (APE), as defined in Chapter 2. Biological resources potentially affected by the proposed Project include wetlands that are suitable for one state species of concern wildlife species listed as either threatened or endangered at the federal level, based on the initial review of regional habitat and sensitive species mapping and the U.S. Fish and Wildlife Service (Service) list of candidate, proposed, threatened, or endangered species potentially occurring within the APE.

No federally or state listed plant species have the potential to occur within the APE, and the proposed Project is not expected to affect any listed plant species.

Based on the analysis in the BA, the following federally listed threatened or endangered animal species have the potential to occur within the APE: giant garter snake (*Thamnophis gigas*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

One state-listed species, the Swainson's hawk (*Buteo swainsoni*), has the potential to occur in the APE.

The following two state species of special concern have a moderate potential to occur in the APE: western pond turtle (*Emys marmorata*) and western red bat (*Lasiurus blossevillei*).

The following two bat species tracked by the California Natural Diversity Database (CNDDB) have a moderate potential to occur in the APE: hoary bat (*Lasiurus cinereus*) and Yuma myotis (*Myotis yumanensis*).

No proposed or designated critical habitat for any species occurs in the APE.

The following determinations of the potential effects of the Proposed Action have been made for the federally listed species potentially occurring within the project area:

- vernal pool fairy shrimp – unlikely to affect the species or its designated critical habitat
- Delta smelt – unlikely to affect the species or its designated critical habitat
- California red-legged frog – unlikely to affect the species or its designated critical habitat
- blunt-nosed leopard lizard – unlikely to affect the species (critical habitat has not been proposed or designated)
- giant garter snake – unlikely to affect the species (critical habitat has not been proposed or designated)
- western yellow-billed cuckoo – unlikely to affect the species or its proposed critical habitat
- giant kangaroo rat – unlikely to affect the species (critical habitat has not been proposed or designated)
- Fresno kangaroo rat – unlikely to affect the species or its designated critical habitat
- San Joaquin kit fox – may affect, but unlikely to adversely affect the species (critical habitat has not been proposed or designated)

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## **List of Abbreviations and Acronyms**

AMSL	above mean sea level
APE	Area of Potential Effect
BA	biological assessment
BMP	best management practice
CDFG <sup>1</sup>	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Firebaugh
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
HM	Habitat management
HUD	US Department of Housing and Urban Development
IPaC	US Fish and Wildlife Service Information for Planning and Consultation
mph	miles per hour
NEPA	National Environmental Policy Act
PER	Preliminary Engineering Report
ppt	parts per thousand
Service	U.S. Fish and Wildlife Service

<sup>1</sup> The former name of what is now the California Department of Fish and Wildlife, used in this report only to represent publications published under that name before the name change in 2012.

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## **Chapter 1. Introduction**

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The City is planning to replace the HUD Tank, pump station and transmission line (Figure 1) because the existing water system does not provide adequate fire flows, and its water quality is marginal (GOUVEIA 2014). The purpose of this Biological Assessment is to provide technical information and to review the HUD Tank Replacement Project (Project) in Firebaugh, Fresno County, California in sufficient detail to determine to what extent the proposed Project may affect threatened, endangered, or proposed species. This BA establishes conservation measures based on avoidance and minimization measures developed to reduce both direct and indirect effects to threatened, endangered, and sensitive species in the APE as a result of Project implementation. This BA is prepared in accordance with legal requirements found in Section 7 (a)(2) of the Federal Endangered Species Act (16 U.S.C. 1536(c)). This BA includes the terms and conservation measures that will serve as the basis for a Biological Opinion to be prepared by the US Fish and Wildlife Service (Service).

**Figure 1      Regional Location Map**

## **1.1. Project Description**

A Preliminary Engineering Report (PER) has been prepared for the proposed Project (GOUVEIA 2014). The PER describes the conceptual plans for proposed project, which includes the following components and equipment:

- Replace the HUD Tank with a new 750,000-gallon at-grade tank
- Install a 3.0 MGD booster pump station
- Replace the transmission line from the tank site to the North side of the Delta-Mendota Canal on Washoe Avenue
- Demolish, abandon and dispose existing facilities
- Install temporary pump station
- Standby generator
- Electrical and controls with SCADA integration
- Site piping and valving
- Electromagnetic flowmeters
- Site fencing and gates
- Site lighting
- 12-inch transmission line from HUD tank to North side of DMC
- Pipe crossings at Washoe Ave and CCID canal

Figure 2 shows the locations of the existing HUD Tank and the alignments of the existing transmission and distribution lines that will be replaced. The new lines will be installed within or adjacent to existing roads. The exaction location of these alignments cannot be determined without further site investigations because as-built drawings for the existing system are not available (GOUVEIA 2014).

**Figure 2      Project Area**

11x17

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### **1.1.1. Conservation Measures**

Recommended conservation measures specific to the Project are described below.

#### **1.1.1.1. GENERAL CONSERVATION MEASURES**

1. Each non-agricultural vegetated area outside of the project footprint would be delineated as an Environmentally Sensitive Area (ESA) and depicted as such on design plans. All parties in conjunction with this operation would strictly avoid these areas. No construction activities, materials, or equipment would be permitted in the ESA(s). The boundaries of the ESA(s) would be fenced with orange plastic snow fencing. Construction work areas would be clearly marked in the field and confirmed by the biologist prior to habitat clearing, and all fenced boundaries would be maintained throughout the construction period. The ESA fencing would be promptly removed at the conclusion of construction activities (assumed to be before the removal of BMP fencing).
2. The City would designate a Service-approved biologist who would be responsible for overseeing monitoring and compliance with protective measures for the biological resources. The biologist should be familiar with the life history and ecology of the flora and fauna potentially present within the Project site, including the giant garter snake and the San Joaquin kit fox. The biologist should be familiar with field techniques, to include handling of species, as well as construction techniques relative to the project types proposed. A section 10(a)(1)(A) permit could be necessary for the handling of federally listed species. The biologist would maintain communications with the appropriate personnel (i.e., project manager) to ensure that issues relating to biological resources are appropriately and lawfully managed. The biologist would also be present to ensure compliance with all conservation measures. The monitoring biologist should submit reports that document compliance with these measures to the Service upon request or, at a minimum, included in the end of the year report. The applicant would submit the biologist's name, address, telephone number, and work schedule for the project to the Service at least 15 days prior to initiating project impacts. The Service will review all submitted information within 15 days of being received. If the Service has not responded within 15 days, concurrence can be assumed. In addition, the biologist should perform the following duties:
  - a. Be onsite during all vegetation clearing/grubbing and weekly during project construction in upland/riparian habitat to be impacted.
  - b. Inspect the fencing and erosion control measures of all project areas



(including preservation/restoration/creation sites) a minimum of once per week. Particular attention should be made immediately before and after rain events to ensure that any breaks in the fence or erosion control measures are repaired.

- c. Train all contractors and construction personnel on the biological resources associated with this project and ensure that training is implemented by construction personnel. At a minimum, training would include (1) the purpose for resource protection; (2) a description of the sensitive species and their habitats; (3) the conservation measures in the biological opinion that should be implemented during project construction, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (4) environmentally responsible construction practices; (5) the protocol to resolve conflicts that may arise at any time during the construction process; and (6) the general provisions of the FESA and CESA, the need to adhere to the provisions of the FESA and CESA, and the penalties associated with violating the FESA and CESA.
  - d. Ensure that any measures developed in coordination with the Service to avoid all impacts to all encountered sensitive species as well as other nesting birds are implemented.
  - e. Halt work, if necessary, and confer with the Service and/or CDFW to ensure the proper implementation of species and habitat protection measures. The biologist would report any breach of the conservation measures within this assessment to the Service and/or CDFW within 24 hours of its occurrence.
  - f. A final yearly report would be prepared and submitted to the Service and would include as-built construction drawings with an overlay of habitat that was impacted and avoided; a summary of compliance with conservation measures, reasonable and prudent measures, and term and conditions; a summary or accounting of the acreages and applicable habitat types impacted; photographs; and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conditions of this biological opinion was achieved.
3. Dewatering may be required for work in wetlands. If dewatering is conducted, either a pump would move water to an upland disposal site, or a sediment basin or other structure would be used to collect and treat the water. If applicable, a National Pollutant Discharge Elimination System permit could be required. If not

applicable, the water returned to the waterway should be equivalent in basic parameters (e.g., turbidity, total suspended solids) as that in the wetland during normal conditions.

