

RECLAMATION

Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT

City of Fresno Raw Water Pipeline

FONSI-07-124



**U.S. Department of the Interior
Bureau of Reclamation**

February 2016

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

BUREAU OF RECLAMATION
South-Central California Area Office, Fresno, California

FONSI-07-124

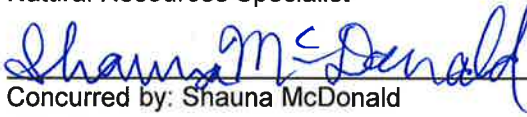
City of Fresno Raw Water Pipeline



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Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, the South-Central California Area Office of the Bureau of Reclamation (Reclamation), has determined the construction of a raw water pipeline by the City of Fresno (City) is not a major federal action that will significantly affect the quality of the human environment and an environmental impact statement is not required. This Finding of No Significant Impact (FONSI) is supported by Reclamation's Environmental Assessment (EA)-07-124, *City of Fresno Raw Water Pipeline*, and is hereby incorporated by reference.

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA between August 22, 2011 and September 19, 2011. One comment letter was received. The comment letter and Reclamation's response to comments are included in Appendix A of EA-07-124.

Background

In 2004, the City completed construction of a Surface Water Treatment Facility (SWTF) which has a maximum capacity of 27.5 million gallons per day (mgd) and currently delivers an average of 20 mgd, or as much as 12 percent of the water supply to the City's water distribution system (City 2008). The City had previously relied solely on groundwater for its potable water supply.

In 2006, the property to the north of the SWTF was developed as a Clovis Unified School District campus and a State Center Community College District campus. The City installed a 60-inch diameter raw water delivery pipeline as part of the campus development in 2006 to avoid removing and replacing new roads in the future and to eliminate disruptions to the campuses. The pipeline was proposed to connect to the Friant-Kern Canal in the future if approval from Reclamation was received. The pipeline was installed from the northern property line of the SWTF across the school property to International Avenue, then to Willow Avenue, then north to a location approximately 650 feet south of Copper Avenue. The City subsequently requested permission from Reclamation to connect the pipeline to the Friant-Kern Canal.

In 2006 and 2007, the City conducted a study of four potential alignments for the raw water delivery pipeline to connect to the Friant-Kern Canal beyond the installed campus segment (Provost & Pritchard 2008). That study and the initial study completed by the City in accordance with the California Environmental Quality Act, serve as the basis for much of the background information in this EA. Additionally, the U.S. Army Corps of Engineers (Corps) and Environmental Protection Agency have designated Reclamation Federal lead for Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA) consultations.

The location of the proposed pipeline is northeast of the City, in unincorporated Fresno County. The proposed pipeline would span between the SWTF near Chestnut and Behymer Avenues and the Friant-Kern Canal (see Figure 1 in EA-07-124).

Proposed Action

Reclamation's federal action(s) for the City's proposed raw water pipeline project includes (1) issuance of a permit for construction of a new turnout on the Friant-Kern Canal that would allow connection between the Friant-Kern Canal and the City's SWTF, (2) issuance of land use authorization(s) for construction, operation, and maintenance of various structures and utilities on Reclamation rights-of-way (ROW), (3) acknowledgement of a new point of delivery under the City's water service contract, (4) amendment of an existing license with PG&E that would allow for the electrical connection, and (5) funding for a portion of the project in accordance with the City of Fresno's 2015 WaterSMART grant (#R15AP00098). Specific details for the Proposed Action are included in Section 2.2 of EA-07-124.

Environmental Commitments

Reclamation and the City shall implement all measures included in the mitigation/minimization table in Appendix B of EA-07-124 and the biological opinion from the U.S. Fish and Wildlife Service (USFWS) issued for the Proposed Action included in Appendix C of EA-07-124. Environmental consequences for resource areas assume the measures specified would be fully implemented.

Findings

Reclamation's finding that implementation of the Proposed Action will result in no significant impact to the quality of the human environment is supported by the following findings:

Resources Eliminated from Detailed Analysis

As described in Table 1 of EA-07-124, Reclamation analyzed the affected environment and determined that the Proposed Action does not have the potential to cause direct, indirect, or cumulative adverse effects to Indian Sacred Sites and Indian Trust Assets.

Water Resources

The City's CVP water supply allocation has been diverted from a single point off the Friant-Kern Canal. The proposed project would add an additional point of diversion but would not increase the City's contractual allocation. Therefore the proposed project would not have an adverse impact on water supply for other users.

The City's CVP water supply is currently conveyed to the SWTF from the Friant-Kern Canal into the Enterprise Canal then to the SWTF. The capacity limitation of the Enterprise Canal has required the City to divert water to the SWTF that would have been delivered to groundwater recharge facilities. The proposed project would allow the City to convey water directly from the Friant-Kern Canal to the SWTF, retaining capacity in the Enterprise Canal for conveyance of

surface water to groundwater recharge facilities. As such, the Proposed Action would have a beneficial effect on groundwater resources in the area.

Potential impacts to surface water and flood zones from construction activities include:

- Sediments entering nearby water courses with stormwater runoff due to erosion of disturbed native soils, stockpiles, excavated material from pipeline trenches, and/or cuttings from directional drilling operations.
- Increased risk of erosion and sediment transport in stormwater runoff due to removal of vegetation and soil exposure from grading.
- Chance of petroleum products and sediment entering watercourses during rainfall events from releases by operation and maintenance (O&M) equipment to the ground.
- Substantial alteration of drainage patterns along the pipeline route.
- Impediment of flood flows and potential increase in sediment discharge in areas disturbed during construction within existing 100-year flood zones.

The City will implement measures to avoid and/or minimize these potential impacts as described in Appendix B of EA-07-124.

Land Uses

Construction of a new turnout within Reclamation ROW would not change land use or land use designations. In addition, the Proposed Action would not have a permanent adverse effect to the Friant-Kern Canal or its ROW as installation and O&M of the facilities would be consistent with current and future uses. Reclamation and the Friant Water Authority reviewed the City's proposed O&M activities to ensure the land use needs of other downstream contractors would be minimally affected.

Impacts on agricultural areas during construction of the City's proposed pipeline would include the loss of standing crops from within the construction easement and the possible loss of future crop productivity resulting from the loss of topsoil and soil compaction. There would be a temporary loss of agricultural production on a total of 33 acres of vineyard, pasture, crops, and deciduous; fruit and nut trees and a permanent loss of 1 acre of pasture and tree crops as described in Section 3.3.2 in EA-07-124.

For the existing ranchettes located west of North Armstrong Avenue there would be a potential loss of 3 acres of grazing area used by horses or other farm animals. Another 15 acres of grassland adjacent to the ranchettes could also be impacted. This loss of use would be temporary, and the horses would be relocated during construction.

Permanent loss of pasture and deciduous fruit and nut trees would occur on 1 acre. As such, the Proposed Action would be in compliance with the Federal Farmland Protection Policy Act as there would be minimal permanent conversion of farmland.

Impacts to land use would be minimized by the City with the implementation of mitigation measures included in Appendix B. In addition, the Proposed Action would provide increased groundwater recharge to an area that is critically overdrafted further benefiting future farming.

No change in land use designations for Prime Farmland, Unique Farmlands, or Farmland of Local Importance would occur.

Biological Resources

The Proposed Action may cross several small seasonally ponded areas. The seasonally ponded areas may support federally-listed species that inhabit vernal pools or similar seasonal pools, including vernal pool plant species, invertebrates, and amphibians.

Direct impacts on native ephemeral streams, would be avoided with the use of bore construction methods that place the pipeline under the watercourses, rather than cutting through them. In addition, the Proposed Action would avoid seasonal wetlands to the extent possible. The Big Dry Creek Diversion Channel crossing would be trenched when it is dry.

Although the plan is to restore temporarily impacted vernal depressions to grade, this disturbance may nonetheless have a permanent impact on special-status species that may occupy these wetlands. These types of wetlands form very slowly over time and support species that are adapted to very particular environmental conditions. For instance, some of these species may only reproduce in certain years when conditions are right, and some plants only occur within certain areas of the wetlands. These conditions may not readily be restored or recreated, depending upon the species, because vernal pools have a duripan that once broken, prevents long-term pooling of water. Furthermore, some natural vernal pools have different zones that particular plant species are adapted to; created or restored vernal pools may not mimic this natural structure.

No fish would be impacted because the channels that would be crossed are seasonal and don't support any fish species in the area of the crossings. In addition, no downstream flow or water quality would be affected, due to either jack and bore construction, or work restrictions to dry periods.

The Proposed Action could affect certain special-status species, either directly or through habitat modification. Pipeline and access road construction could result in adverse impacts to several federally-listed vernal pool species, to California jewel-flower, to California tiger salamander, to San Joaquin kit fox, and to burrowing owls and other breeding birds, if any of these species are present during construction. Long-term O&M activities could impact these species from vehicular access or impacts may occur in the event of a pipeline rupture. Appendix B includes measures to avoid, minimize and/or mitigate potential impacts resulting from the Proposed Action.

Due to the relatively short height of the antenna pole that would be installed at the turnout on the Friant-Kern Canal, no pole lights or guy wires would be needed and no adverse impacts to migratory birds would occur.

Reclamation consulted with the USFWS on potential effects to conservancy fairy shrimp, vernal pool fairy shrimp, California tiger salamander, and San Joaquin kit fox. Reclamation received concurrence from the USFWS on Reclamation's determinations of not likely to adversely affect for the conservancy fairy shrimp and San Joaquin kit fox. Reclamation also received a non-

jeopardy biological opinion from the USFWS on California tiger salamander and vernal pool fairy shrimp (see Appendix C in EA-07-124).

Cultural Resources

Reclamation determined that the Proposed Action would have no adverse effect to historic properties pursuant to 36 CFR 800.5(b). The State Historic Preservation Officer concurred with Reclamation's determination on December 4, 2015 (see Appendix D in EA-07-124).

Socioeconomic Resources

With the exception of tree crops, all forms of agriculture would be permitted within the permanent easement. Farmland impacts during construction would include the loss of standing crops from within the construction easement and the possible loss of future crop productivity resulting from loss of topsoil and soil compaction. Hay fields and pastures could take up to 2 years to return to previous production levels.

Construction of the pipeline would result in short-term impacts resulting from lands being unavailable for up to two seasons for grazing. The Proposed Action would not convert farmland to other uses. All the existing forms of agriculture within the construction and permanent easement would be allowed following construction.

Without the Proposed Action, the City could not meet current and planned development water supply demands, increase groundwater recharge, increase system reliability or redundancy, improve water quality and reduce risk of contamination. Each of these factors has a direct or indirect beneficial effect on the socioeconomic environment under both Action alternatives.

Environmental Justice

The Proposed Action is expected to provide improved water quality protection, including protection from both inadvertent contamination and intentional malicious acts. All of the City's residents would have greater access to a secure water source; therefore, the Proposed Action would have a beneficial effect to all of the City's residents with no disproportionate effect to any low income and minority populations in the Proposed Action Area.

Air Quality

As shown in Table 6 of EA-07-124, calculated emissions are well below the *de minimus* thresholds for the San Joaquin Valley Air Pollution Control District; therefore, there would be no adverse air quality impacts associated with the Proposed Action and a conformity determination pursuant to the Clean Air Act is not required.

Global Climate Change

Impacts from GHG are considered to be cumulative impacts; however, delivery of water with or without the Proposed Action is part of the existing baseline conditions of the CVP and is not expected to produce additional GHG that could contribute to global climate change.

As shown in Table 6 of EA-07-124, estimated emissions of carbon dioxide equivalents for construction of the Proposed Action are 3,914 tons (3,551 metric tons), which is well below the 25,000 metric tons per year (27,558 tons per year) threshold for reporting GHG emissions. As a

result, the Proposed Action is not expected to contribute cumulative adverse impacts to global climate change.

CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.

Water Resources

The Proposed Action would result in beneficial cumulative impacts to groundwater resources due to increased opportunities for groundwater recharge. There would be no cumulative impacts to surface water resources because surface water supplies would remain unchanged and measures to avoid and/or minimize potential impacts to surface water and flood zones would be implemented.

Land Uses

The Federal action is limited to Reclamation ROW and would not result in significant cumulative impacts to land use. In addition, the Proposed Action would be in compliance with the Federal Farmland Protection Policy Act as there would be minimal permanent conversion of farmland.

Biological Resources

The Proposed Action would be conducted in accordance with the County's Open Space and Conservation Policies as would be the case for other approved projects in the area; therefore, the Action's incremental effects would not result in a cumulatively considerable contribution to impacts to sensitive plant and wildlife species or habitats. Additionally, direct impacts to biological resources are temporary resulting from construction activities and would not result in cumulative impacts.

In addition to the previous impacts on habitats that have occurred in the Proposed Action area as a result of agricultural and urban development, Reclamation is aware of the following projects:

- The Fresno Metropolitan Flood Control District master plan includes a future storm drain pipeline likely offset to the west of the centerline of the Auberry Road ROW. This proposed storm drain in Auberry Road varies in size between a 24-inch and 30-inch diameter and terminates approximately one mile north of Copper Avenue.

Other projects in the general area that may impact biological resources include Millerton New Town, Water Works #18, and a road widening at Winchell Cove. These projects may impact

vernal pool species and the California tiger salamander. Future projects on the other side of Millerton Lake could also impact Hartweg's golden sunburst. In addition, the Friant Ranch housing development project was determined to adversely affect Hartweg's golden sunburst, the California tiger salamander, and the vernal pool fairy shrimp. This project's impacts totaled 482 acres of habitat, including an acre of vernal pools and over four acres of vernal swales. This project was regulated by the U.S. Army Corps of Engineers who consulted with the USFWS.

These projects have had or will have their own compliance with Endangered Species Act (ESA), California ESA, California Environmental Quality Act, and the Migratory Bird Treaty Act. In addition, implementation of the minimization measures and mitigation included in Appendix B of EA-07-124 would reduce potential cumulative impacts to special-status species.

Cultural Resources

The cumulative setting associated with the Proposed Action includes proposed, planned, reasonably foreseeable, and approved projects and development in Fresno County. Because of the previously listed mitigation measure and the absence of potential impacts to known cultural resources, cumulative impacts are not anticipated.

Socioeconomic Resources

Cumulative socioeconomic impacts involve loss of farmland income and the future costs of water service for water users within the City water service area. Any loss of farmland income during construction activities would be temporary and compensation for crop losses would be determined during easement negotiations between the City and respective landowners.

Environmental Justice

The Proposed Action will not result in cumulative disproportionate impacts to minority and disadvantaged populations.

Air Quality

The Proposed Action, when added to other existing and proposed actions, would not contribute to cumulative impacts to air quality since construction activities are short-term and well below *de minimis* thresholds.

Global Climate Change

Estimated annual emissions are well below the Environmental Protection Agencies threshold for annually reporting greenhouse gas emissions. As a result, the Proposed Action is not expected to contribute cumulatively to global climate change.

RECLAMATION

Managing Water in the West

Final Environmental Assessment

City of Fresno Raw Water Pipeline

EA-07-124



**U.S. Department of the Interior
Bureau of Reclamation**

February 2016

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between August 19, 2011 and September 19, 2011. Reclamation received one comment letter. The comment letter and Reclamation's response to comments is included in Appendix A. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1 Background

In 2004, the City of Fresno (City) completed construction of a Surface Water Treatment Facility (SWTF) which has a maximum capacity of 27.5 million gallons per day (mgd) and currently delivers an average of 20 mgd, or as much as 12 percent of the water supply to the City's water distribution system (City 2008). The City had previously relied solely on groundwater for its potable water supply.

In 2006, the property to the north of the SWTF was developed as a Clovis Unified School District campus and a State Center Community College District campus. The City installed a 60-inch diameter raw water delivery pipeline as part of the campus development in 2006 to avoid removing and replacing new roads in the future and to eliminate disruptions to the campuses. The pipeline was proposed to connect to the Friant-Kern Canal in the future if approval from Reclamation was received. The pipeline was installed from the northern property line of the SWTF across the school property to International Avenue, then to Willow Avenue, then north to a location approximately 650 feet south of Copper Avenue (see Figure 1). The City subsequently requested permission from Reclamation to connect the pipeline to the Friant-Kern Canal.

In 2006 and 2007, the City conducted a study of four potential alignments for the raw water delivery pipeline to connect to the Friant-Kern Canal beyond the installed campus segment (Provost & Pritchard 2008). That study and the initial study (Cardno Entrix 2010) completed by the City in accordance with the California Environmental Quality Act, serve as the basis for much of the background information in this EA.

In March of 2015, the City applied for funding from the Drinking Water State Revolving Fund (DWSRF) to support their proposed project. The DWSRF program is administered by the State Water Resources Control Board and funded via a capitalization grant from the United States Environmental Protection Agency (USEPA). As the USEPA and the Corps have actions associated with the City's proposed pipeline project, they have designated Reclamation federal lead for Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA).

The location of the proposed pipeline alignments is northeast of the City, in unincorporated Fresno County. The proposed pipeline alignments would span between the SWTF near Chestnut and Behymer Avenues and the Friant-Kern Canal (see Figure 1).

