

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

City of Fresno Raw Water Pipeline

EA-07-124



**U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South-Central California Area Office
Fresno, California**

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to 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.

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List of Acronyms and Abbreviations

af	acre-feet
af/yr	acre-feet per year
APE	area of potential effects
Aqueduct	California Aqueduct
BA	Biological Assessment
BMPs	Best Management Practices
CAA	Clean Air Act
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Regulations
cfs	cubic feet per second
CO	carbon monoxide
CVP	Central Valley Action
CVPIA	Central Valley Action Improvement Act
Delta	Sacramento-San Joaquin Delta
DMC	Delta-Mendota Canal
DWR	Department of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
FMFCD	Fresno Metropolitan Flood Control District
FONSI	Finding of No Significant Impact
FWA	Friant Water Authority
FWCA	Fish and Wildlife Coordination Act
GWD	Garfield Water District
GHG	green house gases
IRP	Integrated Resources Plan
ITA	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	Nation Register of Historic Places
PM _{2.5}	particulate matter under 2.5 microns in diameter
PM ₁₀	particulate matter under 10 microns in diameter
RWQCB	Regional Water Quality Control Board
Reclamation	United States Bureau of Reclamation
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJV	San Joaquin Valley
SJVAB	San Joaquin Valley Air Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWP	State Water Action
SWPPP	Stormwater Pollution Prevention Plan
SWTF	Surface Water Treatment Facility
USACE	U.S. Army Corps of Engineers
USC	United States Code
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service

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1 Purpose and Need for Action

1.1 Background

This Environmental Assessment (EA) examines the environmental effects of a proposed action to construct and operate a raw water supply pipeline from the Friant-Kern Canal (FKC) to the City of Fresno (City) Surface Water Treatment Facility (SWTF) in Fresno County, California.

The proposed action is located northeast of the City, in unincorporated Fresno County. The proposed action would span between the SWTF near Chestnut and Behymer Avenues and the FKC 4.5 miles or 4.9 miles to the northeast, depending on the action alternative selected. (Figure 1-1).

In 2004, the City completed construction of the 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.

The property to the north of the SWTF was recently developed as a Clovis Unified School District campus and a State Center Community College District campus. A segment of the pipeline to connect to the FKC was constructed 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. This 60-inch diameter 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 (Figure 1-1).

In 2006 and 2007, the City conducted a study of four potential alignments for the raw water supply pipeline beyond the campus segment (*Alignment Corridor Comparison Report for the City Raw Water Pipeline from the FKC to the Surface Water Treatment Facility, Final Draft* [Provost & Pritchard 2008]). That study and the Initial Study (IS) completed by the City in accordance with the California Environmental Quality Act (CEQA), serve as the basis for much of the background information in this EA.

Two action alternatives; the Proposed Action and the Northern Alignment Alternative remain under consideration. A No Action alternative is also considered, both to describe the environmental baseline and to consider the effects to the natural and built environment without the action.

1.2 Purpose and Need

The City is dependent on the Enterprise Canal for delivery of a major portion of the City's municipal and industrial water supply. Prior to the construction of the SWTF, the City was solely dependent on groundwater for its potable water supply, contributing to overdraft of the aquifer. 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 (MEIR, City of Fresno, 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.

1.3 Scope

This EA addresses the Federal Action which is to approve a MP 620 permit to build a new turnout on the FKC, which conveys Central Valley Project (CVP) water to multiple water supply contractors, including the City, within the CVP's Friant Division. This additional point of delivery may require Contracting Officer acknowledgement. The project area considered in this EA is expanded however for resources protected under certain Federal laws including the Fish and Wildlife Coordination Act, Endangered Species Act, Migratory Bird Act, National Historic Preservation Act, Clean Water Act, Clean Air Act, Farmland Protection Policy Act, and applicable Executive Orders.

Reclamation is the Federal lead agency for preparation of this EA pursuant to the National Environmental Policy Act (NEPA).

1.4 Potential Issues

Potentially affected resources addressed in this document include: water resources, land use, biological resources, cultural resources, Indian Trust Assets (ITA), socioeconomic resources, environmental justice, air quality, and global climate change.