4. Project-related vehicles will observe a 15 mph speed limit in all project areas, except on City and County roads and State highways.
5. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes at the Project. This limitation will be communicated to any contractors through use of Special Provisions included in the bid solicitation package. Plastic monofilament netting (erosion control matting) or similar material shall not be used in construction areas because small animals, including special-status species may become entangled or trapped in it.
6. The applicant would ensure that all temporary irrigation is for the shortest duration possible, and that no permanent irrigation is used for landscape or habitat creation/restoration/enhancement.
7. Appropriate BMPs would be used to control dust, erosion, and sedimentation. Sediment or debris would not be allowed to enter the waterways unless approval is granted from the appropriate regulating agencies.
8. BMPs to address erosion and excess sedimentation would be incorporated into the project plans. Measures that would be implemented during construction include portable concrete washouts, temporary fencing, drainage inlet protection, fiber rolls, gravel bags, temporary construction entrances, and any other procedures deemed appropriate by Caltrans.
9. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance would be restricted to designated areas that are a minimum of 100 feet from wetlands or drainages. Such designated areas would be surrounded with berms, sandbags, or other barriers to further prevent accidental spill of fuel, oil, or chemicals. Any accidental spills would be immediately contained, cleaned up, and properly disposed.
10. All debris from bridge decks or columns would be caught using tarps or other measures, so that debris does not fall into the ESAs or waterways.
11. Any night lighting needed for any activities associated with a project would be selectively placed, shielded, and directed away from all ESAs.
12. Any vegetation requiring pruning and not removal would be pruned to accomplish the necessary task and an effort would be made to promote the maximum amount

- of resprouting. All areas where vegetation would be removed would be revegetated with native species similar to those removed.
13. To avoid attracting predators, the Project site would be kept as clean of debris as possible. All food-related trash items would be placed in sealed containers and regularly removed from the site.
  14. Pets or firearms would not be allowed on the Project site.
  15. Any impacts to canals or irrigation ditches with emergent or aquatic vegetation shall implement the following measures to avoid potential impacts to giant garter snake (USFWS 1997) and western pond turtle:
    - a. A pre-construction survey for giant garter snake and western pond turtle will be conducted 24 hours prior to construction and if there is a lapse of 14 days the survey should be re-conducted.
    - b. If a giant garter snake is detected during the pre-construction survey, no construction will take place within suitable habitat. The City will contact USFWS and no work within suitable habitat will take place without authorization from USFWS.
    - c. If a western pond turtle is detected during the pre-construction survey, no construction will take place until the turtle has left the work area on its own volition. If the turtle does not leave the work area within 48 hours, it may be relocated by a biologist approved by CDFW.
    - d. Any dewatered areas will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling the area.
    - e. Construction activities in suitable giant garter snake habitat will be limited to their active season to avoid injuring them (May 1 through October 1), to the extent feasible.
    - f. Emergent vegetation will be manually removed, and if feasible, all construction should be conducted outside a 200 feet buffer from potential habitat.

### ***Conservation Measures for Permanent Impacts***

The following apply as offsetting conservation measures for permanent impacts.

1. Wetland habitat would be offset at a 3:1 ratio with any combination of offsite preservation, creation, or restoration of native habitat.
2. All Federal waters would be offset following the requirements of the Regional Water Quality Control Board and US Army Corps of Engineers (Corps).

3. Nonnative grassland habitat would be offset at a 0.5:1 ratio with any combination of offsite preservation, creation, or restoration of native habitat.
4. If offsetting measures for permanent impacts include enhancement, restoration, or creation of habitat (unless mitigation is proposed within a Service approved mitigation site), a plan outlining the details and implementation schedule of all enhancement, restoration, and creation to offset permanent impacts to vegetation would be prepared. The plan should be submitted to the Service for review and approval at least 90 days prior to planting. All enhancement, restoration, and creation activities to offset permanent vegetation impacts should commence the first late-summer/fall/winter season prior to or concurrently with the start of the work. The latest any offsetting enhancement, restoration, or creation activities could occur would be the first late-summer/fall/winter immediately after project activities have been initiated. The plan should include:
  - a. A five-year maintenance and monitoring program that would be implemented for the created, enhanced, and/or restored habitats.
  - b. If established performance criteria are not met, the proponent would prepare an analysis of the cause(s) of failure and, if deemed necessary by the Service, propose remedial actions. If any of the enhanced/restored/created habitats have not met a performance criterion during the initial five-year period, the work proponent's maintenance and monitoring obligations would continue until the Service deemed the enhancement/restoration successful or contingency measures were implemented.
  - c. Reports that assess both the attainment of yearly success criteria and progress toward the final success criteria would be included in the yearly project reporting document.
5. The following measures would be implemented at all offsite enhancement, restoration, and creation sites to avoid and minimize effects to listed species and migratory birds during the five-year restoration period:
  - a. Any construction-related activities would avoid the breeding/mating season (February 1–September 30).
  - b. If maintenance and monitoring activities are conducted between February 1 and September 30, a qualified biologist would conduct a habitat assessment and any necessary subsequent protocol surveys to determine the presence or absence of listed species and migratory birds prior to the start of proposed activities.
    - i. If nesting birds are onsite, no maintenance activities would be conducted within 100 feet of a nest (buffer zone). If workers need to

- encroach into the 100-foot buffer zone, then the City and the Service would be notified immediately. Prior to maintenance workers accessing the 100-foot buffer zone, the City and the Service would determine the most appropriate timing and methods to avoid causing harm to the nest and/or the nesting pair.
- ii. If listed species are onsite, the Service and CDFW, as appropriate, should be contacted to determine the benefit of continuing the maintenance and monitoring activities during the breeding/mating season.
  - c. An education program would be implemented by the project proponent to ensure that all enhancement, restoration, and creation site maintenance workers understand the work restrictions and are aware of the above described conservation measures.
6. Some of the drainage ditches and irrigation canals, and associated wetlands, in the Study Area are potentially regulated by the Corps as wetlands or other waters of the United States under Section 404 of the Clean Water Act. The extent of federally protected wetlands or waters in the APE is not known at this time. If avoidance of wetlands is not possible, prior to the implementation of the proposed project, a formal wetland delineation shall be conducted in the Project area to determine the extent of jurisdictional wetlands and other waters that may be impacted by the proposed project. Ditches and irrigation canals in the Project area should be considered on a case by case basis to determine their jurisdictional status.
7. Work within areas defined as waters of the U.S. that includes placement of fill will require a Clean Water Act Section 404 permit from the Corps. All work proposed in jurisdictional waters of the U.S. will be authorized by permits from the Corps. In areas where project activities are temporary in nature, jurisdictional wetland and other waters of the U.S. will be restored to their condition prior to disturbance. In areas where permanent disturbance to jurisdictional waters or wetlands will occur, the City will identify if potential mitigation sites are present within close proximity to the area of disturbance and will construct new or restore degraded wetlands. If waters or wetlands cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of waters or wetlands will be equivalent to the nature of the habitat lost and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set

aside in perpetuity for habitat use. Mitigation ratios to achieve the “no net loss” standard will be determined in consultation with the Corps.

8. The City would ensure that long-term management of all offsite enhancement, restoration, and creation sites occurs. Within three months of the acquisition of any parcel or easement, a draft management plan would be developed in coordination with the Service. The plan should be finalized within six months and implemented immediately following final signoff. If the conservation sites are transferred to a third party for long-term management, then an endowment with sufficient funds (determined using the PAR system or a PAR-like system) would be established subject to availability of funds, unless otherwise negotiated with the receiving party.
9. All habitats to be restored, enhanced, created and/or preserved outside of the right-of-way, as stated above, would be managed and preserved in perpetuity. The project proponent would ensure there is a perpetual biological conservation easement over all properties used to offset impacts addressed in this Assessment and these lands would be managed according to a Service-approved Long-Term Management Plan. The perpetual conservation easement and Long-Term Management Plan would be submitted to the Service prior to the start of any restoration, enhancement, or creation activities.