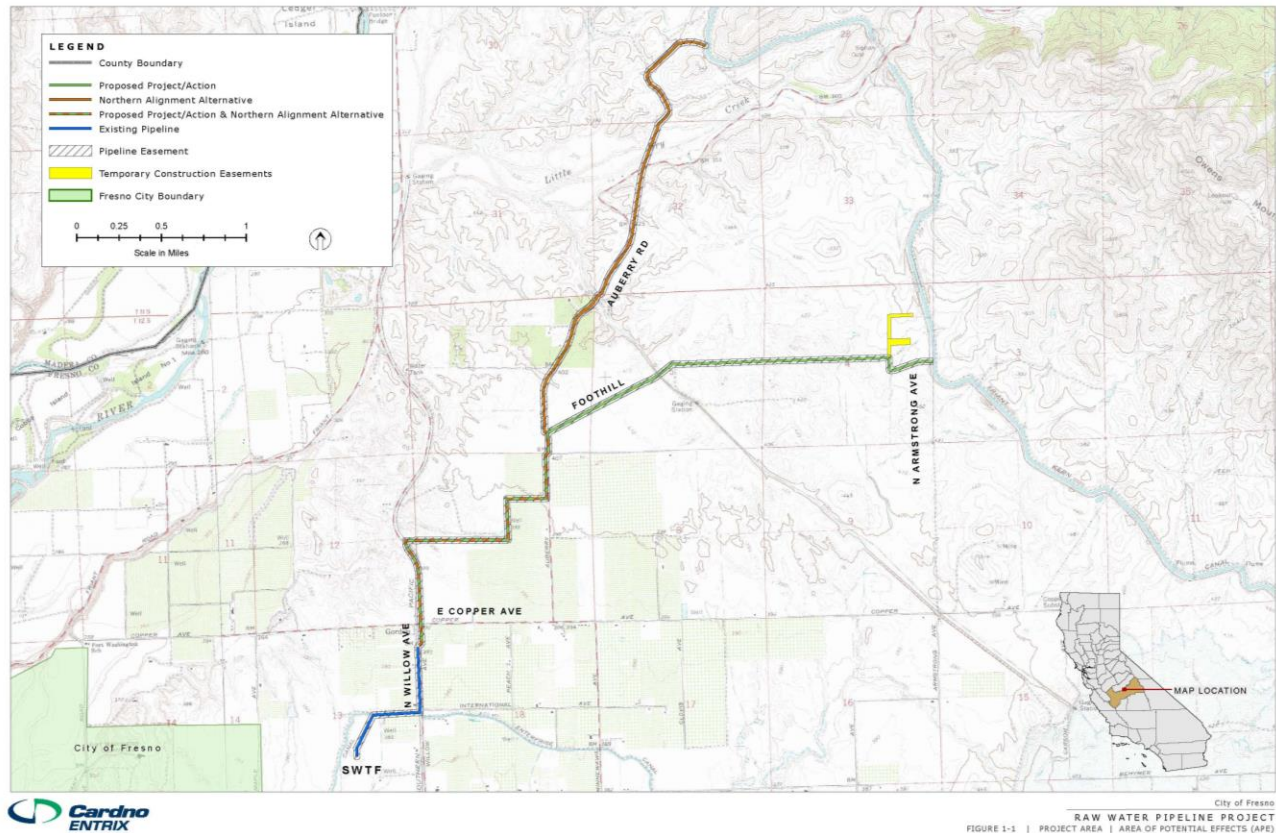


Figure 1 Proposed Action Area and Northern Alignment Alternative

1.2 Need for the Proposed Action

The City is dependent on Fresno Irrigation District's Enterprise Canal for delivery of a major portion of the City's municipal and industrial water supply. With a water service contract for CVP water from Reclamation, the City may use up to 60,000 acre-feet annually. The capacity limitation of the Enterprise Canal has required the City to divert water to the SWTF that would have been delivered to groundwater recharge facilities.

There is a need to ensure uninterrupted operation of the SWTF. The Enterprise Canal is taken out of operation for approximately one month each year for maintenance and the SWTF cannot be operated during that time. A related need is for a redundant delivery system in the event of unforeseen interruption of the Enterprise Canal. Finally, there is a need to prevent potential water contamination from agricultural and urban runoff as well as intentional malicious acts.

The purpose of the Proposed Action is to:

- Provide a more reliable, uninterrupted service to the SWTF than currently exists.

- Reduce groundwater overdraft.
- Supplement adequate water capacity in the City's 2025 Fresno General Plan and evaluated in the subsequent Master Environmental Impact Report (City 2002) for the General Plan.
- Provide redundancy of supply by making the new pipeline the primary supply source and the Enterprise Canal the backup supply source.
- Provide improved water quality protection, including protection from both inadvertent contamination and intentional malicious acts.
- Reduce chemical treatment costs at the SWTF by utilizing improved quality supply water.
- Reduce power consumption by taking advantage of available head (elevation difference) and eliminating the use of raw water pumps when using the primary supply source.

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Section 2 Alternatives Including the Proposed Action

This EA considers three possible actions: the No Action Alternative, the Proposed Action, and the Northern Alignment Alternative. The No Action Alternative reflects future conditions without the Proposed Action or the Northern Alignment Alternative and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not provide permits, land use authorizations, funding, amend an existing license with Pacific Gas and Electric (PG&E), or approve an additional point of delivery for the City's CVP water supply. Consequently, the City's proposed raw water pipeline would not connect a closed conveyance water supply system between the Friant-Kern Canal and the SWTF.

2.2 Proposed Action and the Northern Alignment Alternative

Reclamation's federal action(s) for both the Proposed Action (Alternative 1) and the Northern Alignment Alternative (Alternative 2) includes (1) issuance of a permit for construction of a new turnout on the Friant-Kern Canal that would allow connection between the Friant-Kern Canal and the City's SWTF as described below, (2) issuance of land use authorization(s) for construction, operation, and maintenance of various structures and utilities on Reclamation rights-of-way (ROW), (3) acknowledgement of a new point of delivery under the City's water service contract, (4) amendment of an existing license with PG&E that would allow for the electrical connection, and (5) funding for a portion of the project in accordance with the City of Fresno's 2015 WaterSMART grant (#R15AP00098).

Reclamation's land use authorizations would provide the City access to Reclamation ROW on the Friant-Kern Canal for the construction of certain facilities (Facilities) at approximate Milepost (MP) 7.58. The Facilities would consist of an antenna, a building, and a portion of an access road in front of the project site. The City would access the project area and proposed Facilities from Auberry Road and Friant-Kern Canal service roads (see Figure 1).

Both Action alternatives would include the following: (1) construction of a new turnout in the Friant-Kern Canal, (2) an approximately 12 foot by 24 foot by 10 foot above-ground structure for control and measurement equipment as well as storage, and (3) a 50 foot radio tower. All proposed facilities would be located within Reclamation ROW. The primary differences between the Proposed Action and Northern Alignment Alternative are the location of the proposed turnouts and the alignment of the pipelines (see Figure 2).

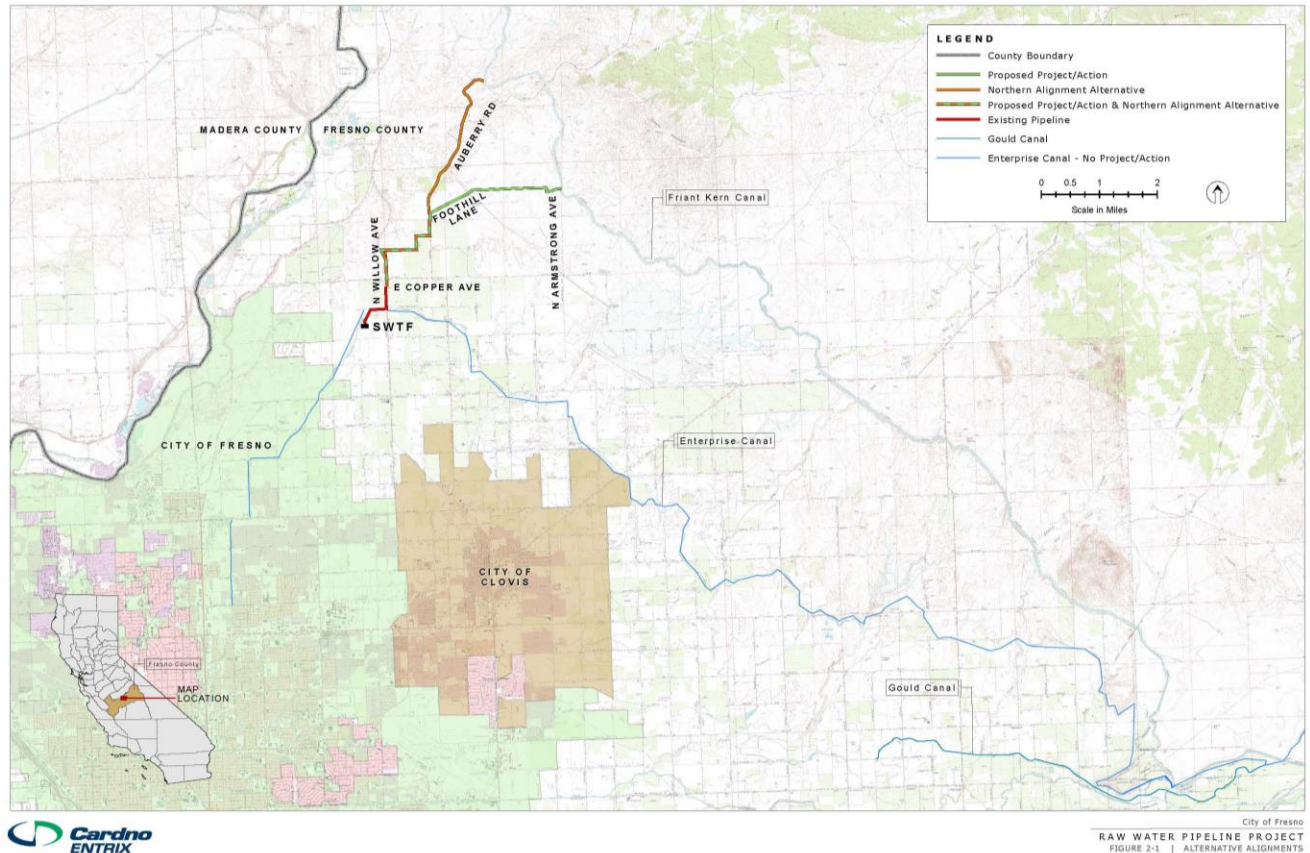


Figure 2 Proposed Action and Northern Alignment Alternatives

The following design features and construction activities are common to both Action alternatives:

- **Capacity:** Delivery of up to 184 acre-feet (60 mgd) of water per day to meet the 2020 design capacity of the SWTF as described in the City's Urban Water Management Plan.
- **Pipe size:** Installation of a 60-inch pipeline (inside diameter).
- **Pumps:** Operation of the system would be done via gravity feed and would not require the use of pumps. The existing lift pumps at the SWTF would be used only if the new pipeline had to be shut down and surface water had to be delivered from the Enterprise Canal.
- **Connection to the Existing Pipeline:** Connection of the proposed pipeline to the existing pipeline would occur at Willow Avenue east of the Clovis Unified School District site, and at the northern property boundary of the SWTF headworks, a few hundred feet south of where the existing pipeline terminates.
- **Hydropower Plant:** The hydropower plant would be constructed on already-developed property of the existing SWTF, just north of the existing raw water pumping station and between the existing and proposed pipeline. The building size is approximately 22 feet by 25 feet. A 48 inch-diameter bypass pipe would be installed around the powerhouse to prevent interruptions of flow to the treatment plant in the event of a power outage or maintenance shutdown. A transformer would not be required. The 150 kilowatts of power generated by the plant would be used to offset some of the power usage of the SWTF.

- Power: Electrical power for the hydropower plant would be provided by PG&E.
- Flow Control Devices: Flow control devices would be installed to manage flows into the SWTP. Flows would be managed by a modulating valve that would be adjusted to control downstream flow.
- Aboveground Structures: Installation of aboveground structures with combination air-release and vacuum valves within (approximately 5 feet by 5 feet) protective steel enclosures at appropriate locations along the entire pipelines, as well as manhole-type structures at specific locations to allow access. Corrosion testing stations would also be constructed along the pipelines which would consist of an approximately 12 inch diameter utility box flush with grade. The new turnout structure at the Friant-Kern Canal would include an approximately 50 foot tall antenna pole, an approximately 12 foot by 24 foot structure for control and measurement equipment as well as storage.
- Construction methods for the pipeline alignments would include open-cut trenching for most of the pipeline alignments including the shoulders and pavement of existing roadways. Open-cut trenching typically uses equipment that prepares the pipeline ROW, installs the pipe, and restores the ROW as it progresses (approximately 60 feet per day). The trench for the pipeline would be at approximately 12 feet deep and 12 feet wide. The trench would be backfilled with suitable backfill material, contoured back to its original slope or repaved as necessary.
- The construction area(s) would require a 100 to 200 foot wide construction easement along the pipeline corridors. A staging and laydown area for the storage of construction equipment and materials would be established prior to the start of construction. These easements would be 100 feet in width or narrower depending on the existing use of the area with additional 100 foot construction easements for staging. The areas would be kept clean and restored to their original condition after construction is complete.

2.2.1 Actions Specific to the Proposed Action (Preferred Alternative)

The Proposed Action extends from the Friant-Kern Canal to the pipeline previously constructed for the Clovis Unified School District site within the Willow Avenue ROW (see Figure 2). Under the Proposed Action, the proposed turnout at the Friant-Kern Canal would be located downstream of the Little Dry Creek check structure at approximate MP 7.58, approximately 2 miles south of Auberry Road.

The proposed pipeline alignment starts in a southwesterly direction then runs west approximately 1.25 miles until reaching the Diversion Channel from Big Dry Creek Reservoir. After crossing the Diversion Channel, the alignment then turns southwesterly until reaching Auberry Road. The alignment turns south along Auberry Road then diverts west approximately 0.5 miles north of Copper Avenue for approximately 0.3 miles. The alignment turns south, parallel to Auberry Road, for approximately 0.3 miles before heading west to Willow Avenue. It then heads south along Willow Avenue. At Willow Avenue, the pipeline would be aligned with the existing pipeline. The proposed pipeline alignment located outside of Reclamation ROW under this alternative is shorter (approximately 4.5 miles) and traverses flatter topography than the Northern Alignment Alternative.

This alignment is located within close proximity to the existing Garfield Water District pipeline and would cross the existing pipeline in two places. The Garfield Water District pipeline would

be protected by constructing the proposed pipeline, at a minimum, with 1 foot of separation vertically and 5 feet horizontally from the existing Garfield Water District pipeline.

2.2.2 Actions Specific to the Northern Alignment Alternative (Alternative 2)

As with the Proposed Action, the Northern Alignment Alternative extends from the Friant-Kern Canal to the pipeline previously constructed by Clovis Unified School District site within the Willow Avenue ROW. The proposed alignment corridor for this alternative starts at the Friant-Kern Canal, north of Auberry Road, then travels southwesterly across the northern edge of the City of Clovis property then across private property (see Figure 3). After crossing the Big Dry Creek Diversion Channel, the pipeline would pass through an area commonly referred to as the Eucalyptus Grove. The alignment turns south along Auberry Road for approximately 0.3 miles, and then follows the same alignment as the Proposed Action to the previously constructed pipeline. The Northern Alignment Alternative, unlike the Proposed Action, has the proposed connection to the Friant-Kern Canal located at the Little Dry Creek check structure. Therefore, construction of a new check structure in the Friant-Kern Canal would not be required.

The proposed pipeline alignment located outside of Reclamation ROW under this alternative is longer (approximately 4.9 miles) and traverses steeper topography than the Proposed Action. From the Friant-Kern Canal, the existing terrain drops nearly 100 feet in the first mile as the corridor crosses Little Dry Creek. The terrain then rises up more than 50 feet as the terrain changes from creek bottom. The rolling terrain would either require substantial grade changes to the surrounding terrain, or more likely, a substantial number of high and low spots along the pipeline. The high and low spots would require additional access points, blow-offs, and vacuum/air relief valves compared to Proposed Action, or alternatively, extremely deep trench installations.

2.2.3 Permitting for the Proposed Action

Prior to construction of the raw water supply pipeline, the City would submit, to the extent necessary, all appropriate applications for working within a waterway including, but not limited to:

- California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement
- Corps Clean Water Act Sections 10 and 404
- California Regional Water Quality Control Board Clean Water Act Section 401
- Structure permit for the Big Dry Creek Diversion Channel
- Structure permit for the Friant-Kern Canal
- Fresno Metropolitan Flood Control District permit

Copies of all permits and licenses shall be provided to Reclamation.

2.2.4 Environmental Commitments

Reclamation and the City shall implement all measures included within the mitigation table included in Appendix B and the biological opinion issued by the U.S. Fish and Wildlife Service (USFWS) included in Appendix C. Environmental consequences for resource areas assume the measures specified would be fully implemented.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Action alternatives and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Action alternatives did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 1.

Table 1 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Indian Sacred Sites	The Proposed Action and the Northern Alignment Alternative would not limit access to ceremonial use of Indian Sacred Sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of either Action alternative.
Indian Trust Assets	The Proposed Action and the Northern Alignment Alternative would not impact Indian Trust Assets as there are none in the Action area. Neither Action alternative has the potential to affect Indian Trust Assets. The nearest Indian Trust Asset is the Table Mountain Reservation approximately 5 miles northeast of the Action Area.

3.2 Water Resources

3.2.1 Affected Environment

The Action area includes the City's service area, the SWTP, and the Friant-Kern Canal.

Friant Division

The Friant Division was authorized by Congress under the concept of conjunctive use where CVP water was meant to be a supplemental supply to alleviate groundwater overdraft in the area. Based on the conjunctive use concept within the Friant Division, contractors are expected to continue mixed use of CVP and other surface water supplies and groundwater, with greater emphasis on groundwater use during dry periods when surface water is limited or expensive and percolate excess surface water in wet years. The Friant Division is an integral part of the CVP, but is hydrologically independent and therefore operated separately from the other divisions of the CVP. Major facilities of the Friant Division include Friant Dam and Millerton Lake, the Madera Canal and the Friant-Kern Canal.

Friant-Kern Canal The Friant-Kern Canal serves over 800,000 acres of farmland and communities in four counties. San Joaquin river water for the Friant Division is stored at Millerton Lake. From there, water is released from the reservoir to the 152-mile long Friant-Kern Canal flowing south to its terminus at the Kern River. The Friant-Kern Canal is operated and maintained by the Friant Water Authority on Reclamation's behalf.

The City of Fresno's Surface Water Treatment Plant

The SWTF is currently supplied with Kings River and CVP water conveyed by the Enterprise Canal. Kings River water is diverted into Fresno Irrigation District's Gould Canal, then diverted into the headworks of the Enterprise Canal, approximately 2 miles downstream of the Kings River. The Enterprise Canal is primarily an unlined open channel that stretches approximately 28 miles through various agricultural and urban land uses before reaching the City's SWTF. Water in the canal can be exposed to potential contamination from livestock, pesticides, herbicides, and various potential urban discharges.

The Enterprise Canal which is operated and maintained by the Fresno Irrigation District also conveys:

- Stormwater during the precipitation season.
- Water to agricultural lands both up and downstream of the SWTF.
- Water for groundwater recharge facilities throughout the Fresno-Clovis metropolitan area.
- Water to the SWTF serving the City of Clovis.

These varied demands require the Enterprise Canal to operate at or near design capacity. Raw water from the Enterprise Canal is diverted under gravity flow to the SWTF raw water pump station and is then pumped to the water treatment headworks. The canal is subject to annual maintenance operations, which cause delivery interruption. During certain periods, deliveries to existing groundwater recharge basins located downstream of the SWTF cannot be made due to canal capacity limitations.

The City has a CVP contractual allocation of up to 60,000 acre-feet annually. The City's CVP water supply currently travels nearly 55 miles from Friant Dam (Millerton Lake) before reaching the SWTF. CVP water is diverted from Friant Dam into the Friant-Kern Canal, then conveyed approximately 28 miles downstream along the Friant-Kern Canal to a turnout into the Gould Canal located just upstream Enterprise Canal headworks. From there, the water is diverted from the Gould Canal into the Enterprise Canal headworks.