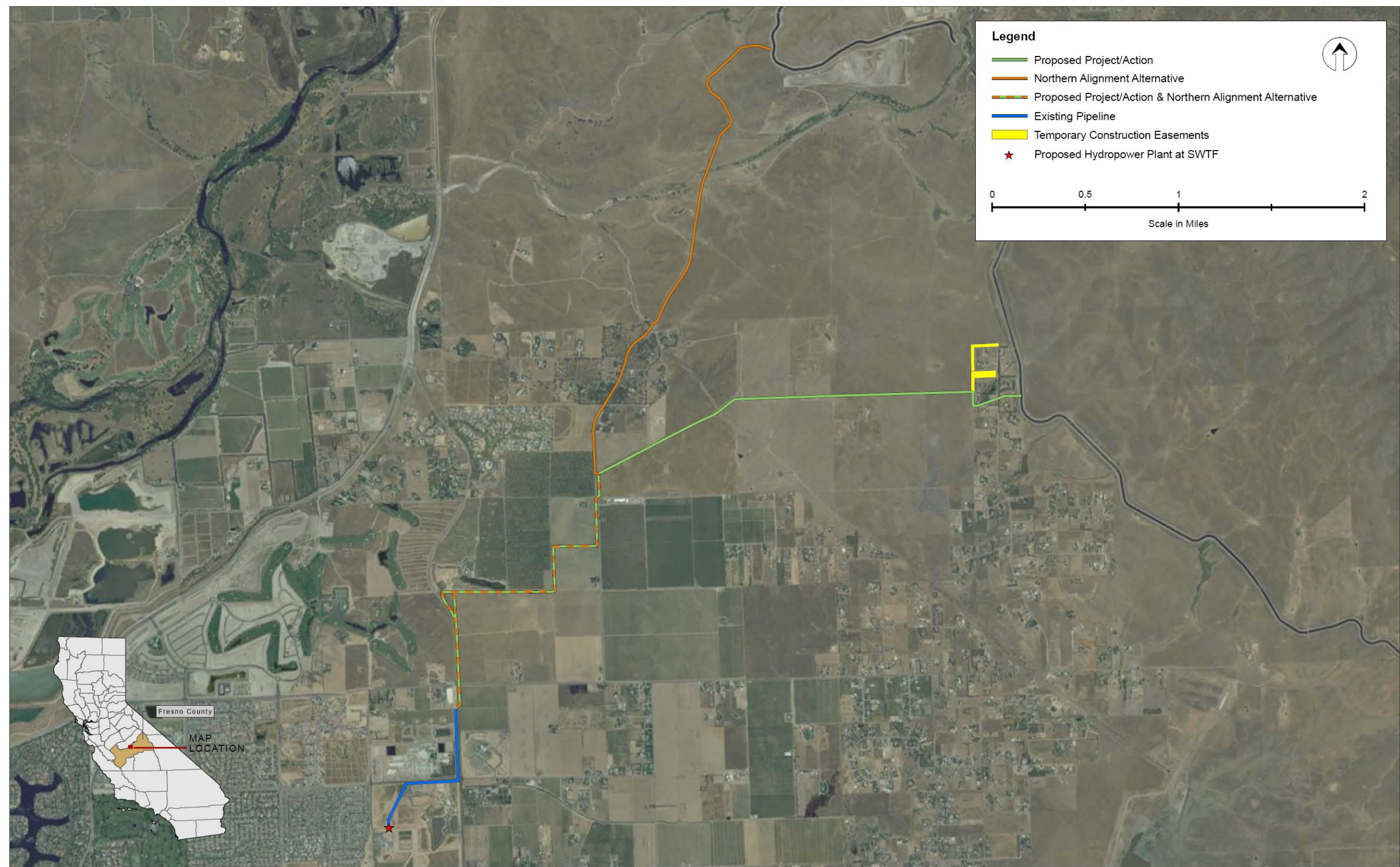


Figure 1-1 Proposed Action and Northern Alignment Alternative

2 Alternatives

2.1 No Action Alternative

The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison or baseline for determining potential direct, indirect and cumulative impacts to the human environment.

The No Action Alternative for this EA would be no new raw water pipeline and, therefore, no closed conveyance water supply from the FKC to the SWTF.