#### ***Conservation Measures for Temporary Vegetation Impacts***

The following apply as offsetting conservation measures for temporary impacts.

10. Any planting stock to be brought onto the project site for habitat creation/restoration/enhancement shall be certified as weed-free.

#### ***Giant Garter Snake Conservation Measures***

GGs1 Implement *Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake (Thamnophis gigas) Habitat*. (Appendix C).

#### ***San Joaquin Kit Fox Conservation Measures***

SJKF1 Implement the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance* (Service 2011; Appendix F).

#### ***Western Pond Turtle Conservation Measures***

- a. WPT1 A qualified biologist shall be on call during all activities, including groundbreaking, earthmoving, and construction activities that could result in



the mortality or injury of western pond turtles.

- b. If at any time a pond turtle is discovered in the construction area by the on-call biologist or anyone else, the on-call biologist shall move the animal to a safe location in suitable aquatic habitat outside of the impact area. The biologist shall monitor translocated animals until safe from induced exposure to predators or other dangers.
- c. Because pond turtles may take refuge within and under cavity-like and den-like structures, such as pipes, and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the on-call biologist and/or the construction foreman/manager for these animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a pond turtle is discovered inside or under a pipe by the on-call biologist or anyone else, the on-call biologist shall translocate the animal as previously described.
- d. To prevent inadvertent entrapment of pond turtles during construction, the on-call biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than one-foot deep are completely covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the on-call biologist and/or construction foreman/manager. If at any time the on-call biologist or anyone else discovers a trapped turtle, the on-call biologist shall translocate the turtle as previously described.
- e. To eliminate an attraction for the predators of pond turtles, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.
- f. If a pond turtle or any turtle that construction personnel believe may be a pond turtle is encountered during project construction, the all work that could cause harm to the turtle shall be halted until the turtle moves, of its own volition, out of the work area and out of harm's way. Alternatively, the qualified biologist may relocate the turtle out of harm's way and into suitable aquatic habitat, as allowed by CDFW.
- g. The on-call biologist shall translocate the turtle as previously described.

### **Swainson's Hawk Conservation Measures**

**SWHA1** Following the methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC 2000 [Appendix D]), a qualified ornithologist shall conduct surveys during the Swainson's hawk breeding season (i.e., March through August) to determine the locations of active Swainson's hawk nests within a 10-mile radius of the project site. If a potentially active Swainson's hawk nest is present, the biologist will recommend the following:

- A qualified biologist knowledgeable in the biology of the Swainson's hawk shall give a class on the general ecology of the species, covering these topics: current status, general description, breeding biology, habitat use, and what to do if species is encountered. Information cards will be passed out to work crew and crew is required to sign an attendance roster.
- If a Swainson's hawk nest is known to be within 0.25 mile of a planned activity, a qualified biologist will evaluate any potential effects of the activity. If the biologist determines that the activity would disrupt nesting, a 1000-foot buffer and limited operation period during the nesting season (March 15–June 30) will be implemented. Evaluations will be performed in consultation with the local CDFW representative.

**SWHA2** Under CDFW mitigation guidelines, loss of suitable foraging habitat within 10 miles of a Swainson's hawk nest site should be mitigated by protecting or creating equally suitable foraging habitat elsewhere within the territory's 10-mile radius (CDFG 1994 [Appendix E]). The acreage of Habitat Management (HM) lands provided would be derived from the following recommendations included in the 1994 CDFG staff report:

- If the project is determined to be within one mile of an active nest tree, the project proponent shall provide one acre of HM land (at least 10 percent of the HM land requirements shall be met by fee title acquisition or a conservation easement allowing for the active management of the habitat, with the remaining 90 percent of the HM lands protected by a conservation easement acceptable to CDFW on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk) for each acre of development authorized (1:1 ratio); or
- One-half acre of HM land (all of the HM land requirements shall be met by fee title acquisition or a conservation easement (acceptable to CDFW)



which allows for the active management of the habitat for prey production on the HM lands) for each acre of development authorized (0.5:1 ratio).

- If the project is determined to be within five miles of an active nest tree but greater than one mile from the nest tree, the project proponent shall provide 0.75 acre of HM land for each acre of urban development authorized (0.75:1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to CDFW) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawks.
- If the project is determined to be within 10 miles of an active nest tree but greater than one mile from the nest tree, the project proponent shall provide 0.5 acre of HM land for each acre of urban development authorized (0.5:1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to the CDFG) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawks.
- Management Authorization holders/project sponsors shall provide for the long-term management of the HM lands by funding a management endowment (the interest on which shall be used for managing the HM lands).

### ***Special-Status Bat Species Conservation Measures***

SSBS1 Potential roosting areas on the existing water tank or medium or larger ( $\geq 12$ -inch diameter) trees or snags that are selected for trimming or removal will be inspected by a qualified wildlife biologist for presence of potential dens (cavities, entrance holes) suitable for pallid bat or western mastiff bat. Cavities suitable as special-status bat roosts will be examined for roosting bats using a portable camera probe or similar technology. If present, special-status bat roosts (including day and night roosts, hibernacula, and maternity colonies) will be flagged, and construction activities will be avoided within a minimum of 300 feet surrounding each occupied roost.

If the site is being used as a winter roost, the action will not take place during the period of hibernation (November 1 to March 1). If the site is being used as a maternity colony, the action will not occur during the maternity roost season (April 1 to August 31). If a non-maternity bat roost is found within the Project Area, the roosting bats will be safely evicted under the direction of a qualified biologist (as determined by a Memorandum of Understanding

with CDFW). The qualified biologist will facilitate the removal of roosting bats by:

- Opening the roosting area to allow airflow through the cavity or building (air flow disturbance).
- Waiting a minimum of one night for roosting bats to respond to air flow disturbance, thereby allowing bats to leave during nighttime hours when predation risk is relatively low and chances of finding a new roost is greater than in the daytime.
- Disturbing roosts at dusk just prior to roost removal the same evening to allow bats to escape during nighttime hours.

### **1.1.2. Impacts**

Since the exact location and dimensions are not known at this time, precise impact calculations cannot be determined at this time. Therefore, impacts are discussed qualitatively rather than quantitatively in this BA.

#### **1.1.2.1. PERMANENT IMPACTS**

Permanent adverse impacts that may occur with project implementation are considered irreversible losses of biological resources. Permanent impacts can result from the clearing or grading of biological resources for construction activities. Where Project features are developed (e.g., water tank, standby generator), the feature may permanently replace any vegetation community and plant species that occurred at that location, the extent of which depending on the amount of overlap between new features and existing features.

Wildlife may also be killed directly during construction activities or may die as a result of permanent loss of habitat or territory. Construction could potentially result in direct harm of giant garter snake or western pond turtle if these species are present in the wetlands near the existing HUD tank or irrigation canals. San Joaquin kit fox could be injured as a result of crushing or strikes by Project equipment or vehicles. Swainson's hawks could be adversely affected by a loss of foraging habitat. Nesting birds, including Swainson's hawk, could be disturbed by Project construction activities, which could result in mortality to individual hatchlings or complete nest failure.

Specific to the Project activities, permanent direct impacts from the proposed Action will be avoided or minimized through the implementation of the Conservation Measures identified in Section 1.1.1. However, the proposed Action has the potential to result in direct, permanent impacts to wetland and upland habitats.

The proposed project could permanently impact federally protected wetlands or waters. However, as previously discussed, the precise impacts cannot be calculated at this time. Impacts will be determined during Project implementation. However, permanent impacts to wetland habitats, should they occur, would be mitigated at a 3:1 ratio.

Since the majority of the activities proposed for coverage under this BA will be to replace existing structures and facilities, an adverse increase in indirect impacts is not expected. Permanent indirect impacts can include elevated noise from increased human activity after the implementation of the proposed Project, increased erosion, or other types of effects not directly resulting from implementation of a project.

#### **1.1.2.2. TEMPORARY IMPACTS**

Temporary impacts are associated with each of the construction activities being proposed. The majority of impacts from each of the activities will be temporary, direct impacts resulting from trench excavation for pipeline installation and grading for access and staging areas during implementation of the proposed Action. All wetlands temporarily disturbed during construction will be revegetated with native species as needed to compensate for temporary impacts. All temporary impacts to wetlands will be mitigated at a 1:1 ratio.