Friant-Kern Canal capacity is approximately 10,500 acre-feet per day between Friant Dam and the Gould Canal turnout. The Friant-Kern Canal is primarily a concrete-lined channel within the study area with check structures located periodically to pond water for delivery to turnouts. The Little Dry Creek check structure is the first structure downstream of Friant Dam along the Friant-Kern Canal. The Little Dry Creek check is located approximately 5.5 miles downstream of Friant Dam, in the vicinity of Auberry Road. The next check structure is located at the Kings River, approximately 24 miles downstream of the Little Dry Creek check.

The City's existing distribution system has limitations on the amount of water that can be accepted from the SWTF. The City has plans to increase this distribution capacity, but until such time as new facilities have been constructed, seasonal flow will fluctuate at the SWTF based on typical demand fluctuations. Control of the pipeline flow based on changing SWTF operations is required. While flow fluctuations are expected, the City plans to operate and maintain the SWTF

at the maximum possible capacity, and to balance flow fluctuations in the distribution system through the use of City wells.

Groundwater

The City's primary source of water is groundwater. Between 1990 and 2003, the total groundwater demand placed on the underground aquifer by the Fresno metropolitan area increased from approximately 118,000 acre-feet per year to 165,000 acre-feet per year. Between 2004 and 2007, total water use remained approximately between 155,000 acre-feet per year and 166,000 acre-feet per year. In 2007, the percentage of groundwater used fell by 12 percent of overall water usage; however, the volume of water used was high enough that extraction of groundwater still accounted for over 145,000 acre-feet. Groundwater levels within the Fresno area have been dropping since 1990 at a rate of 1.5 feet per year, resulting in a large cone of depression (Cardno Entrix 2010).

Due to four consecutive years of drought, increased groundwater pumping has resulted in well declines in excess of 10 feet (DWR 2015). As of 2015, groundwater provides approximately 40 percent of total annual agricultural and urban water uses, with some areas 100 percent dependent. Current and historic groundwater extraction exceeds the basins ability to recharge. The California Department of Water Resources (DWR) identified the Kings subbasin as being in a "condition of critical overdraft." Projected increase in the demand for freshwater in the Fresno metropolitan area is expected to increase to 276,700 acre-feet per year by 2030. Even if water conservation goals of 10 percent were met, the demand would rise to 249,000 acre-feet per year, representing a 58 percent increase from current demands (Cardno Entrix 2010).

It is the goal of the City to balance its groundwater extraction with groundwater recharge by year 2025 (City 2008). This goal would limit the City's groundwater extraction to approximately 89,000 acre-feet per year (Cardno Entrix 2010).

3.2.2 Environmental Consequences

No Action

The primary, foreseeable result of the No Action Alternative would be a combination of the continued use of groundwater as the main source of municipal water supply with contributions from surface water. Further reliance on groundwater from the Kings subbasin would exacerbate current groundwater problems including a continued lowering of groundwater levels and continuing an artificially induced northeastern groundwater gradient and its associated easterly migration of poorer quality groundwater derived from coast ranges alluvium. As the depletion of the aquifer continues, continuous compaction of the aquifer may result, limiting its ability to recharge.

Surface water delivery to the SWTF is currently limited to the capacity of the Enterprise Canal, excluding infiltration and evaporation during travel. Surface water delivery to the SWTF by the Enterprise Canal has required the diversion of water intended for artificial groundwater recharge, the running of pumps, and the incidental increases in pollution of water in the canal as the water travels through open fields. Further, the amount of water intended for groundwater recharge is reduced by reliance on the canal for freshwater delivery, further impacting groundwater levels.

The No Action Alternative would not allow for continued delivery to groundwater recharge basins or provide the needed conveyance capacity to facilitate expansion of the SWTF.

Proposed Action and Northern Alignment Alternative

The City's CVP water supply allocation has been diverted from a single point off the Friant-Kern Canal. The proposed project would add an additional point of diversion but would not increase the City's contractual allocation. Therefore the proposed project would not have an adverse impact on water supply for other users.

The City's CVP water supply is currently conveyed to the City's Northeast SWTF from the Friant-Kern Canal into the Enterprise Canal then to the SWTF. The capacity limitation of the Enterprise Canal has required the City to divert water to the SWTF that would have been delivered to groundwater recharge facilities. The proposed project would allow the City to convey water directly from the Friant-Kern Canal to the Northeast SWTF, retaining capacity in the Enterprise Canal for conveyance of surface water to recharge basins. As such, both the Proposed Action and Northern Alignment Alternative would have a beneficial effect on groundwater resources in the area.

Potential impacts to surface water and flood zones under both alternatives from construction activities include:

- Sediments entering nearby water courses with stormwater runoff due to erosion of disturbed native soils, stockpiles, excavated material from pipeline trenches, and/or cuttings from directional drilling operations.
- Increased risk of erosion and sediment transport in stormwater runoff due to removal of vegetation and soil exposure from grading.
- Chance of petroleum products and sediment entering watercourses during rainfall events from releases by O&M equipment to the ground.
- Substantial alteration of drainage patterns along the pipeline route.
- Impediment of flood flows and potential increase in sediment discharge in areas disturbed during construction within existing 100-year flood zones.

In addition, unlike the Proposed Action, substantial grade changes would be encountered across the Northern Alignment Alternative in areas leading to and away from Little Dry Creek. The crossing at Little Dry Creek would require either deep tunneling to avoid unnecessary elevation changes to the line, or extensive grading. If the site is graded extensively, there is increased potential for sediment and construction-related runoff to be discharged into the creek during rainfall events.

The City will implement measures to avoid and/or minimize these potential impacts as described in Appendix B.

Cumulative Impacts

Both Action alternatives would result in beneficial cumulative impacts to groundwater resources due to increased opportunities for groundwater recharge. There would be no cumulative impacts to surface water resources under either Action alternative because surface water supplies would

remain unchanged and measures to avoid and/or minimize potential impacts to surface water and flood zones would be implemented.

3.3 Land Use

3.3.1 Affected Environment

The City's proposed project would traverse 6.88 acres of Prime Farmland, 12.08 acres of Unique Farmlands, and 26.60 acres of Farmland of Local Importance under the Proposed Action. The Northern Alignment Alternative would traverse 6.87 acres of Prime Farmland, 14.79 acres of Unique Farmlands, and 28.22 acres of Farmland of Local Importance. No Farmland of Statewide Importance would be traversed by either alignment (Cardno Entrix 2010).

With the Proposed Alternative, construction along the eastern side of Willow Avenue south of Copper Avenue would be within an area currently planted with vineyard; the Northern Alignment Alternative would be adjacent to the vineyard.

Current land use within Reclamation ROW is limited to O&M of the Friant-Kern Canal.

3.3.2 Environmental Consequences

No Action

There would be no effect to the Friant-Kern Canal or its ROW under the No Action Alternative. Farmland could be adversely affected if the No Action Alternative resulted in the decrease in water supply or increase in cost of water.

Proposed Action and Northern Alignment Alternative

Construction of a new turnout within Reclamation ROW under either alternative would not change land use or land use designations. In addition, the Action alternatives would not have a permanent adverse effect to the Friant-Kern Canal or its ROW as installation and O&M of the Facilities would be consistent with current and future uses. Reclamation and the Friant Water Authority reviewed the City's proposed O&M activities to ensure the land use needs of other downstream contractors would be minimally affected.

Impacts on agricultural areas during construction of the City's proposed pipeline would include the loss of standing crops from within the construction easement and the possible loss of future crop productivity resulting from the loss of topsoil and soil compaction. Under both alternatives there would be a temporary loss of agricultural production on a total of 33 acres of vineyard, pasture, crops, and deciduous; fruit and nut trees and a permanent loss of 1 acre of pasture and tree crops as described below:

- Vineyards: potential loss of 1 acre.
- Deciduous fruit and nut trees: potential loss of 6 acres.
- Hay fields and pastures: potential loss of up to 26 acres that could take up to 2 years to return to previous production levels including the 3 acres of grazing area described below.

For the existing ranchettes located west of North Armstrong Avenue there would be a potential loss of 3 acres of grazing area used by horses or other farm animals. Another 15 acres of grassland adjacent to the ranchettes could also be impacted. This loss of use would be temporary, and the horses would be relocated during construction.

Permanent loss of pasture and deciduous fruit and nut trees would occur on 1 acre. As such, the Proposed Action would be in compliance with the Federal Farmland Protection Policy Act as there would be minimal permanent conversion of farmland.

Impacts to land use would be minimized by the City with the implementation of mitigation measures included in Appendix B. In addition, both Action alternatives would provide increased groundwater recharge to an area that is critically overdrafted further benefiting future farming. No change in land use designations for Prime Farmland, Unique Farmlands, or Farmland of Local Importance would occur due to either alternative.

Cumulative Impacts

The Federal action for both the Proposed Action and Northern Alignment Alternative is limited to Reclamation ROW and would not result in significant cumulative impacts to land use. In addition, the Proposed Action would be in compliance with the Federal Farmland Protection Policy Act as there would be minimal permanent conversion of farmland.

3.4 Biological Resources

3.4.1 Affected Environment

Although much of the Action Area for both alignments would traverse lands disturbed by human activity such as agricultural or developed areas, habitat types with native vegetation are also present. These habitats may be used by several special-status species as described below.

Vegetation Communities

Nonnative grassland is the only upland plant community that occurs in the Proposed Action Area. Aquatic and wetland habitats in the Proposed Action Area include seasonal wetlands, as well as riverine habitats within and adjacent to Little Dry Creek ephemeral stream and the Big Dry Creek Reservoir Diversion Channel. Developed land, pastures, vineyards, and orchards are also present in the Proposed Action Area.

Reconnaissance-level habitat evaluation and wildlife surveys were conducted on July 10, 2007 and July 18, 2008 (Cardno Entrix 2010). During these surveys, the accessible portions of the alignment for the Proposed Action were walked. Assessment of an additional (previously inaccessible alignment section was conducted in conjunction with a delineation of potential wetlands and other waters conducted for the Proposed Action (including staging areas adjacent to the alignment) on June 29 and 30, 2009 (Cardno Entrix 2010). A series of botanical field surveys were conducted in the Proposed Action Area on April 6, May 5, May 7, June 28, 2010, June 16, 2011, April 24 and May 3, 2012 (LOA 2010; LOA 2011; LOA 2012). No special-status plant species were observed during those surveys. Additional temporary staging and access areas were included in the 2011 surveys. When the project area was expanded in 2010 to include additional staging/access areas at the eastern end, reconnaissance-level habitat surveys and a

wetland delineation (November 30, 2010) were conducted in those areas not included in previous surveys. Soil surveys were also conducted in 2009, partly for the purpose of determining whether or not any duripan or any other suitable soils associated with Hartweg's golden sunburst are present (Kleinfelder 2009). According to the report, neither of these was detected.

General community descriptions are derived from Holland (1986). Brief descriptions of these communities and their locations along the routes for the Proposed Action and the Northern Alignment Alternative are provided in Table 2.

Table 2 Existing Vegetation Communities within Action Alternative Alignments

Habitat	Proposed Project (acres)	Northern Alignment Alternative (acres)
Nonnative Grassland*	16.73	79
Seasonal and Perennial Wetlands	1.27	not delineated
Riverine	0.37	0.5
Agriculture and Pasture	25.68	25
Developed Lands	6.83	13

* Includes the entire area potentially used for staging, but not all will be used.

Nonnative Grassland

The nonnative grassland community includes a mix of nonnative grasses, annual forbs, and wildflowers. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. This community type is distributed throughout the valleys and foothills of most of California, usually below 3,000 feet (Holland 1986).

The grasslands in the Action area are heavily grazed, particularly at the western end of the grassland area. In 2007, the stubble remaining in July was often only an inch or two high and bare areas were extensive.

Seasonal Wetlands

Seasonal wetlands in the Action Area are limited to small depressions that may hold water long enough to support species such as swamp grass (*Crypsis schoenoides*). Based on the geotechnical surveys, no duripan is present in this area (Kleinfelder 2009), and these depressions are not true vernal pools (but may still provide habitat for some vernal-pool associated species). There are several vernal pools present south of the proposed pipeline routes, outside the proposed ROW for the pipelines (CDFG 2010). Vernal pools provide habitat for plant and invertebrate species such as fairy shrimp and Orcutt grasses that are specially adapted to these habitats. A delineation of potential wetlands and other waters has been conducted for the City's proposed project which will be submitted by the City to the Corps for verification.

Riverine

Limited ephemeral stream habitat is present in the Action Area. Both alignment alternatives cross the Big Dry Creek Reservoir Diversion Channel that provides drainage for overflow from Big Dry Creek Reservoir to Little Dry Creek. In years with little to no precipitation, this channel may be completely dry throughout the year. In years with enough precipitation, the Diversion Channel can have water flowing as early as October through as late as May.

Only the Northern Alignment Alternative crosses Little Dry Creek, an intermittent stream in the Proposed Action Area. The proposed crossing point supports only herbaceous vegetation such as cattail (*Typha* sp.), rush (*Juncus* sp.) and water fern (*Azolla filiculoides*), stands of woody riparian vegetation are present farther upstream, dominated by sycamores (*Platanus racemosa*) and willows (*Salix* spp.).

Agriculture and Pasture

Agricultural lands along the proposed pipeline alignments include land used for pasture crops, and vineyards and deciduous orchards adjacent to the roads. Pasture crops can provide a seasonal foraging resource for snakes, waterfowl, egrets, blackbirds, doves, hawks, owls, gophers, voles, foxes, deer, and others. Some of these species may be able to breed in pasture cropland, depending on the harvesting schedule. Although habitat values of deciduous orchards and vineyards are limited compared to the native habitats they have replaced, deer and rabbits may browse on the vegetation; and other wildlife such as squirrels and numerous birds feed on fruit. Mourning doves (*Zenaida macroura*) may use vineyards for cover and nesting sites.

Federally-listed Plant Species

Special-status plant species include species listed by the USFWS as Threatened or Endangered under provisions of the ESA, as well as Proposed and Candidate species for listing (USFWS 2008). Federally listed plant species which may occur within the Action Area for both alternatives are listed in Table 3.

Table 3 Federally listed plant species*

Species	Status¹	Effects²	Occurrence in Study Area³
Fleshy (succulent) Owl's-Clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	T	NE	Absent. No critical habitat units are in the Proposed Action Area or the Northern Alignment Alternative Area. Fleshy Owl's Clover Unit 5A is just east of the Friant-Kern Canal, immediately east of the Proposed Action Area. There is one occurrence record for this species which overlaps both alignments. This record is believed to have been extirpated by conversion to agricultural land use.
California Jewel-Flower (<i>Caulanthus californicus</i>)	E	NE	Absent. Not observed in surveys in 2010 (Live Oak Associates, Inc.) for either alignment. Temporary staging and access areas were included in the 2011 surveys, and the species was not found in those areas. The nearest reported occurrence is approximately five miles to the southwest of the Proposed Action (CDFG 2008).
San Joaquin Valley Orcutt Grass (<i>Orcuttia inaequalis</i>)	T	NE	Absent. The presence of San Joaquin Valley Orcutt grass has not been reported in the Proposed Action or the Northern Alignment Alternative area during the 2010 surveys (Live Oak Associates, Inc.) or previous surveys. Temporary staging and access areas were included in the 2011 surveys, and the species was not found in those areas.. The nearest reported occurrence is slightly under one mile to the south of the Proposed Action (CDFG 2008).

Species	Status ¹	Effects ²	Occurrence in Study Area ³
Hartweg's Golden Sunburst (<i>Pseudobahia bahiifolia</i>)	E	NE	Absent. This species has not been observed in the areas of the Proposed Action or the Northern Alignment Alternative. The soils in the Proposed Action area do not include the Amador and Rocklin soil series (Kleinfelder 2009) which this species is strongly associated with (Federal Register 1997). The nearest reported occurrence is approximately 3.5 miles to the north of the Proposed Action (CDFG 2008).
Greene's Tuctoria (<i>Tuctoria greenei</i>)	E	NE	Absent. This species was not observed in surveys of the Proposed Action area in 2010 (Live Oak Associates, Inc.). Temporary staging and access areas were included in the 2011 surveys, and the species was not found in those areas.. The nearest reported occurrence is nearly five miles to the south of the Proposed Action (CDFG 2008).
<p>1 Status= Status of federally listed species protected under Endangered Species Act, unless otherwise indicated. E: Federally Listed as Endangered. T: Federally Listed as Threatened.</p> <p>2 Effects = Federal Effects Determination. NE = No Effect determination.</p> <p>3 Definitions Of Occurrence Indicators in Proposed Action Area. Possible: Species recorded in area and habitat suboptimal or seasonal. Unlikely: Species recorded in area but habitat unsuitable or lacking entirely. Absent: Species not recorded in study area and suitable habitat absent.</p> <p>*The table was added since release of the Draft EA to summarize federally listed species that could be affected by the Action alternatives. These species were included in the Draft EA as well.</p>			

Federally-listed Wildlife Species

Special-status wildlife species include species listed by the USFWS as endangered or threatened under provisions of the ESA as well as Proposed and Candidate species for listing (USFWS 2008). Table 4 lists federally-listed special-status wildlife species that may occur in the Action Area for both Action alternatives.

Table 4 Federally-listed wildlife species*

Species	Status ¹	Effects ²	Occurrence in Study Area ³
AMPHIBIANS			
California red-legged frog (<i>Rana draytonii</i>)	T	NE	Absent. No breeding habitat for the California red-legged frog is present in the Proposed Action Area or the Northern Alignment Alternative Area. The nearest permanent water source to the Proposed Action Area is Big Dry Creek Reservoir, approximately three miles southeast of the Proposed Action Area.
California tiger salamander (<i>Ambystoma californiense</i>)	T	MAA	Absent. The Proposed Action Area and the Northern Alignment Alternative Area do not include any critical habitat areas (Federal Register 2005). The nearest critical habitat unit is nearly two miles northeast of the Proposed Action. The Proposed Action Area and the Northern Alignment Alternative Area are assumed to have this species present.
BIRDS			
Western Burrowing owl (<i>Athene cunicularia</i>)	MBTA	NT	Unlikely. Both the Proposed Action and Northern Alignment contain suitable habitat, (e.g. annual grassland and irrigated pasture). There are no known observations in the areas along either proposed pipeline alignment.