2.2 Proposed Action and Northern Alignment Alternative

This section describes the Proposed Action and the Northern Alignment Alternative. The following design features and construction activities are common to both 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 Urban Water Management Plan;
- Pipe size: A 60 inch pipeline (inside diameter);
- Pumps: The system would be gravity fed 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 Existing Pipeline: This connection 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 plant would be constructed in the SWTF just north of the existing raw water pumping station 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. No transformer would be required. The 150 kilowatts of power generated by the plant would offset some of the power usage of the SWTF;
- Flow Control Devices: Flow into the SWTF would be managed by a modulating valve that would be adjusted to control downstream flow;
- Aboveground Structures: The proposed action would include 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 pipeline, as well as manhole-type structures at specific locations to allow access. Corrosion Testing Stations would be constructed along the pipeline which consists of an approximately 12 inch diameter utility box flush with grade. The new turnout structure 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, and a concrete check structure across the FKC;
- Construction Method: Open-cut trenching would be utilized for most of the pipeline alignment including the shoulders and pavement of existing roadways. Open-cut trenching typically uses equipment that prepares the pipeline right-of-way, installs the pipe, and

restores the right-of-way 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;

- **Construction Area:** A 100 foot wide construction easement along the pipeline corridor would be required. In addition, staging and laydown areas 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 in addition to the 100 foot construction easement. The areas would be kept clean and restored to their original condition after the construction is complete;
- **Maintenance:** Construction of a 12 foot wide, access road with aggregate base would be required to perform routine maintenance. The maintenance road would be located within the alternative alignment right of way primarily along the edge of agricultural land that is already being utilized as a dirt access road for farming operations.

2.2.1 Federal Action

The Federal Action for both the Proposed Action and Northern Alignment Alternative is the issuance of a permit allowing the modification of Federal facilities (MP 620 Permit). This additional point of delivery may require Contracting Officer acknowledgement. The modification would involve the construction of a turnout, a check structure across the FKC (Proposed Action only), 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. The primary difference between the Proposed Action and Northern Alignment Alternative is the turnout location along the FKC, pipeline alignment and construction of a check structure at the Proposed Action Turnout.

Both the Proposed Action and Northern Alignment Alternative however extend beyond Reclamation right of way where potential effects to resources under the jurisdiction of other Federal agencies exist. As such, both the Proposed Action and Northern Alignment Alternative alignments outside of Reclamation right of way are analyzed in this document for potential impacts to resources protected under certain Federal laws (Section 1.3).

2.2.2 Proposed Action Description

The turnout in the FKC would be located downstream of the Little Dry Creek check structure, so this alignment would require construction of a new check structure in the FKC to provide the maximum possible delivery schedule. The structure would span the entire width of the canal and the dimensions would be approximately 36 feet wide by 20 feet tall. The Friant Water Authority (FWA) has indicated that construction of a new check structure within the canal is permissible subject to their approval and conditions. The new structure would limit dewatering of this portion of the canal to approximately every 10 years for maintenance of metalwork, instead of every 2 to 3 years without the structure. This reduction in downtime would provide increased reliability for delivery of water to the SWTF.

The Proposed Action alignment beyond Reclamation right of way is shorter (approximately 4.5 miles) and traverses flatter topography than the Northern Alignment. The Proposed Action

extends from the FKC to the pipeline previously constructed by Clovis Unified School District site within the Willow Avenue right-of-way.

The connection to the FKC would be approximately 2 miles south of Auberry Road. The 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 from Auberry Road approximately 0.5 miles north of Copper Avenue, heading west to Willow Avenue, and then south along Willow Avenue. At Willow Avenue, the pipeline would be aligned with the existing pipeline.

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

2.2.3 Northern Alignment Alternative

The Northern Alignment Alternative, unlike the Proposed Action, has the connection to the FKC located at the Little Dry Creek check structure; therefore, construction of a new check structure in the FKC would not be required.

The Northern Alignment Alternative alignment beyond Reclamation right of way is longer (approximately 4.9 miles) and traverses steeper topography than the Proposed Action. As with the Proposed Action, the Northern Alignment Alternative extends from the FKC to the pipeline previously constructed by Clovis Unified School District site within the Willow Avenue right of way.

The alignment corridor starts at the FKC, north of Auberry Road, then travels southwesterly across the northern edge of the City of Clovis property then across private property to Auberry Road. 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 then diverts west from Auberry Road approximately 0.75 miles north of Copper Avenue, then follows the same alignment as the Proposed Action to the previously constructed pipeline.