#### **1.1.2.3. CUMULATIVE IMPACTS**

There is a potential for the proposed Project to contribute to cumulative effects on certain species described in this report through incremental habitat conversion and degradation. Future projects resulting in adverse impacts to sensitive resources will be addressed in future NEPA and CEQA documentation and regulatory permitting, including Section 7 consultation with the Service. The City will be required to mitigate any unavoidable impacts associated with future development projects.

### **1.2. Conflicts with Ordinances or Conservation Plans**

There are no ordinances, such as tree ordinances, or conservation plans that are applicable to the proposed project. No mitigation measures are necessary.

### **1.3. Summary of Consultation to Date**

No agency consultations have occurred to date.

## **Chapter 2. Area of Potential Effect**

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The APE comprises an area extending 100 feet on each side of the pipeline alignment, the HUD tank impact area, and the access route to the HUD tank. All direct effects associated with the proposed Action will be contained within this area. The APE encompasses all staging/laydown areas. The proposed Action is not expected to result in indirect effects that would expand the APE. Best management practices would be implemented to avoid adverse effects to aquatic habitats. Changes in traffic patterns would be temporary and negligible in magnitude; noise generated by Project construction activities likewise would be temporary and negligible in magnitude. No land use changes would occur as a result of the proposed Action. The APE is depicted in Figure 3.

**Figure 3      Area of Potential Effect**

11x17

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## **Chapter 3. Study Methods**

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### **3.1. Survey Methodologies**

Prior to conducting a reconnaissance-level field survey for the Project, a query of the California Natural Diversity Database (CNDDDB; CDFW 2018) and the USFWS Information for Planning and Consultation (IPaC) online database (Service 2018). The CNDDDB query area included the APE, plus a five-mile radius. An official species list was requested and received based on the Project description and APE shapefiles (Appendix A; Service 2018). The official species list includes federally threatened and endangered plants and wildlife and proposed and designated critical habitat.

The reconnaissance survey was conducted by visually surveying the entire Project area and all publicly accessible portions of the APE using a combination of pedestrian and windshield survey methods. The survey was conducted at a reconnaissance level with the objective of confirming and/or assessing habitat conditions within the APE and the potential of the various habitats to support special-status species. The survey was conducted during on July 18, 2018 by Garcia and Associates Senior Wildlife Biologist Norman “Randy” Sisk.

### **3.2. Previous Studies**

A reconnaissance survey of the Project area was also conducted on May 28, 2014 by Michele Lee of Horizon Water and Environment in support of a biological resources report prepared for the Project (Horizon Water and Environment 2014).

## **Chapter 4. Sensitive Species Potentially Occurring in the Area of Potential Effect**

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The Project area is bounded by the Delta Mendota Canal to the south and west, and the Main Canal to the north and east. Information was obtained from the Service, including an Official Species List, comprising a list of federally listed threatened or endangered species that could be affected by the proposed Action (Appendix A). The CNDDDB was also queried for special-status species occurrences within five miles of APE (CDFW 2018). The species included in the Official Species List and the CNDDDB query collectively constitute the special-status species analyzed in this BA. A summary of the regulatory status, presence or absence of each species or its habitat, and the potential for the species to occur within the APE are presented in Table 1. A map of CNDDDB occurrences within five miles of the APE is presented in Figure 4.

There is a “moderate” potential for two federally or state-listed threatened or endangered species to occur within the APE based on interpretation of existing regional data: San Joaquin kit fox and Swainson’s hawk. The potential of nine other federally or state listed species or species that are candidates for listing is “none” or “low.” Two species of special concern, western pond turtle and western red bat, have a “moderate” potential to occur in the APE. Two bat species, hoary bat and Yuma myotis, also have a “moderate” potential to occur in the APE; these two bat species have no real special status per se but are tracked by the CNDDDB. The potential for one California Native Plant Society (CNPS) listed plant species to occur is also “low.”



Table 1. Regional Sensitive Species

Scientific Name	Common Name	Status <sup>1</sup>	General Habitat Description	Potential for Species to Occur within APE <sup>2</sup>
<b>Plants</b>				
<i>Layia munzii</i>	Munz's tidy tips	1B.2	Alkaline clay in low-lying areas and on hillsides in grasslands, valley saltbush scrub, and valley sink scrub habitats	<b>Low.</b> Only disturbed, low quality grassland habitat is absent in the APE.
<b>Invertebrates</b>				
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	Typically occurs in vernal pools with low conductivity, total dissolved solids, alkalinity, and chloride levels	<b>None.</b> Vernal pools or other seasonal pools are not present in the APE.
<b>Fishes</b>				
<i>Hypomesus transpacificus</i>	Delta smelt	FT, SE	Found in the Sacramento-San Joaquin Delta, seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt. Most often occurs at salinities < 2ppt.	<b>None.</b> No suitable aquatic habitat in the study area. Study area also located outside of the range for this species.
<b>Amphibians</b>				
<i>Rana draytonii</i>	California red-legged frog	FT, SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are often used for temporary refuges or dispersal movements.	<b>None.</b> Suitable aquatic habitat found in the APE (i.e., agricultural ponds and canals), but no upland habitat present in the vicinity of the suitable aquatic habitat. This species has been extirpated almost all former San Joaquin Valley locations (Jennings and Hayes 1994).
<b>Reptiles</b>				
<i>Emys marmorata</i>	western pond turtle	SSC	Found in and around a wide variety of permanent or nearly permanent aquatic habitats.	<b>Moderate.</b> Western pond turtles could occupy the drainage ditches near the existing water storage tank and could occasionally occur in the Main, Outside, and Mendota canals.
<i>Gambelia sila</i>	blunt-nosed leopard lizard	FE, SE, SFP	Inhabits semi-arid areas including grasslands and alkali flats. Prefers sparse vegetation in areas with abundant rodent burrows for refugia.	<b>None.</b> Suitable habitat is absent from the APE.
<i>Thamnophis gigas</i>	giant garter snake	FT, ST	Freshwater marshes and low gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	<b>Low.</b> A small area of emergent wetlands exists in the drainage ditch near the existing water storage tank; however, these wetlands are probably insufficient in size to support a population of giant garter snake, and this species is very rare in this portion of its range.

Chapter 4 Sensitive Species Potentially in the Area of Potential Effect

Scientific Name	Common Name	Status <sup>1</sup>	General Habitat Description	Potential for Species to Occur within APE <sup>2</sup>
<b>Birds</b>				
<i>Agelaius tricolor</i>	tricolored blackbird	CSE, SSC	Breeds near freshwater in dense emergent vegetation.	<b>Low.</b> Although freshwater emergent vegetation is present in the drainage ditches near the existing water storage tank, this species requires larger areas of such habitat to sustain breeding colonies.
<i>Buteo swainsoni</i>	Swainson's hawk	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	<b>Moderate.</b> A small grove of ornamental trees in the central portion of the APE, adjacent to the Outside Canal provides potential nesting habitat for Swainson's hawk. Suitable foraging habitat is present in nearby agricultural fields.
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	FT, SE	Nests in riparian forests along broad, lower flood-bottoms of large river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with an understory of blackberry and/or nettles.	<b>Low.</b> Suitable nesting habitat is absent from the APE, and the APE is far from current nesting areas; however, migrating individuals may pass through the APE on occasion.
<b>Mammals</b>				
<i>Dipodomys ingens</i>	giant kangaroo rat	FE, SE	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain & sandy loam soils for burrowing.	<b>None.</b> APE far from known core extant populations of giant kangaroo rat (USFWS 1998).
<i>Dipodomys nitratoides exilis</i>	Fresno kangaroo rat	FE, SE	Alkali sink-open grassland habitats in western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	<b>None.</b> Suitable habitat is absent from the APE.
<i>Lasiurus blossevillii</i>	western red bat	CSC	Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Roosts in trees in forests, woodlands, and mixed conifer forests	<b>Moderate.</b> This species may forage in the APE; however, roosting habitat is limited.