Species	Status ¹	Effects ²	Occurrence in Study Area ³
Western Yellow-Billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	T	NE	Absent. No riparian vegetation that could provide habitat for the western yellow-billed cuckoo is present within the Proposed Action Area or the Northern Alignment Alternative. The nearest potentially occupied habitat for this species is 35 miles west of the Proposed Action Area near Mendota Dam (CDFG 2008), although the species likely only still occurs within the Central Valley in one area along the Sacramento River.
Swainson's hawk (<i>Buteo swainsoni</i>)	MBTA	NT	Possible. There are no observations of Swainson's hawk nests within 0.5 mile of the Proposed Project. The grassland and some croplands in the Proposed Project footprint provide potential foraging habit for Swainson's hawk. The only potential nest trees within the Proposed Project footprint or within one half mile are in residential areas, actively managed orchards, and a golf course. Riparian trees along Little Dry Creek are within one half mile of the Northern Alignment Alternative.
FISH			
Central Valley Steelhead (<i>Oncorhynchus mykiss</i>)	T	NE	Absent. The only riverine aquatic habitat in the Proposed Action Area is the human-made Big Dry Creek Diversion Channel. Steelhead does not occur in the Proposed Action Area or the Northern Alignment Area.
Delta smelt (<i>Hypomesus transpacificus</i>)	T	NE	Absent. The delta smelt does not occur in Fresno County.
INVERTEBRATES			
Conservancy Fairy Shrimp (<i>Branchinecta conservatio</i>)	E	NLAA	Unlikely. No individuals observed in the Proposed Action Area or the Northern Alignment Alternative Area. Although potential habitat is provided by depressions in the grasslands in the eastern section of the Proposed Action Area and Northern Alignment Alternative Area, these depressions may not be large enough to provide habitat.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T	MAA	Possible. No individuals observed in the Proposed Action or the Northern Alignment Alternative, but potential habitat is provided by small depressions in the grasslands in the eastern and northern sections of the Proposed Action Area. Habitat for this species is present south of the Proposed Action Area and this species was observed in prior surveys.
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	T	NE	Absent. Would not occur in the area of the Proposed Action or the Northern Alignment Alternative, because neither of these areas contains elderberry shrubs.
MAMMALS			
Fresno kangaroo rat (<i>Dipodomys nitratoides exilis</i>)	E	NE	Absent. No critical habitat for this species is found in the Proposed Action or Northern Alignment Alternative vicinity. The nearest critical habitat unit for this kangaroo rat is 30 miles southwest of the Proposed Action area.

Species	Status ¹	Effects ²	Occurrence in Study Area ³
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E	NLAA	Unlikely. Neither the Proposed Action Area nor the Northern Alignment Alternative is in any of the areas identified for habitat protection and population interchange in the recovery plan for this species (USFWS 1998). No dens were observed during a reconnaissance survey in the grasslands around the Proposed Action or the Northern Alignment Alternative. However, even in the absence of any observations of kit foxes, these grasslands provide potential foraging habitat for the species, and the agricultural lands along the route of the Proposed Action may also provide limited foraging habitat.
REPTILES			
Giant Garter Snake (<i>Thamnophis gigas</i>)	T	NE	Absent. No habitat for this species is present in the Proposed Action Area or the Northern Alignment Alternative Area. This species has not been observed in the Project vicinity. The nearest record is 35 miles to the west (CDFG 2008).
Blunt-Nosed Leopard Lizard (<i>Gambelia (=Crotaphytus) sila</i>)	E	NE	Absent. Not observed in the Proposed Action Area, or the Northern Alignment Alternative Area and is not expected to occur. The nearest reported occurrence for this species is 20 miles to the west (CDFG 2008).
<p>1 Status= Status of federally listed species protected under Endangered Species Act, unless otherwise indicated. E: Federally Listed as Endangered. T: Federally Listed as Threatened. MBTA: Avian species protected under the Migratory Bird Treaty Act.</p> <p>2 Effects = Federal Effects Determination. NE = No Effect determination. NT = No Take determination. MAA = May adversely affect. NLAA = May affect but not likely to adversely affect.</p> <p>3 Definitions Of Occurrence Indicators in Proposed Action Area. Possible: Species recorded in area and habitat suboptimal or seasonal. Unlikely: Species recorded in area but habitat unsuitable or lacking entirely. Absent: Species not recorded in study area and suitable habitat absent.</p> <p>*The table was added since release of the Draft EA to summarize federally listed species that could be affected by the Action alternatives. These species were included in the Draft EA as well.</p>			

3.4.2 Environmental Consequences

No Action

The No Action Alternative would have no impacts to biological resources, because no construction of any new facilities would disturb plant and animal species. The future actions discussed below as cumulative impacts would occur regardless.

Proposed Action and Northern Alignment Alternative

The proposed Action alignments may cross several small seasonally ponded areas. The seasonally ponded areas may support federally-listed species that inhabit vernal pools or similar seasonal pools, including vernal pool plant species, invertebrates, and amphibians.

Direct impacts on native ephemeral streams, would be avoided with the use of bore construction methods that place the pipeline under the watercourses, rather than cutting through them. In addition, the Action alternatives would avoid seasonal wetlands to the extent possible. The Big Dry Creek Diversion Channel would be trenched when it is dry.

Although the plan is to restore temporarily impacted vernal depressions to grade, this disturbance may nonetheless have a permanent impact on special-status species that may occupy these wetlands. These types of wetlands form very slowly over time and support species that are adapted to very particular environmental conditions. For instance, some of these species may only reproduce in certain years when conditions are right, and some plants only occur within certain areas of the wetlands. These conditions may not readily be restored or recreated, depending upon the species, because vernal pools have a duripan that once broken, prevents long-term pooling of water. Furthermore, some natural vernal pools have different zones that particular plant species are adapted to; created or restored vernal pools may not mimic this natural structure.

No fish would be impacted because the channels that would be crossed are seasonal and don't support any fish species in the area of the crossings. In addition, no downstream flow or water quality would be affected, due to either jack and bore construction, or work restrictions to dry periods.

The Proposed Action and Northern Alignment Alternative could affect certain special-status species, either directly or through habitat modification. Pipeline and access road construction could result in adverse impacts to several federally-listed vernal pool species, to California jewel-flower, to California tiger salamander, to San Joaquin kit fox, and to burrowing owls and other breeding birds, if any of these species are present during construction. Long-term O&M activities could impact these species from vehicular access or impacts may occur in the event of a pipeline rupture. Appendix B addresses measures to avoid, minimize and/or mitigate potential impacts resulting from either the Proposed Action or the Northern Alignment Alternative.

Due to the relatively short height of the antenna pole that would be installed at the turnout on the Friant-Kern Canal, no pole lights or guy wires would be needed and no adverse impacts to migratory birds would occur.

Pipeline construction for the Northern Alignment Alternative could result in adverse impacts to dwarf downingia, which may be present along the potential route. The Northern Alignment Alternative could also affect riparian habitat where the route crosses Little Dry Creek. Work in this area would be conducted when the stream is dry, at a location that does not support woody riparian vegetation. Therefore, the Northern Alignment Alternative is not expected to have a substantial adverse effect on riparian habitat. The Northern Alignment Alternative would not affect any other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

Acreage impacts for each Action alternative on federally-listed special-status species are summarized in Table 5.

Table 5 Determination of effects for federally listed species*

Federally Listed Species	Determination of Effects ¹	Proposed Action Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment Alternative (Total Acreage of Impacts) ²
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Federally Listed Species	Determination of Effects¹	Proposed Action Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment Alternative (Total Acreage of Impacts)²
Blunt-nosed leopard lizard	No effect	0	0
California jewel-flower	May result in loss of individuals of the California jewel-flower, but will not rise to the level of a population effect; no effect on critical habitat	0/15 ³	79 ^{3, 4}
California red-legged frog	No effect; no effect on critical habitat	0	0
California tiger salamander	May result in loss of individuals of the California tiger salamander, but will not rise to the level of a population effect; no effect on critical habitat	0.55 (breeding)/ 12.01(upland)	79 ⁴
Central Valley steelhead	No effect; no effect on critical habitat	0	0
Conservancy fairy shrimp	May result in loss of individuals of the Conservancy fairy shrimp, but will not rise to the level of a population effect; no effect on critical habitat	0.1/1.3	-- ⁵
Delta smelt	No effect; no effect on critical habitat	0	0
Fresno kangaroo rat	No effect; no effect on critical habitat	0	0
Giant garter snake	No effect; no effect on critical habitat	0	0
Greene's tuctoria	Not likely to adversely affect; no effect on critical habitat	0	0
Hartweg's golden sunburst	Not likely to adversely affect; no effect on critical habitat	0	0
San Joaquin kit fox	Not likely to adversely affect	3.5/112 ⁴	104 ⁴
San Joaquin Valley Orcutt grass	Not likely to adversely affect; no effect on critical habitat	0	-- ⁵
Succulent owl's-clover	Not likely to adversely affect; no effect on critical habitat	0	-- ⁵
Swainson's hawk	Foraging habitat will be permanently adversely impacted, but no individuals would be injured or killed	3.3/105	79 ⁴
Valley elderberry longhorn beetle	No effect; no effect on critical habitat	0	0
Vernal pool fairy shrimp	May result in loss of individuals of the vernal pool fairy shrimp, but will not rise to the level of a population effect; no effect on critical habitat	0.1/1.3	-- ⁵
Western burrowing owl	Habitat will be permanently adversely impacted, but no	3.3/105	79 ⁴

Federally Listed Species	Determination of Effects ¹	Proposed Action Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment Alternative (Total Acreage of Impacts) ²
	individuals would be injured or killed		
Western yellow-billed cuckoo	No effect	0	0
¹ Same for both alternatives ² Permanent or temporary impact acreage was not determined for this alternative alignment. Not all of the habitat will be affected. ³ Potential temporary impacts or total impacts are acres that have not yet been surveyed during the flowering period for this species. ⁴ Upland habitat, not all of which will be affected. ⁵ Northern alignment not delineated. *The table was updated since release of the Draft EA to summarize federally listed species that could be affected by the Action alternatives. These species were included in the Draft EA as well.			

Cumulative Impacts

The County's General Plan has 18 detailed policies under the Open Space and Conservation Goal: *To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels* (County of Fresno General Plan 2000). These policies include maximizing the avoidance and preservation of sensitive habitats and special-status species. Furthermore, in the event that a project cannot avoid degradation of a habitat the Policy states:

Mitigation shall be at sufficient ratios to replace the function and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking.

This Action would be conducted in accordance with the County's Open Space and Conservation Policies as would be the case for other approved projects in the area; therefore, the Action's incremental effects would not result in a cumulatively considerable contribution to impacts to sensitive plant and wildlife species or habitats. Additionally, direct impacts to biological resources are temporary resulting from construction activities and would not result in cumulative impacts.

In addition to the previous impacts on habitats that have occurred in the Proposed Action area as a result of agricultural and urban development, Reclamation is aware of the following projects:

- The Fresno Metropolitan Flood Control District master plan includes a future storm drain pipeline likely offset to the west of the centerline of the Auberry Road ROW. This proposed storm drain in Auberry Road varies in size between a 24-inch and 30-inch diameter and terminates approximately one mile north of Copper Avenue.

Other projects in the general area that may impact biological resources include Millerton New Town, Water Works #18, and a road widening at Winchell Cove. These projects may impact vernal pool species and the California tiger salamander. Future projects on the other side of Millerton Lake could also impact Hartweg's golden sunburst. In addition, the Friant Ranch housing development project was determined to adversely affect Hartweg's golden sunburst, the

California tiger salamander, and the vernal pool fairy shrimp. This project's impacts totaled 482 acres of habitat, including an acre of vernal pools and over four acres of vernal swales. This project was regulated by the Corps who consulted with the USFWS.

These projects have had or will have their own compliance with ESA, California ESA, California Environmental Quality Act, and the Migratory Bird Treaty Act. In addition, implementation of the minimization measures and mitigation included in Appendix B would reduce potential cumulative impacts to special-status species.

3.5 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects, determine if historic properties are present within that area of potential effects, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties. This section addresses potential impacts to cultural resources from the Proposed Action and Northern Alignment Alternative based on information from the May 2010 City of Fresno Draft Cultural Resources Report prepared for the proposed project. Without the Federal Action (connection to the Friant-Kern Canal), the rest of the proposed project could not be built. As such, this section addresses potential impacts to cultural resources beyond the Federal Action (entire alignment) in order to comply with the NHPA.

Archaeological and historical investigations for the proposed action included: a records search conducted by the Southern San Joaquin Valley Information Center at California State University, Bakersfield; archival research; a sacred lands search conducted by the Native American Heritage Commission; consultation with the Native American community; and surface survey of the Area of Potential Effect (APE).

3.5.1 Affected Environment

Archaeological and historical investigations identified three previously recorded sites within the Action area:

- Historic site P-10-000630: This site consists of remnants of a stone foundation and well.
- Historic site P-10-000868 (CA-FRE-868H): This site is an isolated segment of a railroad grade approximately 600 feet long and approximately 2 feet above the surface. There are no ties, rails or standing buildings/structures associated with the railroad grade segment. The railroad grade may be part of the San Joaquin Valley Railroad that was located in the area in the late 1800s. The railroad facilitated the agricultural development of the area by providing transportation for agricultural products. The San Joaquin Valley Railroad was acquired by the Southern Pacific Railroad in the early 1900s.
- Prehistoric site P-10-001391 (CA-FRE-1391): This is a prehistoric food processing and possible habitation site consisting of over 25 bedrock milling features and pestles. The site is located east of the Northern Alignment Alternative on private property well beyond the APE.
- The Friant-Kern Canal: The canal is part of the CVP that was initiated by Reclamation in 1935 as a long-term plan for water use in California's Central Valley. The Friant-Kern Canal was previously determined eligible for inclusion on the National Register. Construction of the Friant-Kern Canal began in 1945 and was completed in 1951. The Friant-Kern Canal conveys water from Millerton Lake, behind Friant Dam on the San Joaquin River, to the Kern River, 4 miles west of Bakersfield. The water is used for irrigation in Fresno, Tulare, and Kern Counties (Reclamation 1961). The Friant-Kern Canal primarily consists of 127 miles of concrete-lined canal with a bottom width of approximately 36 feet and a depth of approximately 15 feet. However, there are approximately 25 miles of unlined canal that consist of compacted earth with a bottom width of approximately 64 feet and a depth of approximately 15 feet (Water and Power Resources Service 1981). The segment of the Friant-Kern Canal in the APE is concrete-lined.
- Enterprise Canal: The Enterprise Canal was constructed in the late 1800s and currently supplies the SWTP with water through existing facilities.

3.5.2 Environmental Consequences

No Action

The No Action Alternative would not involve ground disturbance and would therefore not impact prehistoric or historic resources.

Proposed Action and Northern Alignment Alternative

Historic site P-10-000630: This site would not be impacted by either Action alternative since it is located on private property outside of the project area. Consequently, the record for the site was not updated and the eligibility of the site for inclusion in the National Register and California Register of Historic Resources (CRHR) will not be determined.

Historic site P-10-000868 (CA-FRE-868H): This site would be affected by the Proposed Action. Research did not identify the date of the construction of the railroad grade and could not directly associate it with significant events or lives of individuals in national, state, or local history.

Current survey of the site only identified a relatively short segment of isolated railroad grade. Current research and site recording appear to have exhausted the site's data potential, and it is unlikely that additional research regarding the site would yield any information important in history. In summary, this site lacks integrity and does not appear to meet any of the criteria for inclusion in either the National Register or the CRHR. The site is adequately recorded and does not require any additional historical investigation.

Prehistoric site P-10-001391 (CA-FRE-1391): This site would not be impacted by either Action alternative since it is outside of the project area. The site is located on private property beyond the APE. Consequently, the record for the site was not updated and the eligibility of the site for inclusion on the National Register and CRHR will not be determined as part of the Project.

The Friant-Kern Canal: The canal is eligible for the National Register but construction would not affect any of the characteristics of the canal that make it eligible for the National Register because there are existing turn-outs along the canal. The addition of another turnout would not add any features to the Friant-Kern Canal that do not already exist. Therefore, it does not appear that construction of either the Proposed Action or the Northern Alignment Alternative would affect the integrity or any of the characteristics of the canal that make it eligible for inclusion on the National Register.

Enterprise Canal: The eligibility of this canal is not determined and will not be addressed as part of this EA because it currently supplies water to the SWTP through existing facilities and will not be impacted by either Action alternative.

Cumulative Impacts

The cumulative setting associated with the Proposed Action includes proposed, planned, reasonably foreseeable, and approved projects and development in Fresno County. Because of the previously listed mitigation measure and the absence of potential impacts to known cultural resources, cumulative impacts are not anticipated.

3.6 Socioeconomic Resources

3.6.1 Affected Environment

The socioeconomic environment includes both the Proposed Action Area and overall metropolitan area. Within the Proposed Action Area, the primary socioeconomic concerns involve farmland impacts. Both the Proposed Action and Northern Alignment Alternative would traverse Prime Farmland, Unique Farmland, and Farmland of Local Importance. No Farmland of Statewide Importance would be traversed by either alignment.

Within the overall metropolitan area, the primary socioeconomic concerns involve the cost and reliability of water for the City and by extension the water users.

3.6.2 Environmental Consequences

No Action

The No Action alternative would avoid temporary socioeconomic impacts to farmland resulting from construction activities.

The No Action alternative could result in overall metropolitan area socioeconomic impacts resulting from water supply problems affecting groundwater recharge, system reliability, water quality and development.

Proposed Action and Northern Alignment Alternative

With the exception of tree crops, all forms of agriculture would be permitted within the permanent easement. Farmland impacts during construction would include the loss of standing crops from within the construction easement and the possible loss of future crop productivity resulting from loss of topsoil and soil compaction. Hay fields and pastures could take up to 2 years to return to previous production levels.

Construction of the pipeline would result in short-term impacts resulting from lands being unavailable for up to two seasons for grazing. The Proposed Action would not convert farmland to other uses. All the existing forms of agriculture within the construction and permanent easement would be allowed following construction.

Without the Proposed Action or Northern Alignment Alternative, the City could not meet current and planned development water supply demands, increase groundwater recharge, increase system reliability or redundancy, improve water quality and reduce risk of contamination. Each of these factors has a direct or indirect beneficial effect on the socioeconomic environment under both Action alternatives.

Cumulative Impacts

Cumulative socioeconomic impacts involve loss of farmland income and the future costs of water service for water users within the City water service area. Any loss of farmland income during construction activities would be temporary and compensation for crop losses would be determined during easement negotiations between the City and respective landowners. Cumulative socioeconomic impacts involving the future costs of water service are limited to the No Action Alternative as increased demand from development results in increased groundwater pumping costs, chemical treatment costs and energy use costs.

3.7 Environmental Justice

The February 11, 1994 Executive Order 12898 requires Federal agencies to ensure that their actions do not disproportionately affect minority and disadvantaged populations. This section addresses the concern of whether any group of people, including racial, ethnic, or socioeconomic group, would bear a disproportionate share of adverse environmental effects from implementation of the Action alternatives.

3.7.1 Affected Environment

The proposed project was reviewed to identify the appropriate level of data analysis required to understand whether low-income or minority populations around the Proposed Action Area could be disproportionately adversely affected by the project's impacts. Using data from the U.S. Census Bureau, an analysis was carried out to compare the ethnic/racial compositions and poverty levels in the communities near the proposed Fresno pipeline (City of Clovis, City, and Fresno County) with those in the State.