The Northern Alignment Alternative crosses more rolling terrain than the Proposed Action. From the FKC, 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 significant grade changes to the surrounding terrain, or more likely, a significant 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.

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3 Affected Environment and Environmental Consequences

3.1 Water Resources

This section addresses potential impacts to water resources from the Proposed Action, Northern Alignment Alternative and No Action Alternative. Without the Federal Action (connection to the FKC), the rest of the proposed project could not be built. As such, this section addresses potential impacts to water resources beyond the Federal Action (entire alignment).

3.1.1 Affected Environment

3.1.1.1 Surface Water

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 causes a period of delivery interruption. During certain periods, deliveries to groundwater recharge basins downstream of the SWTF cannot be delivered due to canal capacity limitations.

CVP water currently travels nearly 55 miles from Friant Dam (Millerton Lake) before reaching the SWTF. CVP water is diverted from Friant Dam into the FKC, then conveyed approximately 28 miles downstream along the FKC 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.

The FKC is a Reclamation owned facility operated and maintained by the FWA. The FKC delivers Reclamation water allotments along a 152 mile stretch between the Friant Dam at Millerton Reservoir and the Kern County line. Between the Friant Dam and the Gould Canal turnout, approximately 29 miles downstream, the canal capacity is approximately 10,500 acre-

feet per day. The FKC is primarily a concrete-lined channel within the study area. The FKC has check structures periodically to pond water for delivery to turnouts. The Little Dry Creek check structure is the first structure downstream of Friant Dam along the FKC. The Little Dry Creek check is located approximately 5.5 miles downstream of the 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 that the 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.

3.1.1.2 Groundwater

Between 1990 and 2003, the total groundwater demand placed on the underground aquifer by Fresno metropolitan 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.

Groundwater availability, estimated based upon natural recharge, subsurface inflow and intentional groundwater recharge, was estimated at 88,800 acre-feet per year for the Kings subbasin. Based on this estimate, 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.

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 to a groundwater take of approximately 89,000 acre-feet per year.

3.1.2 Environmental Consequences

3.1.2.1 No Action Alternative

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 continued, 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.

3.1.2.2 Proposed Action and Northern Alignment Alternative

The City is contractually entitled to a percentage of the yield from the San Joaquin River (and by extension-Millerton Lake). The City's water supply contract with Reclamation for up to 60,000 acre-feet annually was set to expire in 2006. It was renewed in 2005 and now extends to 2045. Up to this point, their allocation has been diverted from a single point. The proposed project would add an additional point of diversion but would not increase their contractual entitlement. Therefore the proposed project would not have an adverse impact on water supply for other users.

The Proposed Action would not have an adverse impact groundwater resources. 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 to a groundwater take of approximately 89,000 acre-feet per year. The deficit in available water supply would be made up for by surface water importation via the Project pipeline. By providing surface water in place of groundwater, the City would be able to stop the effects of excess groundwater extraction by returning the flow from the Enterprise Canal to intended recharge basins. The Proposed Action and Northern Alignment Alternative would have a beneficial effect on groundwater resources. Potential impacts to surface water and flood zones would result from construction activities.

Potential impacts to surface water and flood zones include:

- Disturbed native soils and stockpiles, excavated material from pipeline trenches, and/or cuttings from directional drilling operations, could erode and cause sediments to enter nearby watercourses as stormwater runoff;
- Grading operations would remove vegetation and expose soil to an increased risk of erosion and sediment transport into nearby watercourses as stormwater runoff;
- Equipment operation and maintenance could cause releases of petroleum products and sediments to the ground that enter watercourses rainfall;
- The Northern Alignment Alternative would cross the Big Dry Creek Diversion Channel and Little Dry Creek. Significant grade changes would be encountered across the alignment in the areas leading to and away from Little Dry Creek. The grade changes 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 discharge into the creek during rainfall;
- Construction activities along the pipeline route could substantially alter drainage patterns;
- Areas disturbed during construction within existing 100-year flood zones could impede flood flows and discharge sediments and pollutants into flood flows.

Measures to avoid and/or minimize these potential impacts are described in Appendix D. Incorporation of these measures would result in compliance with all Federal, State and Local laws and ordinances.