Scientific Name	Common Name	Status <sup>1</sup>	General Habitat Description	Potential for Species to Occur within APE <sup>2</sup>
<i>Lasiurus cinereus</i>	hoary bat	G5/S4	Prefers open habitats or habitat mosaics with cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	<b>Moderate.</b> This species may forage in the APE; however, roosting habitat is limited.
<i>Myotis yumanensis</i>	Yuma myotis	G5/S4	Prefers open forests and woodlands with sources of water over which to feed, though wide variety of habitats are used. Roosts in buildings, mines, caves, crevices, or under bridges.	<b>Moderate.</b> This species may forage in the APE; however, roosting habitat is limited.
<i>Perognathus inornatus</i>	San Joaquin pocket mouse	G2G3/S2S3	Typically found in grasslands and blue oak savannas. Requires friable soils.	<b>None.</b> Suitable habitat is absent from the APE.
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE, ST	Annual grassland with scattered shrubby vegetation in areas with loose-textured soils. Requires suitable prey base.	<b>Moderate.</b> San Joaquin kit fox individuals may occasionally disperse into the APE but are unlikely to establish dens in the APE.

<sup>1</sup> Sensitivity Status Key

<b>Federal</b>	
FE	Federally Endangered
FT	Federally Threatened
<b>State</b>	
SE	State Endangered
SFP	State Fully Protected
CSE	Candidate for State Endangered
CSE	State Species of Special Concern

**CNPS**

**1B.2**

**Global Ranking**

G2	Imperiled
G3	Vulnerable
G5	Secure

**State Ranking**

S2	Imperiled
S3	Vulnerable
S4	Apparently Secure

<sup>2</sup> Potential to Occur Key

**Moderate:** Species or sign not observed on the site, but conditions suitable for occurrence.

**Low:** Species or sign not observed on the site, conditions marginal for occurrence.

**None:** Either no suitable habitat present in the APE, the APE is outside the current range of the species, or both of these conditions are true.

**Figure 4. CNDDDB Map**

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## **Chapter 5. Results: Environmental Setting**

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### **5.1. Environmental Setting**

The Project area extends approximately 1.73 miles from its northern terminus at the water tank to its intersection with Delta Mendota Canal. It crosses a small area of emergent wetlands, agricultural fields, the Outside Canal, the lift Canal and North Washoe Avenue Right-of-Way. Several smaller irrigation canals and drainage ditches also traverse the APE.

The APE generally has a generally flat terrain, with elevations ranging from approximately 150 feet above mean sea level (AMSL) near the water tank at its north end to approximately 160 feet AMSL near the Delta-Mendota Canal at the south end.

Land use in the APE is primarily agricultural and includes rural residential and some industrial areas with agricultural businesses, including the Delta-Mendota Canal at the northwestern portion of the Study Area.

The San Joaquin Valley is a subregion of the California floristic province (Baldwin et al. 2012). The vast majority of native vegetation within the San Joaquin Valley has been disturbed or altered by agriculture and development such that few undisturbed stands of native vegetation are present within the San Joaquin Valley.

The following section includes descriptions of habitats in the APE, and representative photographs are provided in Appendix B. All habitats in the Study Area are developed or disturbed. Habitat descriptions presented below are not based on the vegetation alliances and associations in *A Manual of California Vegetation*, 2<sup>nd</sup> Edition (Sawyer et al. 2009) because habitats in the Study Area are more appropriately described by broader habitat types than alliances that are based on the dominant plant species.

### **5.2. Terrestrial Habitats**

#### **5.2.1. Agriculture**

Agricultural habitats are the dominant habitat type in the APE and include croplands, orchards, and fallow fields (Appendix B, photos 3 and 9). In Firebaugh and the Las Deltas Community, agricultural habitats include irrigated row crops such as alfalfa (*Medicago sativa*), vegetable and fruit crops, field crops, deciduous and evergreen orchards, and vineyards. Cropland agricultural habitats can provide food and cover for wildlife species, but the value of the habitat varies greatly among crop type and agricultural practices.

Grain crops provide forage for songbirds, small rodents, and waterfowl at certain times of year. Pastures, alfalfa, and row crops, such as beets and tomatoes, provide foraging opportunities for raptors such as red-tailed hawk (*Buteo jamaicensis*) and Swainson's hawk (*Buteo swainsoni*) because of the frequent flooding, mowing, or harvesting of fields, which make prey readily available. Orchards and vineyards have relatively low value for wildlife because understory vegetation growth that would provide food and cover typically are removed. Species that use orchards and vineyards, such as California ground squirrel (*Otospermophilus beecheyi*), American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), and European starling (*Sturnus vulgaris*), often are considered agricultural pests.

### 5.2.2. Ruderal/Non-Native Grassland

Ruderal/non-native grassland is located in the road shoulders, unpaved access roads, and on the banks and levees of canal/irrigation ditches, and adjacent to the HUD tank facilities (Appendix B, photos 1, 2, and 5). This habitat is limited in size and extent in the Study Area. One of the largest patches of this habitat occurs adjacent to the HUD tank facilities and between Highway 33 and railroad tracks. Vegetation is characterized by ruderal (early colonizing species) and non-native grasses and forbs.

Non-native annual grasses observed in the APE include red brome (*Bromus madritensis* ssp. *rubens*), rip-gut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), and wild oats (*Avena* sp.). Native plant species were uncommon, but patches of salt grass (*Distichlis spicata*) occur south of the HUD tank facility and in the area between Highway 33 and railroad tracks. Common ruderal species such as red-stemmed filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), common groundsel (*Senecio vulgaris*), milk thistle (*Silybum marianum*), and common bindweed (*Convolvulus arvensis*) also occur in this habitat in the Study Area.

Non-native grassland communities can support a biologically diverse set of wildlife species; however, grassland habitat in the APE is limited and is often associated with ruderal plant species, which can reduce its habitat value. Ground and fossorial nesting avian species such as northern harrier (*Circus cyaneus*), ring-necked pheasant (*Phasianus colchicus*), and western meadowlark (*Sturnella neglecta*), utilize this vegetation type for nesting, but many avian species such as the loggerhead shrike (*Lanius ludovicianus*) also use these areas for foraging, and other aspects of their life histories. Breeding loggerhead shrikes are considered California species of special concern; however, the Project Area lacks suitable breeding habitat for this species. Mammalian species that use grasslands for denning and food include San Joaquin kit fox (*Vulpes macrotis mutica*), California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and American badger (*Taxidea taxus*). Common



amphibian and reptile species associated with grasslands in the San Joaquin Valley include western toad (*Anaxyrus boreas*), western fence lizard (*Sceloporus occidentalis*), California kingsnake (*Lampropeltis californiae*), Pacific gopher snake (*Pituophis catenifer catenifer*), and northern Pacific rattlesnake (*Crotalus oreganus oreganus*).

### **5.2.3. Developed/Landscaped**

The Study Area includes paved roads, rural residences, businesses, and landscaped areas (Appendix B, photos 6–8). While the developed/landscaped habitat does not harbor many species, several that are well adapted to frequent anthropogenic disturbances include avian species such as American Robin (*Turdus migratorius*), doves and pigeons, sparrows, and Killdeer (*Charadrius vociferus*); mammalian species such as California ground squirrel, deer mouse (*Peromyscus maniculatus*), desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*); and herpetological species such as western fence lizard and northern alligator lizard (*Elgaria coerulea*).

## **5.3. Wetland and Aquatic Habitats**

Numerous irrigation canals and drainage ditches traverse the Study Area. During the July 18, 2018 reconnaissance survey, some of these features supported patches of upland vegetation or were concrete lined (Appendix B, photos 5 and 10), and some of these features were inundated and supported patches of emergent wetlands or other hydrophytic plant species (Appendix B, photos 1, 2, 4, and 10). The Delta-Mendota Canal is the largest canal in the Study Area and supports a fringe of ludwigia (*Ludwigia* sp.) along both banks. The Main Canal, along Main Street just northwest of the HUD storage tank facilities, supports a patch of bulrush (*Scirpus* sp) and hydrophytic grasses and forbs along the edges, including willow herb (*Epilobium ciliatum*), Italian ryegrass (*Festuca perennis*), rabbitfoot grass (*Polypogon monspeliensis*), and water speedwell (*Veronica anagallis-aquatica*). A drainage ditch to the west of the HUD tank facilities also supports dense cattails (*Typha latifolia* and *T. angustifolia*).