3.7.2 Environmental Consequences

No Action

With the No Action Alternative, a piped water conveyance system with reduced potential for water quality contamination would not be developed. The City has proportionately larger low income and minority populations than the state average. The City's residents would continue to rely on the Enterprise Canal for water conveyance of a major portion of the City's municipal and industrial water supply, which is vulnerable to contamination from people, wildlife, domestic animals, and agricultural runoff. Therefore, the No Action Alternative is anticipated to have an adverse (but not substantial) effect on low income and minority populations in the area. Because the same system serves all of the City's residents, the No Action Alternative would not disproportionately benefit or adversely affect minority and disadvantaged populations.

Proposed Action

It is anticipated that the Proposed Action and Northern Alignment Alternative would provide improved water quality protection, including protection from both inadvertent contamination and intentional malicious acts. With either Action alternative, all of the City's residents would have greater access to a secure water source; therefore, the Action alternatives are anticipated to have a beneficial effect to all of the City's residents with no disproportionate effect to any low income and minority populations in the Proposed Action Area.

Cumulative Impacts

Cumulative disproportionate impacts to minority and disadvantaged populations would be limited to the No Action Alternative. As stated previously, the future costs of water service with the No Action Alternative could increase as demand from development results in increased groundwater pumping costs, chemical treatment costs and energy use costs which would disproportionately impact these populations.

3.8 Air Quality

Section 176 (C) of the Clean Air Act (42 U.S.C. 7506 (C)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110 (a) of the Federal Clean Air Act (42 U.S.C. 7401 [a]) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of those standards. Each federal agency must determine

that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable State Implementation Plan before the action is taken.

On November 30, 1993, the EPA promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

3.8.1 Affected Environment

The Proposed Action area lies within the San Joaquin Valley Air Basin under the jurisdiction of the San Joaquin Valley Air Pollution Control District. The pollutants of greatest concern in the San Joaquin Valley are carbon monoxide, ozone, ozone precursors such as reactive organic gases (ROG) or volatile organic compounds (VOC), inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}). The San Joaquin Valley Air Basin has reached Federal and State attainment status for carbon monoxide, nitrogen dioxide, and sulfur dioxide. Although Federal attainment status has been reached for PM₁₀ the State standard has not been met and both are in non-attainment for ozone and PM_{2.5} (San Joaquin Valley Air Pollution Control District 2014). There are no established standards for nitrogen oxides (NO_x); however, they do contribute to nitrogen dioxide standards and ozone precursors (San Joaquin Valley Air Pollution Control District 2014).

3.8.2 Environmental Consequences

No Action

The No Action Alternative would have no adverse effect to air quality.

Proposed Action

The Proposed Action and Northern Alignment Alternative would result in temporary emissions from construction activities (primarily from vehicle use). During the construction phase, approximately 20 vehicles (as well as other equipment) would be used. Table 6 shows emission outputs for nonattainment status pollutants VOC, PM_{2.5}, and CO₂. These numbers were derived from estimated emissions based on construction equipment use for the Proposed Action.

Table 6 Calculated unmitigated annual construction emissions

Construction Activity	VOC (tons/year)	PM _{2.5} (tons/year)	CO ₂ (tons/year)
Total Emissions	3.08	0.91	3,914.11

As shown in Table 6, calculated emissions are well below the *de minimis* thresholds for the San Joaquin Valley Air Pollution Control District; therefore, there would be no adverse air quality impacts associated with this Proposed Action and a conformity determination pursuant to the Clean Air Act is not required. Because the pipeline length between the Proposed Action (4.5 miles) and the Northern Alignment Alternative (4.9 miles) differs by only an 8.9 percent increase, neither Action is expected to exceed the *de minimis* thresholds.

Emissions from construction and O&M of the Proposed Action or Northern Alignment Alternative would not violate a State or Federal ambient air quality standard, and would not contribute substantially to any existing or future air quality violation because:

- The Proposed Action and Northern Alignment Alternative would be constructed and operated in compliance with both state and Federal air quality attainment and management plans and with local rules and regulations (Appendix B).
- Measures included in the SJVAPCD air quality maintenance plan would be utilized (Appendix B).
- Substances containing objectionable odors would not be utilized during construction of the Proposed Action or Northern Alignment Alternative.
- The hydroelectric power generation facility produces low-emission electricity.

Further, the Proposed Action or Northern Alignment Alternative could result in a net decrease in emissions over time as opposed to the current system of pumping water through the Enterprise Canal because of the gravity fed movement of water.

Cumulative Impacts

The Proposed Action, when added to other existing and proposed actions, would not contribute to cumulative impacts to air quality since construction activities are short-term and well below *de minimis* thresholds.

3.9 Global Climate Change

3.9.1 Affected Environment

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes can contribute to climate change [changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.] (EPA 2014a).

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are: CO₂, methane (CH₄), nitrous oxide, and fluorinated gasses (EPA 2014a).

During the past century humans have substantially added to the amount of GHG in the atmosphere by burning fossil fuels such as coal, natural gas, oil and gasoline to power our cars, factories, utilities and appliances. The added gases, primarily CO₂ and CH₄, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2014b).

Climate change has only recently been widely recognized as an imminent threat to the global climate, economy, and population. As a result, the national, state, and local climate change regulatory setting is complex and evolving.

In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide greenhouse gases emissions. CARB is further directed to set a greenhouse gases emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the EPA has issued regulatory actions under the Clean Air Act as well as other statutory authorities to address climate change issues (EPA 2014c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of greenhouse gases by large source emitters and suppliers that emit 25,000 metric tons or more of greenhouse gases [as CO₂ equivalents per year] (EPA 2009). The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and has undergone and is still undergoing revisions (EPA 2014c).

3.9.2 Environmental Consequences

More than 20 million Californians rely on the State Water Project and CVP. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations.

While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

No Action

There would be no impacts to global climate change from this alternative as conditions would remain the same as existing conditions.

Proposed Action

Impacts from GHG are considered to be cumulative impacts; however, delivery of water with or without the Proposed Action is part of the existing baseline conditions of the CVP and is not expected to produce additional GHG that could contribute to global climate change.

As shown in Table 6, estimated emissions of CO₂ for construction of the Proposed Action are 3,914 tons (3,551 metric tons), which is well below the 25,000 metric tons per year (27,558 tons per year) threshold for reporting GHG emissions as CO_{2e}. As a result, the Proposed Action is not expected to contribute cumulative adverse impacts to global climate change.

CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

Cumulative Impacts

Estimated annual CO₂ and CH₄ emissions are well below the EPA threshold for annually reporting GHG emissions. As a result, both the Proposed Action and the Northern Alignment Alternative are not expected to contribute cumulatively to global climate change.

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Section 4 Consultation and Coordination

Reclamation and the City have coordinated and consulted with the following federal agencies and stake holders.

- Representatives of the City and Reclamation met with the USFWS on March 6, 2008, to initiate the informal consultation process and to review the potential pipeline alignments and biological resources and concerns. Follow-up meetings were held on June 25 and July 28, 2009 and the USFWS requested that a Biological Assessment be prepared and submitted with the EA.
- A meeting was held with the Corps on February 5, 2009, to discuss the project in relation to compliance with Section 404 of the Clean Water Act.
- Reclamation and the City have had formal and informal consultation regarding the action with the following agencies:
 - City of Clovis: November 12, 2008
 - County of Fresno: November 12, 2008 & June 29, 2009
 - California Department of Public Health: August 28, 2007 & February 15, 2009
 - California Department of Fish & Game May 28, June 12, June 25 and July 28, 2009
 - Friant Water Authority: June 27, 2007 & September 18, 2009
 - Fresno Metropolitan Flood Control District: February 5 and September 25, 2009

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA during a 30-day public review period. Reclamation received one comment letter, which is included in Appendix A along with Reclamation's response.

4.2 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation consulted with the USFWS on potential effects to conservancy fairy shrimp, vernal pool fairy shrimp, California tiger salamander, and San Joaquin kit fox. Reclamation received concurrence from the USFWS on Reclamation's determinations of not likely to adversely affect for the conservancy fairy shrimp and San Joaquin kit fox. Reclamation also received a non-

jeopardy biological opinion from the USFWS on California tiger salamander and vernal pool fairy shrimp (see Appendix C).

4.3 National Historic Preservation Act (16 U.S.C. § 470 et seq.)

The National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the National Historic Preservation Act.

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the area of potential effects, conduct cultural resource inventories, determine if historic properties are present within the area of potential effects, and assess effects on any identified historic properties.

Reclamation determined that the Action alternatives would have no adverse effect to historic properties pursuant to 36 CFR 800.5(b). SHPO concurred with Reclamation's determination on December 4, 2015 (see Appendix D).

4.4 Clean Water Act (33 U.S.C. § 1251 et seq.)

Section 301 of the Clean Water Act (33 U.S.C. § 1311) prohibits the discharge of any pollutants into waters of the United States, except as allowed by permit issued pursuant to various sections of the Clean Water Act.

Section 401

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires any applicant for an individual Army Corps of Engineers (Corps) dredge and fill discharge permit (see Section 404, below) to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

A 401 Certification would be required for either Action alternative. The City obtained a technically conditioned water quality certification for the Proposed Action on February 26, 2015.

Section 404

Section 404 of the Clean Water Act (33 U.S.C. § 1344) authorizes the Corps to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States". The City is seeking coverage from the Corps under a Nationwide Permit, which would not allow for full access road construction. If the City wishes at a future date to construct the full access road, they would need to apply for a standard individual permit.

An Individual or Nationwide 404 Permit would be required with either Action alternative. The City will be acquiring the applicable permit for their proposed pipeline project.

4.5 Executive Order 11988 – Floodplain Management

Executive Order 11988 requires that all Federal agencies take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare.

The Proposed Action and Northern Alignment Alternative would not involve housing or other, major above-ground structures, within a flood hazard area that could impede floodwater flows. However, areas disturbed during construction within the existing 100-year flood zones could impede flood flows if a flood occurred during construction or afterwards if the disturbed areas remain. Measures would be implemented by the City to minimize these potential effects (see Appendix B).

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Appendix A

Comment Letter and Reclamation's Response to Comments

ARVIN-EDISON WATER STORAGE DISTRICT

20401 BEAR MOUNTAIN BOULEVARD
MAILING ADDRESS: P.O. Box 175
ARVIN, CALIFORNIA 93203-0175

TELEPHONE (661) 854-5573
FAX (661) 854-5213

EMAIL arvined@aewsd.org

September 19, 2011

Via Electronic Mail (csiek@usbr.gov)
Via Facsimile: (559) 487-5397 & U.S.P.S Mail

PRESIDENT
HOWARD R. FRICK

VICE PRESIDENT
EDWIN A. CAMP

SECRETARY-TREASURER
JOHN C. MOORE

ENGINEER-MANAGER
STEVEN C. COLLUP

ASSISTANT MANAGER
DAVID A. NIXON

STAFF ENGINEER
JEEVAN S. MUHAR

DIRECTORS

DIVISION 1
RONALD R. LEHR
DIVISION 2
JEFFREY G. GIUMARRA
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HOWARD R. FRICK
DIVISION 4
DONALD M. JOHNSTON
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DIVISION 8
DONALD VALPREDO
DIVISION 9
KEVIN E. PASCOE

Chuck Siek
Supervisory Natural Resource Specialist
U.S. Department of the Interior
BUREAU OF RECLAMATION
Mid-Pacific Region
1243 N Street
Fresno, CA 93721

**Re: AEWSD Comments to Draft Finding of No Significant Impact (FONSI)
And Draft EA-07-124 - City of Fresno Raw Water Pipeline**

Dear Mr. Siek:

The EA referenced above mentions in several instances that the proposed facilities will not cause any impacts to other waters. The justification for the statement appears to be that City of Fresno already has a water contract so no new supplies are being committed, etc.

AEWSD-1 It is unclear however whether these new facilities and point of diversion will have a detrimental effect on canal capacity for other water users. The Friant-Kern Canal (FKC) comes under periodic prorate during wet years and many districts can not receive the full supplies they are requesting. Subsequently, and as the FKC did not include these proposed facilities in the original design, they should be reviewed to ensure they will have NO detrimental effects on deliveries to other existing water users and the EA should state that finding unequivocally.

Thank you for the opportunity to comment and if you have any questions, please contact me.

Sincerely,

Steve Collup
Engineer-Manager

Response to Arvin-Edison Water Storage District Comment Letter, September 19, 2011

AEWSD-1- Reclamation and our operating entity have reviewed the location and potential effects of the proposed Fresno Raw Water Pipeline project and determined that there would be no detrimental effects to canal capacity or deliveries to other existing water users based on the proposed project's location. The project is located upstream of the Kings River check in the same reach as the existing Fresno Irrigation District (FID) turnouts. FID's turnouts have historically been utilized to deliver the City of Fresno's (City) existing municipal and industrial water supply. This reach has never been included in any Friant-Kern Canal capacity prorates because there have not been any capacity problems upstream of the Kings River check.

Appendix B

Mitigation/Minimization Measures

Mitigation/Minimization Measures

Resource	Discussion	Measures	Scheduling and Responsible Agency
Water Resources (Storm Water Pollution Prevention Plan)	Surface water and stormwater contamination shall be minimized through the implementation of a Project-specific Storm Water Pollution Prevention Plan (SWPPP). A SWPPP is required as a permit requirement of the RWQCB General Construction National Pollutant Discharge Elimination System (NPDES) Permit (SWRCB 2004). Compliance with the General NPDES Permit requirements would ensure that stormwater discharge meets Basin Plan water quality objectives and that the existing beneficial uses and water quality at the discharge points are maintained and protected.	<p>In the Project-specific SWPPP, the Contractor(s) would be required to:</p> <ul style="list-style-type: none">▪ Prevent silt, eroded materials, construction debris, concrete or washings thereof, or hazardous substances from being introduced into any watercourse, stream, or storm drain system;▪ Ensure that water does not cause erosion of soil;▪ Prohibit the stockpiling of soil (including drilled cuttings), storage of hazardous materials, and stockpiling of construction materials in flood zones during the rainy season, typically between October 15 and April 15. Any limited stockpiling that may need to occur during that period would be done outside of flood zones;▪ Provide “housekeeping” measures to minimize the potential for contamination of soil or groundwater through leaks or inadvertent release of hazardous materials from construction equipment or storage areas;▪ Provide controls to prevent discharge of sediment from all stockpiled soil and▪ Ensure that the discharge of soil or other material does not have an adverse effect on receiving waters or cause or contribute to a violation of water quality standards. <p>The SWPPP will identify:</p> <ul style="list-style-type: none">▪ Potential pollutant sources, including sources of sediment (such as areas of soil exposed by grading activities and soil/sediment stockpiles); and▪ Any stormwater discharges, including springs or other groundwater discharges. <p>The SWPPP will also identify site-specific erosion and sedimentation control BMPs that will be used to protect waterways and topsoil from stormwater runoff as well as the placement and maintenance of those BMPs. The BMPs will include measures such as the following:</p> <ul style="list-style-type: none">▪ Measures for controlling erosion and sedimentation, such as ground covers, revetment systems, or bioengineering stabilization (e.g., live staking or vegetated geogrids);▪ Procedures for handling and disposing of hazardous materials (e.g., fuel and lubricants) and construction waste;▪ Measures for post-construction erosion and sediment control; and▪ Methods to eliminate or reduce non-stormwater discharges to receiving waters.	<p>Pre-construction and construction phase.</p> <p>The Contractor would be responsible for implementation of the SWPPP with oversight and verification by City of Fresno.</p>
Water Resources (National Pollutant Discharge Elimination System)	The Contractor(s) shall be required to comply with NPDES stormwater permitting requirements. In accordance with NPDES permitting requirements, the Contractor(s) would submit the required Notice of Intent, comply with the Project SWPPP by implementing site-specific BMPs to control and eliminate discharges of construction-related sediments and pollutants in stormwater runoff.	Measures should be implemented at the staging areas to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain toward receiving waters. For example, if heavy-duty construction equipment is stored overnight at the construction staging areas, drip pans would be placed beneath the machinery engine block and hydraulic systems to prevent any leakage from entering runoff or receiving waters reducing the potential impact to less than significant. Also, during trench operations, stockpiles would be surrounded by hay bales, wattles, or other appropriate BMPs to minimize erosion and potential sedimentation of nearby waterways by stormwater runoff. The SWPPP shall include specific protection measures for temporary on-site storage of diesel fuels, chemicals used during drilling, cathode protection testing, or other Project activities.	<p>Pre-construction and construction phase.</p> <p>The Contractor would be responsible for implementation of the SWPPP with oversight and verification by City of Fresno.</p>

Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Land Use (Agriculture)	Agricultural land use impacts to grazing land and to less than 1 acre of vineyard would be reduced with implementation of these measures.	<ul style="list-style-type: none">Topsoil shall be segregated and stored. It shall be placed on the right-of-way in grazing and vineyard areas after the pipeline has been installed.Compensation for vineyard losses shall be determined during easement negotiations.	To be determined by City of Fresno
Land Use (Recreation and Bicycle Access)	Recreation and Bicycle Access impacts would be reduced implementation of these measures.	<ul style="list-style-type: none">If the bike lanes on Willow and Auberry Avenues have to be closed during construction, the City shall include a detour route within the traffic control plan. Signs shall be posted alerting bikers to the detour.	Pre-construction and construction phase.
Land Use (Residential)	Construction practices used to minimize disruption in residential areas include reducing workspace requirements, reducing the size of work crews and equipment, increasing the use of temporary safety fencing, avoiding the removal of trees, and minimizing the time that the trench is left open.	<p>Land use impacts, specifically impacts to residences within 50 feet of the construction area, would be reduced with implementation of the following measures:</p> <ul style="list-style-type: none">Fence the edge of the construction work area adjacent to the residence for a distance of 100 feet on either side of the residence.Leave as many trees and landscaping plants as possible on the residence property. Tree branches may need to be trimmed on the working side to allow for safe operation and passage of construction equipment. Any vegetation removed shall be disposed of as negotiated by the landowner and the City.Restore or replace lawns and landscaping to preconstruction conditions and repair walls and other structures within the construction work area immediately after the trench is backfilled and cleanup complete.Segregate topsoil where appropriate.Avoid interruption to utilities and supply interim needs if interruption occurs.Construct in daylight hours, unless unusual circumstances occur.Immediately cleanup after backfill.Begin re-vegetation at the first seasonal opportunity.Clean up trash and debris daily.Use stove pipe or drag-section construction techniques where feasible and appropriate.Notify landowners prior to start of construction adjacent to a residence.Maintain traffic flow and emergency vehicle access on residential roadways with traffic detail personnel or detour signs where necessary.Backfill and restore residential areas as soon as possible, and fence off or plate sections of trench left open at the end of the construction day.Periodically inspect road surfaces near residences and, if necessary, clean street surfaces and wet exposed soil.Limit construction to weekdays.	<p>Pre-construction and construction phase.</p> <p>The Contractor would be responsible for implementation of land use measures with oversight and verification by City of Fresno.</p>
Biology	Monitoring	The FCR who would be responsible for overseeing compliance with protective requirements for listed species.	<p>Construction phase.</p> <p>Field contact representative with oversight and verification by City of Fresno.</p>

Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Biology	All special-status plant species and vernal pool animal species including tiger salamander would be protected with the following mitigation measures:	<p>Certain temporary staging and access areas near the east end of the Proposed Action, as well as a short section near the western end of the Proposed Action, were added to the Project after plant surveys in the Proposed Action Area were conducted in 2010. Plant surveys will be conducted in these additional areas in the spring of 2011 prior to construction, during the flowering periods for special-status plant species that could occur in the Proposed Action Area. The results of these surveys will be reported to USFWS and CDFG.</p> <p>Existing routes to and from the construction and inspection sites would be used. Cross-country use of vehicles and equipment would be strictly prohibited.</p> <p>The City would designate a field contact representative (FCR) who would be responsible for overseeing compliance with protective requirements for listed species. The FCR would be on site during Project activities. The FCR would have authority to halt all activities that are in violation of the requirements. The FCR would have a copy of all requirements when work is being conducted on the site. The FCR may be a Project manager, City representative, or a contract biologist; if the FCR is not a biologist, a Project biologist will be designated who will train the FCR and be available to respond to situations involving potential direct contact with sensitive species.</p> <p>The FCR would have the authority to halt all nonemergency Project activity should danger to a listed or Fully Protected species arise. Work would proceed only after hazards to the listed species are removed, the species is no longer at risk, or the individual has been moved from harm’s way by the authorized biologist. No Fully Protected species will be moved or possessed at any time.</p> <p>All surface-disturbing activities within the range of any listed species would be conducted in a manner that reduces, as much as possible, the potential for take of individuals of a listed species. Impacts to habitat would also be minimized to the maximum possible extent.</p> <p>The area of disturbance would be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, nesting sites or dens, public health and safety, and other limiting factors. As needed, work area boundaries would be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as populations of listed plants or burrows identified by a qualified biologist, would be avoided to the extent possible. To the extent possible, previously disturbed areas within the Proposed Action Area would be used for the stockpiling of excavated materials, storage of equipment, digging of slurry and borrow pits, locations of trailers, parking of vehicles, and any other surface-disturbing activity. The qualified biologist, in consultation with the City, would ensure compliance with these measures.</p> <p>All activities would be restricted to the pre-determined corridor. If unforeseen circumstances require expansion of this width, the potential expanded work areas would be surveyed for listed species prior to use of the area. All appropriate mitigation measures would be implemented within the expanded work areas based on the judgment of the USFWS, CDFG, and the City’s biological consultant. Work outside of the original right-of-way would proceed only after receiving written approval from the USFWS, describing the exact location of the expansion.</p> <p>In grasslands and any areas with native vegetation, the City would restore disturbed areas in a manner that would assist in the reestablishment of biological values within the disturbed right-of-way. Methods of such restoration would include the reduction of erosion, sequestering and then resspreading of the top 6 inches of soil.</p> <p>If impervious material is disturbed during installation of the pipeline such that flow to the vernal pools south of the Proposed Action Area could be altered, the City would replace any impervious material disturbed with engineered backfill or provide alternative measures in order to provide the surface drainage necessary to maintain pre-Project flows to those pools.</p> <p>Impacts to habitat for listed vernal pool branchiopods, California tiger salamander, or any special-status plant populations associated with seasonal wetlands will be mitigated by the purchase of equivalent habitat credits at an accredited mitigation bank. Credits are available at an existing bank.</p>	<p>Pre-construction and construction phase.</p> <p>Field contact representative with oversight and verification by City of Fresno.</p>

Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Biology	Additional Measures	<p>Where possible, trenches shall be backfilled prior to stopping work for the day. In areas where trenches are left open and unattended, slopes on either end of the open trench shall be installed to allow wildlife to move out of the trenches without assistance.</p> <p>Following pre-construction surveys, the right-of-way or portions of it would be fenced to minimize the potential for special-status wildlife usage through the Proposed Action Area.</p> <p>If construction activities cannot avoid some burrows, off-site habitat improvements or habitat acquisitions would be endowed at a ratio stipulated by the resource agencies.</p> <p>Disturbances in San Joaquin kit fox habitat would be avoided between January 1 and April 30. Activities in San Joaquin kit fox habitat would be consistent with the USFWS's Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999a).</p> <p>Burrows of listed species outside of, but near, the pipeline right-of-way would be prominently flagged during pre-activity surveys so that they may be avoided during work activities. Disturbance of such sites would be avoided to the extent possible. In the event an occupied burrow is found within the work area, a qualified biologist would be on site during work activities.</p> <p>Conduct pre-construction surveys for burrowing owl (Burrowing Owl Consortium 1993), and San Joaquin kit fox. Either conduct vegetation removal between September 1 and February 28 or conduct pre-construction surveys for breeding birds. If any of these species are found, implement standard measures to avoid impacts or reduce them to a less-than-significant level.</p> <p>The USFWS has developed a detailed set of avoidance and minimization actions for potential impacts to San Joaquin kit fox (USFWS 1999a) that would be implemented if the San Joaquin kit fox is found during pre-construction surveys.</p> <p>Burrowing owl surveys, which consist of four site visits (both dawn and dusk surveys each day) should be conducted prior to the breeding season so that one-way owl exclusion devices can be installed on occupied burrows before eggs or young are present.</p> <p>Nests of breeding birds protected by the Migratory Bird Treaty Act must be protected from disturbance until the eggs hatch and the nestlings fledge.</p> <p>Surveys for breeding Swainson's hawks will be conducted in the early spring according to CDFG's recommended protocol (CDFG 2000). If an active Swainson's hawk nest is found within one half mile of the area to be affected by construction activities, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest in consultation with CDFG. Intensive new disturbances (e.g., heavy equipment activities associated with construction) that may cause nest abandonment or forced fledging will not be initiated within this buffer zone between March 1 and September 15 until it is determined by a qualified biologist in coordination with CDFG that the young have fledged and are feeding on their own.</p>	<p>Pre-construction and construction phase.</p> <p>Field contact representative with oversight and verification by City of Fresno.</p>
Cultural	Discovery	<p>If during the course of construction activities cultural resources are discovered, work shall be halted immediately within 50 feet of the discovery, the City of Fresno Planning Department shall be notified, and a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to determine the significance of the discovery. The City shall address the discovery by implementing a measure such as avoidance, preservation in place, excavation, documentation, curation, or data recovery.</p>	<p>Construction phase.</p> <p>The Contractor would be responsible with oversight and verification by City of Fresno.</p>

Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Air Quality	The Proposed Project and Northern Alignment Alternative would be constructed and operated in compliance with both state and federal air quality attainment and management plans and with local rules and regulations.	<ul style="list-style-type: none">▪ The City will prepare a Dust Control Plan in accordance with the SJVAPCD’s requirements.▪ Fugitive dust would be prevented during construction of the pipeline primarily by implementing dust control measures such as (1) spraying the ground surface with water twice a day or as needed depending on trenching locations and meteorological conditions, and (2) hauling away excess soil from trenching for pipe installation. These measures would reduce air quality impacts to less than significant.▪ Substances containing objectionable odors would not be utilized during construction of the Proposed Project or Northern Alignment Alternative.	Construction phase. The Contractor would be responsible for implementation of land use measures with oversight and verification by City of Fresno.
Air Quality	<p>During construction of the pipeline, additional vehicles would be increasing emissions in the area but at a level below current federal or state ambient air quality standards</p> <p>Pipeline construction would cause short-term emissions of NOX, SO2, CO, PM₁₀, and PM_{2.5} from construction equipment and earthmoving (ground disturbance) for several weeks in affected areas(Table 3-2). Sensitive receptors may be exposed to weekday construction emissions during a period of several weeks, and construction emissions are transient and temporary in nature.</p>	<p>Air Quality and Global Climate Change Measures are identical as emissions effect both.</p> <ul style="list-style-type: none">▪ Onroad and offroad vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.▪ Lower-carbon fuels such as biodiesel blends shall be used where feasible.▪ Engine retrofits to remove emissions such as diesel particulate matter filters with diesel oxidation catalysts shall be used where feasible.▪ Construction equipment engines shall be maintained to manufacturer’s specifications.▪ Locally-made materials for construction shall be used to the extent feasible.▪ Construction debris shall be recycled for reuse to the extent feasible.▪ Any existing trees and vegetation in construction areas shall be preserved or replaced (if removal is necessary for Project activities) as a means of providing carbon sequestration.▪ Ride-sharing when transporting work crews to and from the construction site shall be encouraged.▪ Idling time of all vehicles and equipment shall be limited.	Construction phase. The Contractor would be responsible for implementation of land use measures with oversight and verification by City of Fresno.
Global Climate Change	Combustion sources used in construction would directly emit greenhouse gases. During construction, contractors would implement these measures to reduce greenhouse gas emissions from fuel combustion and construction activities.	<p>Air Quality and Global Climate Change Measures are identical as emissions effect both.</p> <ul style="list-style-type: none">▪ Onroad and offroad vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and reinflated at regular intervals.▪ Lower-carbon fuels such as biodiesel blends shall be used where feasible.▪ Engine retrofits to remove emissions such as diesel particulate matter filters with diesel oxidation catalysts shall be used where feasible.▪ Construction equipment engines shall be maintained to manufacturer’s specifications.▪ Locally-made materials for construction shall be used to the extent feasible.▪ Construction debris shall be recycled for reuse to the extent feasible.▪ Any existing trees and vegetation in construction areas shall be preserved or replaced (if removal is necessary for Project activities) as a means of providing carbon sequestration.▪ Ride-sharing when transporting work crews to and from the construction site shall be encouraged.▪ Idling time of all vehicles and equipment shall be limited.	Construction phase. The Contractor would be responsible for implementation of land use measures with oversight and verification by City of Fresno.

Appendix C

U.S. Fish and Wildlife Service Biological Opinion



United States Department of the Interior



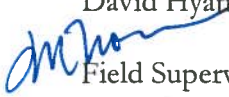
In Reply Refer to:
08ESMF00-
2008-F-1764

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

NOV 24 2015

Memorandum

To: David Hyatt, Bureau of Reclamation, South-Central California Office

From:  Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Formal Consultation on the City of Fresno Raw Water Pipeline Project (EA-07-124; SPK-2011-00977)

This memo is in response to the U.S. Bureau of Reclamation's (Reclamation) request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed City of Fresno (City) Raw Water Pipeline Project (project) in Fresno County, California. At issue are the proposed project's effects on the federally threatened Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*) (VPFS) and central California distinct population segment of the California tiger salamander (*Ambystoma californiense*) (CTS) and the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal actions on which we are consulting are Reclamation's authorization and grant fund issuance to allow a new turnout off of the Friant-Kern Canal, a new check structure in the canal and associated infrastructure. In a September 2011 letter (SPK-2011-00977), the US Army Corps of Engineers (Corps) designated Reclamation as the lead federal agency to act on their behalf for the proposed project. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect, CTS and VPFS. The findings also conclude that the proposed project may affect, but is not likely to adversely affect the conservancy fairy shrimp and San Joaquin kit fox.

In considering your request, we based our evaluation on multiple drafts of the biological assessment as well as the final biological assessment received on July 31, 2015. After reviewing all of the available information, we concur with your determination that the proposed project may affect, but is not likely to adversely affect the conservancy fairy shrimp and San Joaquin kit fox.

The range of the conservancy fairy shrimp includes the project area however suitable habitat for the species is not present.

A San Joaquin kit fox was reported near the community of Friant approximately five miles north of the project area in the 1990's. Since the time of that unconfirmed incidental sighting, kit fox have

not been documented in the vicinity of the project area either incidentally or during focused surveys. San Joaquin kit fox are not expected to occur within the project area.

The remainder of this document provides our biological opinion on the effects of the proposed project on CTS and VPFS.

Consultation History

March 2008	Meeting between the Service, Reclamation and the City of Fresno to discuss the Project.
May 2009	The Service issued comments on draft biological assessment to Reclamation.
June 2009 - July 2011	Multiple discussions between Service, Reclamation and the City of Fresno regarding Project.
November 2011	The Service received a request for initiation of formal consultation on Project.
November 2011 – March 2014	Multiple discussions between Service, Reclamation and the City of Fresno regarding Project.
March 2014	The Service received a revised biological assessment from Reclamation.
May 2014	The Service issued comments to Reclamation on biological assessment.
April 2015	The Service received a revised biological assessment from Reclamation.
May 2015	The Service issued comments to Reclamation on biological assessment.
June 2015	Meeting between the Service, Reclamation and the City of Fresno to discuss the Project. The Service received a revised biological assessment from Reclamation.
July 2015	The Service received multiple versions of the biological assessment from Reclamation.
September 2015	The Service received a revised project description from Reclamation.

Description of the Action

Reclamation proposes to review the design drawings and issue the notice to proceed with construction of a new turnout off of the Friant-Kern Canal, to issue a land use authorization for the

installation of a 50-foot antenna pole, a storage/control building, improvements to an access road on the Friant-Kern Canal right-of-way, staging on the Friant-Kern Canal right-of-way, both temporary and permanent access using the existing road along the Friant-Kern Canal, and amend an existing license with Pacific Gas and Electric to allow for the electrical connection to the water control panel, as well as provide grant funds for a portion of the project in accordance with the City of Fresno's 2015 WaterSMART grant #R15AP00098.

The federal actions include the issuance of a permit by the Corps pursuant to Section 404 of the Clean Water Act to authorize the discharge of dredged or fill material into 0.44 acres of waters of the United States associated with construction of the proposed project. The Corps has designated Reclamation as the lead federal agency to act on their behalf for the proposed project.

The proposed project to be implemented by the City of Fresno would accomplish the following objectives:

- Provide a more reliable, uninterrupted supply to the City of Fresno's Northeast Surface Water Treatment Facility (SWTF) than currently exists;
- Reduce groundwater overdraft;
- Supplement adequate water capacity in the City of Fresno's 2025 Fresno General Plan and evaluated in the subsequent Master Environmental Impact Report (MEIR) for the General Plan;
- Provide redundancy of supply by making the new pipeline the primary supply conveyance and the Enterprise Canal the backup supply source;
- Provide improved water quality protection, including protection from both inadvertent contamination and intentional malicious acts;
- Reduce chemical treatment costs at the SWTF by utilizing improved quality supply water; and
- Reduce power consumption by taking advantage of available head (elevation difference) and eliminating the use of raw water pumps when using the primary supply source.

The proposed project is approximately 24,300 feet (4.6 miles) in length from the Friant-Kern Canal to the north end of the existing pipeline. The proposed pipeline would connect to the existing pipeline on Willow Avenue east of the Clovis Unified School District site, and at the north property boundary of the SWTF. The total area within which the project will be constructed is 60.84 acres.

The existing SWTF has a maximum treatment capacity of 27.5 million gallons per day (mgd). Future expansion will increase the SWTF to a maximum capacity of 60 mgd. The raw water pipeline would be capable of delivering up to 60 mgd to meet the design capacity of the SWTF.

A hydropower plant will be constructed on previously graded land at the north-central portion of the SWTF between the existing raw water pumping station and the 60-inch raw water pipeline. The plant would be located within 75 feet of the existing electrical system.

The proposed project consists of predominantly subsurface facilities, with a few aboveground appurtenances, including a powerhouse. The aboveground structures would be limited to combination air-release and vacuum valves constructed within protective steel enclosures (approximately 5 feet by 5 feet) at appropriate locations along the entire pipeline, as well as secured,

manhole-type structures at specific locations required for access. Protective ballards will be installed above ground to prevent vehicle damage to above ground structures. Corrosion Testing Stations would be constructed along the pipeline which consist of an approximately 12-inch-diameter utility box flush with grade, set in a 6-inch-thick, 2- by 2-foot concrete collar that is flush with grade. See additional structures described below for connection to the Friant-Kern Canal.

A new turnout connection to the Friant-Kern Canal would be required. The new turnout structure would include an approximately 50-foot tall antenna pole, and adjacent to the new turnout a 12-foot by 24-foot concrete block or similar aboveground structure for storage, control, and measurement equipment. The connection to the Friant-Kern Canal includes a new underground electrical service connection from PG&E's existing pole to the new control building.

Open-cut trenching would be utilized for most of the new turnout and pipeline alignment including the electrical connection for the water control station. If bedrock is encountered, blasting may be required. Pipe segments will be placed along the right-of-way adjacent to the trench alignment. Open-cut trenching will be performed using construction equipment to excavate the trench, temporarily placing excavated material within the easement adjacent to the trench. In doing so, the top 12 inches of topsoil will be segregated and stockpiled to replace to hold for the top 12 inches of backfill and later reseeded. No excavated material will be stockpiled within waters of the U.S. (i.e., drainages and wetlands). The trench for the pipeline will be approximately 12 feet deep and 25 feet wide. The maximum trench width will be limited to approximately 21 feet within the limits of waters of the U.S. A crane or excavator is then used to place the pipe segment into the trench. Depending on pipe material, the joint between two pipe segments is welded and/or banded in concrete. The excavated material will be used to backfill the trench to pre-project conditions according to accepted engineering standards for this type of work. The topography will then be restored to match the grade of the terrain prior to excavation. The speed at which the spread of active trenching moves is dependent upon the type of open-cut trenching used, the type of soil material encountered within the trench and the terrain of the pipeline corridor. The construction crew is anticipated to install 160 feet of pipeline per day, backfilling the pipeline as it is installed but typically leaving the trench open and side spoils in place for a few weeks before backfilling.

There are four areas that have been identified as temporary construction staging areas for the contractor. The staging areas are where the construction equipment, materials, and trailer office (if necessary), would be stored, and where construction workers would park their personal vehicles. If required, temporary power would also be made available to serve trailers either through existing or new temporary electrical connections.

Laydown areas along the pipeline route would be used to store materials. The laydown areas vary in size, depending primarily on the length of the pipeline construction for the area. The areas would be kept clean and restored to their original condition after construction is complete.

Operations would include maintenance of the water flow control devices and surge control facilities and inspections of air/vacuum release valves and testing at the Corrosion Testing Stations. Dewatering of the new pipeline for internal inspections would be accomplished by pumping water out of the pipeline for discharge to the Big Dry Creek Diversion Channel (BDCDC) subject to permit requirements. Dewatering would occur over several days such that increased flows in the BDCDC would be negligible.

A 12-foot-wide access road will be constructed adjacent to or over the proposed pipeline alignment along those portions of the alignment where the pipeline does not parallel existing County road right-of-way. In areas of potential wetlands, the access road will be constructed over the back-filled trench in which the pipeline was installed. The access road will be located primarily along the edge of agricultural land and will, whenever possible, be constructed within the footprint of existing dirt roads used for farming operations. The access road will be surfaced with aggregate base.