A broad range of avian, mammalian and herpetofauna (amphibians and reptiles) species utilize emergent wetland habitat as a source for nesting, denning, and overwintering within dense cattails, reeds and along the banks of this vegetation community. Several avian species common for this region of California include red-winged blackbird (*Agelaius phoeniceus*), Brewer's blackbird, song sparrow (*Melospiza melodia*), and marsh wren (*Cistothorus palustris*). Mammalian species include the California vole (*Microtus californicus*), common muskrat (*Ondatra zibethicus*), and Norway rat (*Rattus norvegicus*). Western pond turtle (*Emys marmorata*), Sierran treefrog (*Pseudacris sierra*), valley garter snake (*Thamnophis sirtalis fitchi*), and the introduced bullfrog (*Lithobates catesbeiana*) are common herpetological species that inhabit these areas.

## **Chapter 6. Results: Biological Resources**

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### **6.1. Federally Listed/Proposed Plant Species**

There are no federally listed plant species with the potential to occur within the region surrounding the proposed Project. This determination is based on information obtained through the Service and CDFW (CDFW 2018). No plant species were included in the Official Species List obtained from the Service (2018).

The species discussed below are those that are known to be listed endangered, threatened, or proposed as such by the Service and have the potential to occur within the APE. No proposed or designated critical habitat for plant species occurs within the APE.

### **6.2. Federally Listed or Proposed Animal Species**

There are nine federally listed animal species known to occur in the greater region surrounding the proposed Project (Table 1). The following discussion of sensitive species is based on information obtained through the Service and CDFW. The species discussed below are those that are known to be listed endangered, threatened, or proposed as such by the Service. All species included in the Official Species List obtained from the Service (2018) are included. No formally proposed or designated critical habitat for animal species occurs within the APE.

#### **6.2.1. Discussion of Vernal Pool Fairy Shrimp**

The vernal pool fairy shrimp is endemic to vernal pools in the Central Valley, eastern coastal foothills from Tehama to Riverside counties, and a limited number of sites in the Transverse Range and Santa Rosa Plateau of California (Eng et al. 1990, Sugnet & Associates 1993, Service 1994).

Its present distribution is restricted to vernal pools within a geographic range extending from Shasta County south through the Central Valley into Tulare County, and along the central coast range from northern Solano County south into San Benito County (Service 1994). This species, however, occurs sporadically within local vernal pool complexes.

The population survives through the dry summer months as diapaused eggs in the pool sediment. Depending upon the species, the resting eggs of fairy shrimp can survive freezing, heat, and prolonged desiccation. Some of these eggs will hatch when the pool fills with water in subsequent seasons, while the remaining eggs remain in the sediment. Eggs contained within the sediment at any given point can represent eggs deposited from

several breeding seasons. The early stages of fairy shrimp rapidly develop into adults whose populations disappear long before the vernal pools dry up. This life history contributed to the basis for a standard survey protocol developed by the Service to determine the presence or absence of the vernal pool fairy shrimp.

The vernal pool fairy shrimp is covered under the Vernal Pool Recovery Plan (Service 2005). Conservation efforts for this species include continued research and data collection, protection of existing vernal pool complexes throughout the species' range, and where possible, restoration and creation of vernal pools. Final critical habitat was designated in 2006 (Service 2006).

Suitable vernal pools or other ephemeral pools are not present in the APE, and no CNDDDB records for the species exist within five miles of the APE (CDFW 2018); therefore, vernal pool fairy shrimp are absent in the APE.

#### **6.2.2. Discussion of Delta Smelt**

The delta smelt is a small, slender-bodied fish, with a typical adult size of 2–3 inches. The delta smelt is a euryhaline fish, native only to the Sacramento–San Joaquin estuary. It ranges from the lower reaches of the Sacramento and San Joaquin rivers, through the Delta, and into the Suisun Bay (Moyle 1976). They have been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far as San Pablo Bay. Delta smelt are found in brackish water. They usually inhabit salinity ranges of less than 2 ppt (parts per thousand) and are rarely found at salinities greater than 14 ppt.

The delta smelt does not occur in reaches of the San Joaquin River near the APE or elsewhere near the APE; accordingly, there are no CNDDDB records within five miles of the APE (CDFW 2018). This species does not occur in the APE.

#### **6.2.3. Discussion of California Red-Legged Frog**

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats throughout their historic range. Larvae, juveniles, and adult frogs occur in natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits containing water, and large reservoirs (Storer 1925, Jennings 1988). The key to the presence of California red-legged frogs in these habitats is the presence of perennial, or near perennial, water and the general lack of introduced aquatic predators such as crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), bullfrogs, and centrarchid fishes such as green

sunfish (*Lepomis cyanellus*), bluegill (*L. macrochirus*), and largemouth bass (*Micropterus salmoides*).

If water at least several inches in depth is present and introduced aquatic predators are rare or absent, California red-legged frogs may be present. The habitats observed to contain the largest densities of red-legged frogs are associated with pools at least 27 inches-deep with overhanging willows (*Salix* sp.) and an intermixed fringe of narrow-leaved cattails (*Typha latifolia*), tules (*Scirpus* sp.), or sedges (*Carex* sp.) (Hayes and Jennings 1988). In addition to aquatic habitats, juvenile and adult California red-legged frogs use areas of riparian vegetation within a few yards of water. This species also uses small mammal burrows in or under vegetation, willow root wads, and the undersides of old boards and other debris within the riparian zone.

Although suitable habitat is present in the drainage ditches near the existing water storage tank, the California red-legged frog is extirpated from the APE and almost certainly extirpated from the floor of the San Joaquin Valley (Jennings and Hayes 1994). The CNDDDB includes no records of California red-legged frog within five miles of the APE (CDFW 2018). The nearest CNDDDB record is from 2001, approximately 19 miles west of the APE in Little Panoche Creek (CDFW 2018).

#### **6.2.4. Discussion of Blunt-Nosed Leopard Lizard**

The blunt-nosed leopard lizard is a relatively large member of the family Iguanidae (Stebbins 1985). This species was listed as endangered by the Service in 1967 and by the State of California in 1971 (Service 1967, 1998). Critical habitat has been neither proposed nor designated for this species. This species is endemic to the San Joaquin Valley (Montanucci 1970, Tollestrup 1979 in Service 1998) and is thought to have once occurred from the Tehachapi Mountains in Kern County northward to Stanislaus County (Service 1998). The current range is thought to include scattered populations throughout the undeveloped land of the San Joaquin Valley and in the foothills of the Coast Range below 2600 ft (Montanucci 1970, Service 1998).

The blunt-nosed leopard lizard inhabits 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. The lizards also inhabit saltbush scrub communities within the foothills of the southern San Joaquin Valley and the adjacent Carrizo Plain. Blunt-nosed leopard lizards are typically absent where habitat conditions include steep slopes, dense vegetation, or areas subject to seasonal flooding (Montanucci 1965).

The CNDDDB includes four records for the blunt-nosed leopard lizard within five miles of the APE (CDFW 2018). The records span the period from 1988 to 1990. Suitable habitat for blunt-nosed leopard lizard is not present in the APE. Critical habitat for this species has been neither proposed nor designated.

#### **6.2.5. Discussion of Giant Garter Snake**

The giant garter snake is the largest member of the genus *Thamnophis*, growing to lengths of 4.5 feet or greater. They emerge from overwinter retreats in late March or early April and are active until the end of October. The habitat components most important to the survival of giant garter snakes are: 1) water, including permanent water that persists through summer, 2) emergent aquatic vegetation and steep, vegetated banks for cover, and 3) an abundant food supply. Other important components are adjacent upland areas with small mammal burrows or other suitable winter retreats and habitat diversity including water.

Land development, especially the disking, channeling, and draining of wetlands has fragmented or eliminated much of the original habitat (Hansen and Brode 1980). Due to this loss of the snake's historical habitat, the giant garter snake's typical habitat today is canals, and permanent and seasonal tule-cattail marshes. Giant garter snakes are also found in flooded rice fields, streams, and sloughs, especially with muddy bottoms (Stebbins 1985). Giant garter snakes also use rock piles, small mammal burrows, and other suitable sites adjacent to the water conveyance systems as hibernacula.