In general, no access road is planned for those areas where the new pipeline will parallel existing County road right-of-way. However, an exception to this will be made between Auberry Road and the BDCDC, where the new pipeline will be constructed beneath the paved surface of the existing Foothill Lane. During pipeline installation, Foothill Lane traffic will be rerouted onto a temporary gravel road to be constructed immediately parallel to the existing road. Upon completion of pipeline installation at this location, Foothill Lane will then be restored in its original location (over the raw water pipeline), and the temporary gravel road adjacent to the road will be removed. The ruderal habitat present at the location of the temporary gravel road will be restored to pre-project conditions.

Utilization of the access road is anticipated to occur quarterly for inspection of air/vacuum release valves and testing at the Corrosion Testing Stations.

Conservation Measures

The following measures would be incorporated into the proposed project to avoid and minimize potential adverse effects on VPFS and CTS:

1. Designated Representative. Before initiating project activities, the City shall designate a representative (Designated Representative) responsible for communications with the Service, Reclamation, and the Corps and for overseeing compliance with the proposed avoidance and minimization measures. The City shall notify the Service in writing, prior to commencement of ground- or vegetation-disturbing activities, of the Designated Representative's name, business address, and contact information, and shall notify the Service in writing if a substitute Designated Representative is selected or identified at any time during the project.
2. Designated Biologist. Before initiating project activities, the City shall identify one or more Designated Biologist(s) responsible for monitoring project activities to help avoid and minimize effects to listed species, and to minimize disturbance to the habitat of such. The Designated Biologist(s) shall be knowledgeable and experienced in the biology and natural history of the VPFS and CTS and possess Section 10(a)(1)(A) recovery permits for these species. The City shall obtain Service approval of the Designated Biologist(s) in writing prior to the commencement of project activities and shall also obtain approval in advance in writing, if the Designated Biologist(s) must be changed.
3. Designated Biologist Authority. To ensure compliance with the conditions found in the BO, the Designated Biologist(s) shall have the authority to immediately stop any activity that may result in adverse effects to CTS and VPFS not described in this biological opinion.
4. Education Program. The City shall conduct an education program for all persons employed or otherwise working on the project site prior to performing any work on-site. The program

shall consist of a presentation from the Designated Biologist(s) that includes a discussion of the life history, distribution, and habitat needs of the VPFS and CTS; the status of these species under the federal Endangered Species Act (FESA) including legal protection, recovery efforts, and penalties for violations; and project-specific protective measures. The City shall provide interpretation for non-English-speaking workers. The same instruction shall be provided for any new workers prior to their performing work in the project area. The City shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to refer to while on-site. Upon completion of the education program, employees shall sign a form stating they attended the program and understand all protection measures.

5. Construction Monitoring Notebook. The Designated Biologist(s) shall maintain a construction monitoring notebook on-site throughout the construction period which shall include a list of signatures of all personnel who have successfully completed the education program. The City shall ensure a copy of the construction monitoring notebook is available for review at the project site upon request by the Service.
6. Trash Abatement. The City shall initiate a trash abatement program prior to initiation of project activities and shall continue the program throughout the duration of the project. The City shall ensure that trash and food items are contained in closed (animal-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.
7. Dust Control. The City shall implement dust control measures during project activities to facilitate visibility for monitoring of the CTS by the Designated Biologist. The City shall keep the amount of water used to the minimum amount needed and shall not allow water to form puddles that last more than 48 hours.
8. Erosion Control Materials. The City shall prohibit use of erosion control materials potentially harmful to CTS and other species, such as mono-filament netting (erosion control matting) or similar material, in potential CTS habitat.
9. Firearms and dogs. The City shall prohibit firearms and domestic dogs from the project area and site access routes during construction and operations, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.
10. Delineation of Property Boundaries. Prior to initiating project activities, the City shall clearly delineate the boundaries of the project area (i.e., project easement boundaries) with fencing, stakes, or flags. The City shall maintain all fencing, stakes, and flags until completion of project activities in that area.
11. Delineation of Habitat. The City shall clearly delineate habitat of CTS and VPFS within the project area with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance to habitat.
12. Project Access. Project-related personnel shall access the project area using existing routes and shall not cross CTS or VPFS habitat outside of the construction easement area. The City shall restrict vehicle traffic to established roads and parking areas, a temporary access road to

be constructed along Foothill Lane, and the maintenance road to be established along the pipeline alignment. The City shall ensure that vehicle speeds do not exceed 20 miles per hour to avoid CTS on or traversing roadways.

13. Staging Areas. The City shall confine all project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the project area using, to the extent possible, previously disturbed areas.
14. Hazardous Waste. The City shall immediately stop work, and following pertinent State and Federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence or as soon as it is safe to do so. The City shall exclude the storage of hazardous materials from the project area and shall properly contain and dispose of any unused or leftover hazardous products off-site.
15. Refuse Removal. Upon completion of project activities, the City shall remove from the project area and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping materials, cords, cables, wire, rope, strapping, twine, buckets, containers, and boxes.
16. Construction Monitoring. Between Auberry Road and the Friant-Kern Canal the Designated Biologist shall be on-site daily for the duration of the day when ground-disturbing activities are scheduled to occur and when any disturbance to areas with vegetation or small mammal burrows, or in areas immediately adjacent to areas with vegetation or small mammal burrows may occur. The Designated Biologist shall conduct compliance inspections to (1) minimize incidental take of the CTS; (2) check for compliance with all conservation measures; (3) check all exclusion zones (as delineated under #11 above); and (4) ensure that signs, stakes, and fencing are intact, and that project activities are only occurring within the project area. The Designated Representative or Designated Biologist shall prepare daily written observation and inspection records for the dates on which monitoring is required. These written records shall summarize: oversight activities and compliance inspections, observations of the CTS, survey results, and monitoring activities required by the BO. The Designated Biologist shall conduct compliance inspections a minimum of once per week during periods of inactivity and after clearing, grubbing, and grading are completed.
17. CTS Surveys. Prior to the onset of any project activities occurring in the rainy season (October 1 through May 30th), the Service-approved Designated Biologist shall survey the work site within the easement boundaries between Auberry Road and the Friant-Kern Canal. If any life stages of CTS (adults, eggs, or larvae) are found, the approved Designated Biologist shall contact the Service. Only the approved Designated Biologist who is familiar with the species and with demonstrated experience with safe handling of amphibians is authorized to capture and handle CTS. The Designated Biologist may be assisted by approved biologists that do not have an SCP; these biologists shall be identified as Designated Monitors.
18. CTS in Project Area. If any CTS are found in the project area during project activities, all work that could potentially harm the CTS shall stop immediately until the Designated Biologist can relocate the CTS following the relocation plan dated June 18, 2015 and submitted as part of the biological assessment.

19. Soil Stockpiles. The City shall ensure that soil stockpiles are placed where soil will not pass into potential CTS breeding pools or into any other areas potentially serving as habitat for CTS or VPFS. The City shall appropriately protect stockpiles to prevent soil erosion.
20. Fieldwork Code of Practice. To ensure that disease is not conveyed between work sites by the Designated Biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force shall be followed at all times. The Designated Biologist may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution, consistent with the fieldwork code of practice. Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
21. Open Trenches. The Designated Biologist shall inspect all open holes, sumps, and trenches within the project area at the beginning, middle, and end of each day for trapped animals. If construction on this part of the project will occur between October 1 through May 31 (i.e., the rainy season), to prevent inadvertent entrapment of CTS or any other animals, the Designated Biologist shall oversee the covering of all excavated, steep-walled holes or trenches of any depth with plywood or other barrier materials at the close of each working day such that animals are unable to enter and become entrapped. Alternatively, the City shall provide earthen escape ramps of no more than 3:1 slope every 200 feet. Before holes or trenches are filled, the Designated Biologist shall thoroughly inspect them for trapped animals. If any worker discovers that a CTS has become trapped, the City shall cease all project activities in the vicinity and notify the Designated Biologist immediately. Project workers and the Designated Biologist shall allow the CTS to escape unimpeded if possible, or if not, the Designated Biologist shall move the CTS in accordance with the CTS relocation plan before project activities are allowed to continue.
22. Injuries to Individual CTS. If a CTS is injured as a result of project activities, it shall be immediately taken to a licensed veterinary facility or other qualified person that routinely evaluates and treats amphibians. The City shall notify the Service of the injury to the CTS within one day. Notification to the Service shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.
23. Equipment Inspection. Workers shall inspect for CTS under vehicles and equipment before the vehicles and equipment are moved. If a CTS is present, the worker shall notify the Designated Biologist and wait for the CTS to move unimpeded to a safe location. Alternatively, especially if the animal is inside the fenced project area, the Designated Biologist shall move the CTS out of harm's way in compliance with the approved relocation plan.
24. Material Inspection. Workers shall thoroughly inspect all construction pipes, culverts, or other similar structures with a diameter of one inch or greater that are stored for one or more overnight periods for CTS before the pipe is subsequently moved, buried, or capped. If during inspection, a CTS is discovered inside a pipe, culvert, or similar structure, workers shall notify the Designated Biologist and allow the animal to safely escape that section of the structure before moving and utilizing the structure.

25. Small Mammal Burrow Excavation. With the exception of the footprint of Foothill Lane, that portion of the project area located between Auberry Road and the Friant-Kern Canal is considered CTS habitat. The designated Biologist shall fully excavate by hand any small mammal burrows observed within the construction easement boundaries that are within 0.25 mile of known or potential CTS breeding habitat. The Designated Biologist shall relocate any live CTS discovered during burrow excavation in accordance with the CTS relocation plan.
26. Exclusion Fencing. Exclusion fencing will be erected along the outside boundaries of the project footprint (i.e., areas of disturbance) east of Auberry Road, if construction on this part of the project will occur between October 1 and May 31 (i.e., the rainy season). This exclusion fencing will be designed to prevent salamanders seeking aquatic breeding habitat from entering the project area, and to facilitate salamanders within the project area to escape through one-way doors installed in the fencing and not return. The exclusion fencing will be designed by a qualified biologist, and the design will be provided the Service for review and approval. Exclusion fencing will not be required along this portion of the pipeline alignment if all construction work can be completed between June 1 and September 30.
27. Rain Forecast. The Designated Biologist and the City shall monitor the National Weather Service 72-hour forecast for the project area. If a 70 percent or greater chance of rainfall is predicted within 72 hours, the City shall cease all project activities until no further rain is forecast. If work must continue when rain is forecast, the Designated Biologist shall survey the project construction footprint before construction begins each day that rain is forecast. If a Designated Monitor is used to conduct surveys, a Designated Biologist must remain on site to capture and relocate any CTS that are discovered during the surveys. If rain exceeds $\frac{3}{4}$ inch during a 24-hour period, City shall cease work until no further rain is forecast.
28. Night Work. The City shall strictly prohibit all night work when a 70 percent or greater chance of rainfall is predicted within 72 hours of project activities until no further rain is forecast.
29. Barriers to CTS Movement. Roadways shall be constructed without steep curbs, berms, or dikes which prevent CTS from exiting the roadway. If curbs are necessary for safety and/or surface runoff, the City shall design and construct them as rounded or gently sloping structures so as to allow CTS to walk over them. If steep dikes are required, design shall include over-side drains or curb/dike breaks spaced at intervals of 25 feet to allow CTS passage.
30. Notification Before Commencement. The Designated Representative shall notify Reclamation and the Corps before initiating project activities and shall document compliance with all conservation measures before initiating project activities.
31. California Natural Diversity Database (CNDDDB) Observations. The Designated Biologist shall submit all observations of CTS or other sensitive species to the CNDDDB.
32. CTS Reporting. All CTS captures and observations by the Designated Biologist shall include the following documented information: the date, time, and location of each occurrence using Global Positioning System (GPS) technology; the name of the party that actually identified

- the animal; circumstances of the incident; the general condition and health of each individual; any diagnostic markings, sex age (juvenile or adult), actions undertaken, and habitat description. The City shall also submit this information to the CNDDDB.
33. Seasonal Wetland Habitat for the CTS and Vernal Pool Fairy Shrimp. To offset the loss of 0.65 acres of CTS aquatic and VPFS habitat, the City will permanently preserve 1.65 acres of vernal pool habitat on a suitable site to be approved by the Service, or purchase equivalent credits at a Service-approved mitigation bank. The area of vernal pool preservation will be protected in perpetuity under conservation easement and managed per the provisions of a management plan subject to Service and Corps approval. Easements will be placed or credits will be purchased prior to the onset of construction activities within the habitat of the CTS and VPFS (i.e., lands between Auberry Road and the Friant-Kern Canal).
34. Mitigation for Permanent and Temporary Impacts to CTS Upland Habitat. To offset the loss of 15.21 acres of CTS upland habitat, the City will permanently preserve 15.21 acres of non-native grassland habitat on a suitable site to be approved by the Service, or purchase equivalent credits at a Service-approved mitigation bank. The area of CTS upland habitat will be protected in perpetuity under conservation easement and managed per the provisions of a management plan subject to Service approval. Easements will be placed or credits will be purchased prior to the onset of construction activities within the habitat of CTS (i.e., lands between Auberry Road and the Friant-Kern Canal).

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses a 60.84-acre area including the construction easement and surface water treatment facility as well as the approximately 100-acre Fogg property 0.5 miles to the south where CTS relocation may occur.

Analytical Framework for the Jeopardy Determination

The following analysis relies on four components to support the jeopardy determination for CTS and VPFS: (1) the *Status of the Species*, which evaluates these species’ range wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of these species in the action area, the factors responsible for that condition, and the role of the action area in the species’ survival and recovery; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on these species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on CTS and VPFS.

In accordance with the implementing regulations for Section 7 and Service policy, the jeopardy determination is made in the following manner: the effects of the proposed Federal action are evaluated in the context of the aggregate effects of all factors that have contributed to the current status of CTS and VPFS. Additionally, for non-Federal activities in the action area, we will evaluate those actions likely to affect the species in the future, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both its survival and recovery in the wild.

The following analysis places an emphasis on using the range-wide survival and recovery needs of the CTS and VPFS, and the role of the action area in providing for those needs as the context for evaluating the significance of the effects of the proposed programmatic Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species

Vernal Pool Fairy Shrimp

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Vernal Pool Fairy Shrimp* (*Branchinecta lynchi*) *5-year Review: Summary and Evaluation* (Service 2007). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2007 5-year review was finalized, with loss of habitat being the most significant effect. While there have been continued losses of VPFS habitat throughout the various vernal pool core areas, including the Fresno vernal pool core area where the proposed project is located, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

California tiger salamander (Central CA DPS)

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *California Tiger Salamander Central California Distinct Population Segment* (*Ambystoma californiense*) *5-year Review: Summary and Evaluation* (Service 2014). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2014 5-year review was finalized, with loss of habitat being the most significant effect. While there have been continued losses of CTS habitat throughout the range of the species, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

Environmental Baseline

The Action Area consists of non-native annual grassland, irrigated and non-irrigated agriculture, developed lands and ruderal habitat.

Threats to the species within and around the Action Area include habitat degradation or elimination resulting from urban development and associated infrastructure as well as the introduction of predator species to occupied habitat.

Vernal Pool Fairy Shrimp

Part of the Action Area is within the Fresno core area of the Southern Sierra Foothills vernal pool region as described in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005). This core area supports high concentrations of vernal pool species, is representative of the species' range, and is where recovery actions are focused.

Surveys for VPFS were not conducted within the part of the Action Area where ground disturbing activities will occur. There is a total of 0.65 acres of wetlands that provide habitat for VPFS and

where VPFS presence is assumed based on the type and quality of habitat and the presence of the species in the vicinity of the Action Area. The VPFS habitat is within the part of the project area that is part of the Fresno core area of the Southern Sierra Foothills vernal pool region.

California tiger salamander (Central CA DPS)

Surveys for CTS were not conducted within the part of the Action Area where ground disturbing activities will occur. The species is known to occur within the Fogg property 0.5 miles to the south where CTS relocation will occur should individuals be captured. There is a total of 0.55 acres of suitable CTS breeding habitat and 12.01 acres of upland habitat within the Action Area. Species presence is assumed within the disturbance area based on the type and quality of habitat and the presence of the species on the Fogg property and in the vicinity of the Action Area.

Effects of the Action

Vernal Pool Fairy Shrimp

The proposed action will result in direct effects to 0.65 acres of VPFS habitat. Excavation of a trench through the vernal pool habitat could result in permanent modifications to the hydrology of the pools resulting in the loss of VPFS habitat and death of an unknown number of adults and cysts. Compaction of backfill and the mechanical trenching activities will result in an unknown number of adults and cysts being crushed or buried by fill material or equipment.

The use of the access road through the wetlands during operations and maintenance will result in deposition of dirt and potential fill of the wetlands resulting in mortality of an unknown number of adults and cysts.

California tiger salamander (Central CA DPS)

The proposed action will result in the loss of 12.01 acres of CTS upland habitat and 0.55 acres of CTS aquatic habitat and the harm, harassment and/or mortality of an unknown number of adult and larvae CTS. Excavation of a trench through occupied upland and aquatic habitat could result in death or injury of adult and larvae CTS. Trench excavation could also result in permanent modification to the hydrology of the pools resulting in the loss of CTS breeding habitat. The use of suitable upland habitat as staging and laydown areas could result in harm, harassment or mortality due to the collapse of occupied burrows or the temporary loss of available burrows to individuals during movement events. Blasting associated with trenching could result in mortality of individuals within the blast area. The construction of a road within upland habitat could result in the death or injury of individuals due to collapsed burrows. The use of the roads during operations and maintenance activities could result in vehicle mortality of individuals during movement events.

The relocation of individuals as part of the proposed relocation plan is likely to result in capture, and harassment as well as potential injury or mortality of captured individuals. Shaffer et. al (2008) discussed several stressors that can result from CTS relocation such as that proposed by this project. Potential adverse effects from relocation include the introduction of disease to uninfected areas, and reduced fitness through outbreeding depression and/or maladaptation. Shafer et al (2008) conclude: “(T)he potential risks of moving a single individual, or a small number of individuals, from one breeding site to another will almost invariably outweigh the benefits that might be accrued by

supplementing an existing population with that small number of animals.... Except in the trivial case of moving an animal a very short distance (on the order of hundreds of meters or less) from a modified habitat to an adjacent undeveloped area, such animals should probably never be repatriated.”

Conservation Lands or Credit Purchase

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide Service-approved compensatory habitat or habitat credit purchase at a Service-approved bank as a condition of the action. This compensatory habitat or credit purchase is intended to minimize the effect on CTS and VPFS of the proposed project’s anticipated incidental take, resulting from the permanent loss, modification and degradation of habitat described above.