Once occurring from Buena Vista Lake southwest of Bakersfield in Kern County north to Shasta County, the species' present range is restricted to Fresno County, from the vicinity of Mendota, north through the Central Valley to the vicinity of Chico, Butte County (Fisher et al. 1994). Giant garter snakes have been observed repeatedly near the Santa Fe Grade, north of Los Banos. Giant garter snakes have survived in a few wetlands managed as duck-hunting preserves or waterbird sanctuaries along the San Joaquin River, but the hydrologic pattern of flooding such sites in winter and spring and draining by summer is opposite of what these snakes require (Fisher et al. 1994). In the northern Sacramento Valley, rice fields may provide the best habitat for these snakes, but the acreage dedicated for rice production fluctuates with market conditions and water availability (Fisher et al. 1994).

A draft recovery plan has been issued for this species (Service 1999). Land acquisition and the preparation and implementation of recovery actions are top priorities. The Service and the CDFG are expanding coordination efforts to protect giant garter snakes on



Kesterson National Wildlife Refuge, San Luis National Wildlife Refuge, and Los Banos Wildlife Area in Merced County; the Delevan National Wildlife Refuge in Colusa County; Gray Lodge Wildlife Area in Butte County; and Mendota Wildlife Area in Fresno County (Fisher et al. 1994).

A small area of emergent wetlands exists in the drainage ditch near the existing water storage tank The Main Canal, west of the water storage tank, also contains emergent wetland vegetation; however, these wetlands are probably insufficient in size to support a population of giant garter snake. Other canals in the APE (Outside Canal, Lift Canal, and Delta-Mendota Canal) appear to be regularly cleared of vegetation and often convey high flows of water, resulting in very high currents. The lack of vegetation and swift currents create conditions that are unsuitable for giant garter snake. Additionally, the giant garter snake is extremely rare in the central and southern San Joaquin Valley. Consequently, this species is very unlikely to occur within the APE. The CNDDDB includes two old records of giant garter snake from 1976 within a five-mile radius of the APE (CDFW 2018). Critical habitat for this species has been neither proposed nor designated.

#### **6.2.6. Discussion of Western Yellow-Billed Cuckoo**

The western yellow-billed cuckoo is a rare summer resident of well-developed desert and foothill riparian habitats below 3,000 feet elevation in California. The species is an unusually late migrant, with most birds arriving after June 1 (Small 1994). During the breeding season, it uses large blocks of riparian habitat, particularly those with cottonwoods and willows, with a dense understory for nest sites. Yellow-billed Cuckoos have large home ranges, averaging 42 acres in Southern California (Laymon and Halterman 1989). Optimal stands are larger than 198 acres, while unsuitable stands are less than 37 acres (Laymon and Halterman 1989).

The western yellow-billed cuckoo winters in South America and summers exclusively in the forests of river floodplains of the western United States. It was once widespread in California riparian growth west of the Sierra, north at least to Sonoma County and Mount Shasta. Currently, the only areas in the state that are currently attracting nesting cuckoos are the south fork of the Kern River (Cornell Lab of Ornithology 2018), along the Sacramento River from Red Bluff to Colusa (Dettling et al. 2015, Cornell Lab of Ornithology 2018), and along the Colorado River (Parametrix. and Southern Sierra Research Station 2016, Cornell Lab of Ornithology 2018).

The CNDDDB includes no occurrences of western yellow-billed cuckoo within five miles of the APE (CDFW 2018), and suitable riparian nesting habitat is absent in the APE.

However, it is possible that migrating individuals could move through the APE on occasions.

#### **6.2.7. Discussion of Giant Kangaroo Rat**

The giant kangaroo rat is the largest species in the genus *Dipodomys*. Its historic range encompassed a narrow band of gently sloping ground on the west side of the San Joaquin Valley from the base of the Tehachapi Mountains in the south, to a point about 10 miles south of Los Banos in Merced County in the north; the Carrizo and Elkhorn Plains and San Juan Creek watershed west of the Temblor Mountains; the upper Cuyama Valley next to and nearly contiguous with the Carrizo Plain; and on steeper slopes and ridgetops in the Ciervo, Kettleman, Panoche, and Tummey Hills; and in the Panoche Valley (Service 1998).

Their present distribution is restricted to less than 28,000 acres (approximately two percent of historical habitat) in fragmented, isolated habitat within the historical geographic range in Merced, Fresno, Kings, Kern, San Luis Obispo, and Santa Barbara counties (Williams 1992, Service 1998).

The preferred habitat of the giant kangaroo rat is annual grassland with few or no shrubs and gentle slopes of generally less than 10 percent, with friable, sandy-loam soils (Service 1998). Poorer and marginal habitats that may include grassland and shrub communities and slopes up to 22 percent are also presently occupied, possibly due to large-scale losses of preferred habitat.

There are no CNDDDB records for giant kangaroo rat within a five-mile radius of the APE (CDFW 2018), and all known extant populations occur west of Interstate 5. The giant kangaroo rat is covered under the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Upland Recovery Plan; Service 1998). Critical habitat has been neither proposed nor designated for this species.

#### **6.2.8. Discussion of Fresno Kangaroo Rat**

The Fresno kangaroo rat is one of three geographically separated subspecies of San Joaquin kangaroo rat (*D. nitratoides*), the others being the Tipton kangaroo rat (*D. n. nitratoides*) and the short-nosed kangaroo rat (*D. n. brevinasus*) (Culbertson 1934, Brylski and Roest 1994, Service 1998). Fresno and Tipton's kangaroo rats once occupied contiguous geographic ranges within the Tulare Basin and the southeastern half of the San Joaquin Basin in the San Joaquin Valley (Service 1998).

This species occurs in alkali sink-open grassland habitats on bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses. The current potential distribution is restricted to less than 6500 acres in fragmented, isolated habitat in Fresno County, but there are no known extant populations within the historic geographic range in Merced, Madera, and Fresno counties (Brylski and Roest 1994, Service 1998). The last captured specimen was a male caught twice in the autumn of 1992 on the Alkali Sink Ecological Reserve, west of Fresno (Service 1998). Accompanying the listing of the Fresno kangaroo rat was the designation of 858 acres of critical habitat (Service 1985).

There is one CNDDDB record for giant kangaroo rat within a five-mile radius of the APE (CDFW 2018). This record is from 1956, is outside the known historical range, and considered possibly extirpated by the CNDDDB (CDFW 2018). In any case, suitable habitat for this species is absent from the APE. The complete lack of recent records of this species may be an indication that this species is now extinct.

#### **6.2.9. Discussion of San Joaquin Kit Fox**

The kit fox is the smallest canid species in North America and the San Joaquin kit fox is the largest subspecies. No comprehensive survey of its entire historical range has been completed, but local surveys, research projects, and incidental sightings indicate that kit foxes currently inhabit larger areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin counties on the west, and near La Grange, Stanislaus County on the east side of the Valley (Service 1998). The Service (1998) also reported kit foxes occurring westward into the interior coastal ranges in Monterey, San Benito, and Santa Clara counties (Pajaro River Watershed), in the Salinas River watershed, Monterey and San Luis Obispo counties, and in the upper Cuyama River watershed in northern Ventura and Santa Barbara counties and southeastern San Luis Obispo County.

The San Joaquin kit fox is primarily nocturnal and typically occurs in annual grassland or mixed shrub/grassland habitats throughout low, rolling hills and in the valleys. The diet of kit foxes varies geographically, seasonally, and annually, but throughout most of its range the diet consists primarily of kangaroo rats (*Dipodomys* spp.), pocket mice (*Perognathus* spp.), white-footed mice (*Peromyscus* spp.), San Joaquin antelope squirrels (*Ammospermophilus nelsoni*), California ground squirrels, rabbits (*Sylvilagus* spp.), black-tailed hares (*Lepus californicus*), ground nesting birds, and insects (Morrell 1972, Orloff and Spiegel 1986, Scrivner et al. 1987, Cypher and Spencer 1998).



The kit fox requires underground dens for temperature regulation, shelter, reproduction, and predator avoidance (Golightly and Ohmart 1984). Kit foxes commonly modify and use dens constructed by other animals and human-made structures (Service 1998).

The CNDDDB includes five records of San Joaquin kit fox within a five-mile radius of the APE and includes one record from within the APE (CDFW 2018). San Joaquin kit fox individuals may occasionally disperse into the APE but are not likely to establish dens in the APE. The San Joaquin kit fox is covered under the Upland Recovery Plan (Service 1998). Critical habitat has been neither proposed nor designated for this species.

### **6.3. State Listed, State Proposed for Listing, and Other Special-Status Species**

There are seven state listed, species proposed for state listing, and other special-status species included in the CNDDDB within five miles of the APE (Table 1). The following discussion of sensitive species is based on information obtained through the Service and CDFW. The species discussed below meet the following criteria:

- The species is known to be:
  - state listed as endangered or threatened
  - proposed for state listing
  - a state species of special concern
  - listed by the CNPS
  - tracked by the CNDDDB.
- The species has one or more occurrence records within five miles of the APE.
- The species has a “moderate” or greater potential to occur within the APE

#### **6.3.1. Discussion of Munz’s Tidy Tips**

Munz’s tidy tips is an annual species in the Sunflower family (Asteraceae) that blooms in March and April. This species grows on alkaline clay in low-lying areas and on hillsides in grasslands, valley saltbush scrub, and valley sink scrub habitats (USFWS 1998). Munz’s tidy tips is known from the Alkali Sink Ecological Reserve where it grows on the uplands within alkali sink grassland habitat.

The CNDDDB includes two records for Munz’s tidy tips within five miles of the APE, including one record within the APE (CDFW 2018). However, both records are old (from 1941), and the non-native annual grasslands that exist in the APE are small in total area and highly disturbed. Therefore, a low potential exists for the occurrence of this species in the APE.

### 6.3.2. Discussion of Western Pond Turtle

The western pond turtle is a medium-sized brown or olive-colored aquatic turtle that occurs west of the Sacramento-San Joaquin Delta, and south to northern Baja, excluding desert areas. The western pond turtle normally occurs in and along riparian areas, although individuals have been reported to make overland movements of up to a mile to access other aquatic habitat (Ernst et al. 1994). The preferred habitat for these turtles includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs).

The CNDDDB includes one record of western pond turtle within five miles of the APE. Suitable habitat for this species is present in the emergent wetland habitat adjacent to the existing water tank. Individual western pond turtles also could be observed occasionally in reaches of the Main Canal, Outside Canal, and Mendota Canal within the APE. However, any such turtles would likely be found in these conveyances due to accident; the lack of emergent vegetation or basking sites and the swift currents make these features unsuitable for long-term occupation by western pond turtles.

### 6.3.3. Discussion of Swainson's Hawk

The Swainson's hawk is a large soaring bird of open habitats. Bloom (1980) determined that the nesting range is primarily restricted to portions of the Sacramento and San Joaquin valleys and northeast California, and this is still the case in 2018. It was listed as threatened by the State of California in 1983.

Swainson's hawks require large amounts of foraging habitat, preferably grassland and pasture habitats. Their preferred prey items are voles (*Microtus* spp.), gophers, birds, and insects such as grasshoppers (Estep 1989). They have adapted to the use of some croplands, particularly alfalfa, but also hay, grain, tomatoes, beets and other row crops (Estep 1989). Crops such as cotton, corn, rice, orchards, and vineyards are not suitable since they either lack suitable prey or the prey is unavailable to Swainson's hawks due to physical structure.

In the Central Valley, Swainson's hawks are generally tied to riparian habitat for nesting sites (Bloom 1980). Some pairs in the San Joaquin Valley nest in eucalyptus trees outside of riparian areas (CNDDDB 2008).

Potential nesting habitat for Swainson's hawk is present in small grove of ornamental trees in a business and residential area located in the central portion of the APE, adjacent to the Outside Canal. Suitable foraging habitat is present in nearby agricultural fields

within the APE. There are 14 CNDDDB records of Swainson's hawks within a five-mile radius of the APE, including four nests from 2016, which because they are less than five years-old, are considered to be active nests for purposes of mitigation.

#### **6.3.4. Discussion of Special-Status Bat Species and Other Bat Species Tracked by the CNDDDB**

Three bat species tracked by the CNDDDB, western red bat, hoary bat, and Yuma myotis, have the potential to occur in the APE. The western red bat is a state species of special concern, and hoary bat and Yuma myotis are tracked by the CNDDDB but have no special status per se. Each of these species may forage over the APE consuming insects. The western red bat and hoary bat roost in trees, while the Yuma myotis roosts in buildings, mines, caves, crevices, or under bridges. The CNDDDB includes one record each of western red bat, hoary bat, and Yuma myotis within five miles of the APE (CDFW 2018).

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## Chapter 7. Conclusions and Determinations

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### 7.1. Conclusions

The area that occurs within the APE for the Project supports wetland and aquatic habitats that can be utilized by sensitive species, as well as ruderal/non-native grassland, developed/landscaped and disturbed land, and agricultural areas (see discussion in Chapter 4). The conservation measures listed in Section 1.1.1 will ensure that impacts to listed species are avoided or minimized to the extent feasible. In addition, measures to offset unavoidable impacts to listed species are also described in Section 1.1.2.

### 7.2. Determinations

The City is committed to implementation of conservation measures that will avoid and/or reduce potential impacts to the biological resources that may occur during drainage repair and routine maintenance activities, and other small projects. The implementation of such measures will avoid or minimize impacts to listed species and species proposed for listing. As summarized in Table 1 and discussed in Chapter 5, of the nine federally listed species analyzed in this Biological Assessment, three are known to occur within or near the APE (i.e., giant garter snake, western yellow-billed cuckoo, and San Joaquin kit fox). No federally or state listed plant species are known to occur within or near the APE. The state listed Swainson's hawk is also known to occur near the Project area and could nest in the APE.

The following two state species of special concern have a moderate potential to occur in the APE: western pond turtle (*Emys marmorata*) and western red bat (*Lasiurus blossevillii*).

The following two bat species tracked by the CNDDDB have a moderate potential to occur in the APE: hoary bat (*Lasiurus cinereus*) and Yuma myotis (*Myotis yumanensis*).

The specific conservation measures that will be implemented to avoid and minimize impacts relevant to each of the species addressed in this Biological Assessment are discussed in Section 1.1.1. Whenever impacts cannot be avoided, measures to compensate for unavoidable impacts are discussed in Section 1.1.1. Additionally, impacts to all wetland habitats potentially supporting threatened or endangered species will be compensated through habitat creation, enhancement, or restoration regardless of occupation. Regardless of whether these three listed species currently occupy the Project area, the proposed Project will aid in the conservation efforts for these species through the

implementation of the conservation, avoidance, and minimization goals described in Section 1.1.1.

Since there is a potential for unavoidable impacts to federally listed species or their critical habitats, the following determinations of the potential effects of the proposed Action have been made for the federally listed species potentially occurring within the project area:

- vernal pool fairy shrimp – unlikely to affect the species or its designated critical habitat
- Delta smelt – unlikely to affect the species or its designated critical habitat
- California red-legged frog – unlikely to affect the species or its designated critical habitat
- blunt-nosed leopard lizard – unlikely to affect the species (critical habitat has not been proposed or designated)
- giant garter snake – unlikely to affect the species (critical habitat has not been proposed or designated)
- western yellow-billed cuckoo – unlikely to affect the species or its proposed critical habitat
- giant kangaroo rat – unlikely to affect the species (critical habitat has not been proposed or designated)
- Fresno kangaroo rat – unlikely to affect the species or its designated critical habitat
- San Joaquin kit fox – may affect, but unlikely to adversely affect the species (critical habitat has not been proposed or designated)

Therefore, formal consultation with the Service for impacts to these federally listed threatened or endangered animal species will be required per provisions of the Federal Endangered Species Act (FESA). No formal consultation under Section 7 of FESA will be required on critical habitats formally proposed or designated by the Service. Additionally, since the giant garter snake and the San Joaquin kit fox are also state listed species, potential effects to these species will require concurrence by CDFW) with the Service's Biological Opinion, or a separate consultation with the CDFW.

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