This component of the action will have the effect of protecting and managing lands for the species’ conservation in perpetuity. The compensatory lands or conservation bank lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of CTS and VPFS, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that Reclamation’s authorization and grant fund issuance to allow a new turnout off of the Friant-Kern Canal, a new check structure in the canal, and the fill of Waters of the US, as proposed, is not likely to jeopardize the continued existence of CTS and VPFS. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The adverse effects to CTS and VPFS will be, in part, offset by the long-term preservation of habitat that provides feeding, breeding and sheltering opportunities in perpetuity.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by FWS regulations at 50 CFR 17.3 as an intentional or negligent act

or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Reclamation so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Reclamation must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

The incidental take of VPFS anticipated for the proposed project will result from either the trenching and destruction of the cysts, the temporary and permanent alteration of hydrology directly related to the construction of the proposed project and continued vehicle use of the roads during operation and maintenance, for a total of 0.65 acres of fairy shrimp habitat. Adult fairy shrimp and cysts, which are embedded in the soil of the vernal pools will be affected by this action. Due to the fact that it is not possible to know how many cysts are in the soil of any wetland feature, or how many cysts will occupy any wetland feature during inundation, the Service cannot quantify the total number of VPFS cysts that we anticipate will be taken as a result of the proposed action. In instances in which the total number of cysts anticipated to be taken cannot be determined, the Service may use the acreage of habitat impacted as a surrogate; since the take of cysts anticipated will result from the destruction or the altered hydrology of the fairy shrimp habitat, the quantification of habitat acreage serves as a direct surrogate for the VPFS that will be lost. Therefore, the Service anticipates take incidental to this project as the 0.65 acres of VPFS habitat that will be destroyed and/or altered by project development and operations.

It is infeasible for the Service to quantify the exact number of CTS that will be taken as a result of the proposed action because the number of individuals in the action area is unknown and estimates of population density in the action area are unavailable. When this amphibian is not in breeding ponds, or foraging, migrating, or conducting other surface activity, it inhabits the burrows of ground squirrels or other rodents; the burrows may be located a distance from the breeding ponds; the migrations occur during a limited period during or after rain events or during periods of high relative humidity in the fall, winter, or spring; and finding an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be infeasible to quantify due to seasonal fluctuations in their numbers and random environmental events. In instances in which the number of individuals that may be taken cannot be determined, the Service may quantify take in the

amount of lost or disturbed habitat as a result of the project action; since take is expected to result from these effects to habitat, the quantification of habitat becomes a direct surrogate for the species that will be taken. Therefore, the Service anticipates that within the action area, all CTS inhabiting the 12.01 acres of upland habitat and 0.55 acres of aquatic habitat will be subject to incidental take in the form of harm, harassment, and capture; CTS using underground refuges within the 12.01 acres of upland habitat in the action area may also be killed or injured. Although it is infeasible to quantify the exact number of CTS that may be killed, injured, harmed, harassed or captured as a result of the proposed project, the Service anticipates that the number will be low. This is based on the amount of upland and aquatic habitat that will be disturbed within the Action Area. However, the entire 12.01 acres of upland habitat is within 1.3 miles of known or potential breeding habitat with small mammal burrows and other potential upland refugia throughout and is considered occupied by the species.

Since we cannot estimate the number of individual CTS that will be incidentally taken for the reasons listed above, we are providing a mechanism to quantify when take would be considered to be exceeded as a result of the implementing the Project: We will use detection of one (1) dead or injured adult or juvenile CTS to determine when take is exceeded. By setting a threshold of one individual detected, we have set an incidental take limit that is measurable, irrefutable, and indicates that the CTS is being affected at a level where avoidance and minimization measures and project implementation need to be evaluated and possibly modified. We conclude that the incidental take of CTS will be considered exceeded if 1 dead or injured adult or juvenile CTS is detected by biological monitors or other Project personnel.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on CTS and VPFS resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following Reasonable and Prudent Measure is necessary and appropriate to minimize incidental take of CTS and VPFS:

1. All conservation measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this Reasonable and Prudent Measure shall be supplemented by the Terms and Conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. Reclamation shall include full implementation and adherence to the conservation measures as a condition of any permit, authorization or contract issued for the project.
2. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Reclamation shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded Reclamation must immediately reinstate formal consultation as per 50 CFR 402.16.
 - a) For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Reclamation will provide monthly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the Project Description and not analyzed in this Biological Opinion.
 - b) For those components of the action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If an encounter occurs after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Reclamation shall follow the steps outlined in the Salvage and Disposition of Individuals section below.
 - c) For those components of the action that will require the capture and relocation of CTS, Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the action. If capture and relocation need to occur after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day.
3. The qualified biologist that will be conducting the CTS relocation plan shall meet the qualifications necessary to obtain a species handling permit under section 10(a)(1)(A). Take associated with CTS relocation under the relocation plan will not be covered under a section 10(a)(1)(A) permit; it is covered under this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following action:

1. Reclamation should continue to work with the Service to assist us in meeting the goals of the Recovery Plan for the fairy shrimp as outlined in the *December 2005, Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the City of Fresno Raw Water Pipeline Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Justin Sloan, Senior Fish and Wildlife Biologist, (559) 221-1828 or Thomas Leeman, Chief, San Joaquin Valley Division, at (916) 414-666544, or the letterhead address

cc:

Steve Hulbert, California Department of Fish and Wildlife, Fresno, CA

LITERATURE CITED

- [Service] U.S. Fish and Wildlife Service. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxii + 574 pp.
- _____. 2007. Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-year Review: Summary and Evaluation. Sacramento, CA: Sacramento Fish and Wildlife Office.
- _____. 2014. California Tiger Salamander Central California Distinct Population Segment (*Ambystoma californiense*) 5-year Review: Summary and Evaluation. Sacramento, CA: Sacramento Fish and Wildlife Office.
- Shaffer, H.B., D. Cook, B. Fitzpatrick, K. Leyse, A. Picco, P. Trenham. 2008. Guidelines for the Relocation of California Tiger Salamanders (*Ambystoma californiense*). Unpublished report.

Appendix D

Reclamation's Section 106 Determination and State Historic Preservation Officer Concurrence Memo

CULTURAL RESOURCES COMPLIANCE

Division of Environmental Affairs

Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 15-SCAO-206

Project Name: City of Fresno Raw Water Pipeline Project, Fresno County, California

NEPA Contact: Kelly Baker, Natural Resources Specialist

MP 153 Cultural Resources Reviewer: James Collis, Archaeologist

Date: December 7, 2015

Reclamation seeks to provide funding through its WaterSMART program for the construction of a water pipeline by the City of Fresno to supply its Surface Water Treatment Facility (SWTF). The proposed project will entail the construction of a 60-inch-diameter pipeline from a new turnout on the FKC to the SWTF. The project would require a trench approximately 12 feet deep and 12 feet wide. Open-cut trenching would be utilized for most of the pipeline alignment unless bedrock is encountered, in which case blasting may be required. Jack-and-bore may also be used to install the pipeline where trenching is not practical, such as under roadway intersections. After construction, the trench will be backfilled and the work area contoured back to the original slope.

Reclamation has determined that the APE is within Sections 3-7 and 18, T. 12 S., R. 21 E., and Sections 12 and 13, T. 12 S., R. 20 E., Mount Diablo Base Meridian, as depicted on the Friant, California, 7.5' U.S. Geological Survey topographic quadrangle map. In general, the direct APE is comprised of a minimum 200-foot-wide inventory corridor placed relative to the 4.6-mile-long pipeline alignment based on project needs and current land ownership. The vertical APE is 12 feet deep and is based on the depth of the pipeline trench. Altogether, the horizontal APE includes approximately 133.9 acres.

In order to ensure identification of all historic properties within the area of potential effects (APE), Reclamation conducted searches of internal records and those of the Southern San Joaquin Valley Information Center for previous cultural inventories and recorded sites within the project APE, consulted with Native American groups and the State Historic Preservation Office (SHPO), and reviewed the 2011 inventory report documenting an intensive pedestrian survey of the entire project APE.

Analysis of the sensitivity of APE soils for buried cultural materials based on data developed by the California Department of Transportation indicates that 99.6% of the soils within the project APE are between 15,000 and 1.9 million years in age and therefore have a very low probability of containing intact buried cultural materials. The remaining 0.4% of the project area soils—approximately 0.6 acre—is from the Middle Holocene, approximately 4,000 to 7,000 years in age, and has a moderately low potential to contain intact buried cultural materials.

CULTURAL RESOURCES COMPLIANCE

Division of Environmental Affairs

Cultural Resources Branch (MP-153)

On September 8, 2015, a request was sent to the Native American Heritage Commission (NAHC) for a Sacred Lands File search and Native American Contacts List for the APE. No response was received and Reclamation relied on an NAHC response from a separate Reclamation project in Fresno County, dated August 6, 2015, which stated that the record search had failed to indicate the presence of Native American cultural resources in the immediate project area. Reclamation identified consulting tribes based on previous projects and consultations in the vicinity of the APE. On October 13, 2015, Reclamation sent coordination letters to the Santa Rosa Rancheria and the Big Sandy Rancheria of Western Mono Indians to request information regarding cultural resources in the project area and invite participation in the Section 106 process pursuant to 36 CFR § 800.4(a)(4) and 36 CFR § 800.2(c)(2)(ii). On October 14, 2015, a similar letter was sent to the Picayune Rancheria of Chukchansi. Reclamation will consider any comments received from these tribes and consult as applicable.

Two previously recorded cultural resources were identified as a result of these identification efforts. The first is site P-10-000868, a railroad grade that has been determined not eligible for the National Register of Historic Places (National Register). The second site is the Friant Kern Canal (FKC), which has been determined eligible for the National Register under Criterion A with consensus from the California SHPO in 1997. The FKC is the only historic property identified in the APE. Constructed between 1945 and 1951 as a component of the Central Valley Project, the FKC is eligible through its association with agricultural development in California's Central Valley. Reclamation applied the criteria of adverse effect, pursuant to 36 CFR § 800.5, to the FKC and determined that the undertaking will not alter any of the characteristics of the FKC that qualify it as a historic property. The proposed turnout is consistent with multiple existing turnouts on the FKC and none of the property's aspects of integrity will be diminished by its addition. The new pipeline from the turnout will be buried and not visible, and therefore it will have no effect on the FKC. The indirect effects of this buried pipeline after completion of construction will be negligible given the lack of visual signature.

Reclamation consulted with (November 3, 2015), and received concurrence from (December 4, 2015), the California SHPO on a finding of no adverse effect to historic properties pursuant to 36 CFR § 800.5(b). Consultation correspondence between Reclamation and the SHPO has been provided with this cultural resources compliance document for inclusion in the administrative record for this action.

This document serves as notification that Section 106 compliance has been completed for this undertaking. Please note that, if project activities subsequently change, additional NHPA Section 106 review, including further consultation with the SHPO, may be required. Thank you for providing the opportunity to comment.

Attachments:

Letter: Reclamation to SHPO dated 11/3/2015

Letter: SHPO to Reclamation dated 12/4/2015

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

References

Cardno Entrix

2011 *City of Fresno Raw Water Pipeline Project Cultural Resources Inventory Report*.
Project Number: 08-SCAO-132.



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

IN REPLY REFER TO:

NOV 03 2015

MP-153
ENV-3.00

CERTIFIED – RETURN RECEIPT REQUESTED

Ms. Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Subject: National Historic Preservation Act (NHPA) Section 106 Consultation for the City of
Fresno Raw Water Pipeline Project, Fresno County, California (15-SCAO-206)

Dear Ms. Polanco:

The Bureau of Reclamation is initiating consultation under 54 U.S.C. § 306108, commonly known as Section 106 of the NHPA, and its implementing regulations found at 36 CFR § 800, for providing funding for the construction of a water pipeline by the City of Fresno (City) to supply its Surface Water Treatment Facility (SWTF) (Figure 1, enclosed). In 2012, Reclamation previously initiated Section 106 consultation on issuing a permit for a new turnout on the Friant-Kern Canal (FKC) (no project reference number provided from your office) and is now consulting on providing grant funding to the City through its WaterSMART program to construct the pipeline. Reclamation has determined that the providing of funding is an undertaking as defined in 36 CFR § 800.16(y) and a type of activity that has the potential to cause effects to historic properties under 36 CFR § 800.3(a). Reclamation is consulting with you pursuant to the 36 CFR § 800 regulations that implement Section 106 of the NHPA and seeking your concurrence with a finding of no adverse effect to historic properties for this undertaking.

The proposed project will entail the construction of a 60-inch-diameter pipeline from a new turnout on the FKC to the SWTF. The project will require a trench approximately 12 feet deep and 12 feet wide. Open-cut trenching would be utilized for most of the pipeline alignment unless bedrock is encountered, in which case blasting may be required. Jack-and-bore may also be used to install the pipeline where trenching is not practical, such as under roadway intersections. After construction, the trench will be backfilled and the work area contoured back to the original slope. Construction will also include a turnout, a check structure across the FKC, a 12 foot by 24 foot above-ground structure for control and measurement equipment as well as storage and a 50 foot radio tower, all within Reclamation right-of-way. Staging and laydown areas will be immediately adjacent to the pipeline route.

The proposed project was the subject of prior consultation with your office in 2012 but was not implemented at that time. In 2012, Reclamation's undertaking was the proposed issuance of an engineering permit for a new turnout on the FKC. On February 13, 2012, Reclamation initiated consultation with the State Historic Preservation Officer (SHPO), submitted supporting documentation, and requested concurrence on a finding of no adverse effect to historic properties (correspondence, survey report, and email exchanges enclosed on compact disc). On February 16, 2012, Mr. Jeff Brooke, SHPO Associate State Archaeologist, telephoned Mr. Stephen Overly, Reclamation Archaeologist, to request additional information on the proposed project, to which Mr. Overly responded by email that same day. Additional information requests from Mr. Brooke were made to Mr. Overly by email on February 17, February 21, and February 27, 2012. Responses were made by Reclamation on February 21, February 24, and March 2, 2012. After the last response, no additional information requests and no formal SHPO response to the finding of effect were received. Reclamation concluded the Section 106 consultation pursuant to 36 CFR § 800.3(c)(4), although the project was not implemented at that time.

In 2015, Reclamation received a grant application from the City for the same construction project. The project remains effectively unchanged in scope and will not exceed the original horizontal or vertical extent of the previous area of potential effects (APE). Reclamation has determined that the APE is within Sections 3-7 and 18, T. 12 S., R. 21 E., and Sections 12 and 13, T. 12 S., R. 20 E., Mount Diablo Base Meridian, as depicted on the Friant, California, 7.5' U.S. Geological Survey topographic quadrangle map (Figure 1, enclosed). In general, the direct APE is comprised of a minimum 200-foot-wide inventory corridor placed relative to the 4.6-mile-long pipeline alignment based on project needs and current land ownership. The vertical APE is 12 feet deep and is based on the depth of the pipeline trench. Altogether, the APE includes approximately 133.9 acres.

In order to ensure identification of all historic properties within the area of potential effects (APE), and with particular regard for the four years that have intervened since the original Section 106 identification efforts, Reclamation sent a request to the Southern San Joaquin Valley Information Center for information regarding cultural inventories and recorded sites since the time of the original identification efforts. The results of this search (IC File #15-344) indicate that no new cultural resources have been identified within the project APE. The 2011 inventory report by CardnoEntrix that was submitted in the previous consultation (on enclosed compact disc) was reviewed for adequacy for the current undertaking. Since the inventory coverage was not clearly indicated on maps in the CardnoEntrix report, Reclamation obtained a revised inventory map and compared it with a current set of project plans dated 2015 (see enclosed disk). Reclamation confirmed that the previous inventory covered the entirety of the APE. Two cultural resources were identified. The first is site P-10-000868, a railroad grade that has been determined not eligible for the National Register of Historic Places (National Register). The second site is the FKC, which has been determined eligible under Criterion A for the National Register with consensus from your office in 1997. Analysis of the sensitivity of APE soils for buried cultural materials based on data developed by the California Department of Transportation indicates that 99.6% of the soils within the project APE are between 15,000 and 1.9 million years in age and therefore have a very low probability of containing intact buried cultural materials. The remaining 0.4% of the project area soils – approximately 0.6 acre – is

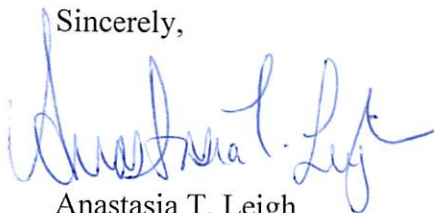
from the Middle Holocene, approximately 4,000 to 7,000 years in age, and has a moderately low potential to contain intact buried cultural materials.

On September 8, 2015, a request was sent to the Native American Heritage Commission (NAHC) for a Sacred Lands File search and Native American Contacts List for the APE. No response was received and Reclamation identified consulting tribes based on previous projects and consultations in the vicinity of the APE. On October 13, 2015, letters were sent to the Santa Rosa Rancheria and the Big Sandy Rancheria of Western Mono Indians to request information regarding cultural resources in the project area and invite participation in the Section 106 process pursuant to 36 CFR § 800.4(a)(4) and 36 CFR § 800.2(c)(2)(ii). On October 14, 2015, a similar letter was sent to the Picayune Rancheria of Chukchansi. An internal file search uncovered an NAHC response for a separate Reclamation Fresno County project, dated August 6, 2015, stating that the record search had failed to indicate the presence of Native American cultural resources in the immediate project area. Reclamation will consider any comments received from tribes and consult with you as applicable.

The FKC is the only historic property identified in the APE. Reclamation applied the criteria of adverse effect, pursuant to 36 CFR § 800.5, to the FKC and determined that the undertaking will not alter any of the characteristics of the FKC that qualify it as a historic property. Constructed between 1945 and 1951 as a component of the Central Valley Project, the FKC is eligible through its association with agricultural development in California's Central Valley. The proposed turnout is consistent with multiple existing turnouts on the FKC and none of the property's aspects of integrity will be diminished by addition of a new turnout. The new pipeline from the turnout will be buried and not visible, therefore it will have no effect on the FKC. The indirect effects of this buried pipeline after completion of construction will be negligible given the lack of visual signature that will be produced.

Based on the information provided above and in the enclosed report, Reclamation finds that the proposed undertaking would result in no adverse effect to historic properties. We invite your comments on the delineation of the APE and the appropriateness of the historic properties identification efforts. We also request your concurrence on our finding of no adverse effect for this undertaking. In the event of any post-review discoveries, Reclamation will follow the process outlined at 36 CFR § 800.13(b) and notify your office accordingly. If you have any questions or concerns regarding this project, please contact Mr. Jim Collis, Archaeologist, at 916-978-5053 or jcollis@usbr.gov.

Sincerely,



Anastasia T. Leigh
Regional Environmental Officer

Enclosures – 2

RECLAMATION

Managing Water in the West