3.1.3 Cumulative impacts

The primary cumulative impact concerns involve the No Action Alternative. As stated previously, the continued use of groundwater as the main source of the municipal water supply would result in lower groundwater levels, aquifer compaction and the continued easterly migration of poorer quality groundwater resulting from the induced northeastern groundwater gradient.

There would be no adverse cumulative impacts to groundwater resources with either the Proposed Action and Northern Alignment Alternative. There would be no significant adverse cumulative impacts to surface water resources with either the Proposed Action and Northern Alignment 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 in force.

3.2 Land Use

This section addresses potential impacts to land use from the Proposed Action, Northern Alignment Alternative and No Action Alternative with a focus on farmland in order to comply with the Federal Farmland Protection Policy Act. Land use within Reclamation right of way (Federal Action) is limited to operations and maintenance of the FKC.

3.2.1 Affected Environment

The primary land use in Fresno County is agriculture. The County has farmland classified as Prime Farmlands, Unique Farmlands and Farmlands of Statewide and Local Importance. As defined by the U.S. Department of Agriculture:

- Prime Farmlands consist of soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the production of sustained high yields of crops;
- Unique Farmlands include land used for production of the state's major crops on soils not qualifying for prime or statewide importance;
- There are no specific statewide criteria for Farmlands of Statewide and Local Importance other than the lands must have been irrigated within the past 3 years and have a good combination of physical and chemical features. Land under this classification may have minor shortcomings such as greater slopes or with less ability to hold and store moisture. In Fresno County this classification includes land that is or has been used for irrigated pasture, dryland farming, confined livestock and dairy, poultry facilities, aquaculture and grazing land.

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.

3.2.2 Environmental Consequences

3.2.2.1 No Action

There would be no effect to the FKC or its right of way with 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.

3.2.2.2 Proposed Action and Northern Alignment Alternative

The Proposed Action and Northern Alignment Alternative would not have a permanent adverse effect to FKC or its right of way.

Where the pipeline would not be located adjacent to an existing roadway, the permanent pipeline easement would be 65 feet with an additional 35 feet of temporary construction easement. Prior to trenching, the permanent and construction easements would be cleared of vegetation and structures. Following construction, all land used for temporary construction, including extra work areas used for storage of equipment and topsoil storage, would be allowed to revert to prior uses. Construction of any aboveground structures would be prohibited on the permanent easement; however, no restrictions would be placed on the temporary easement or extra workspaces.

The permanent easement gives the City of Fresno the right to construct, operate, and maintain the pipeline, and in return compensate the landowner for the use of the land. The easement negotiations between the City of Fresno and the landowner would also include compensation for loss of use during construction and damage done to property during construction.

The Proposed Action would traverse 6.88 acres of Prime Farmland, 12.08 acres of Unique Farmlands, and 26.60 acres of Farmland of Local Importance.

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.

Impacts on agricultural areas during construction 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. Land used for pipeline construction and staging would not take row crops out of production. Temporary impacts on 33 acres of agricultural production from construction include:

- Vineyards: potential loss of 1 acre;
- Deciduous fruit and nut trees: potential loss of 6 acres; and
- 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 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 need to be relocated.

Permanent loss of pasture and deciduous fruit and nut trees would occur on 1 acre.

Because there would be minimal permanent conversion of farmland, the Proposed Action would be in compliance with the Federal Farmland Protection Policy Act. In residential areas, the two most significant impacts associated with construction and operation of a pipeline are disturbance during construction and the limitation on future residential or other permanent structures within the permanent easement.

Construction is expected to occur over approximately a 528-day period. The construction activities would occur between the hours of 7:00 am and 7:00 pm on weekdays and some Saturdays. An exception would be where the applicable jurisdictions have requested otherwise (i.e., nighttime construction, etc.) to alleviate traffic impacts.

In summary, for the Proposed Action and Northern Alignment Alternative, 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. This impact to grazing and vineyard lands can be reduced to an insignificant level with the implementation of mitigation measures (Appendix D). The groundwater recharge that will occur with completion of the Proposed Action or Northern Alignment Alternative would reverse past overdraft, providing a potential source of water to farmland and for other land uses in future dry years.

3.2.3 Cumulative impacts

The Federal action for both the Proposed Action and Northern Alignment Alternative is limited to Reclamation right of way and would not result in significant cumulative impacts to land use. With respect to the requirement to analyze potential effects to farmland under the Farmland Protection Policy Act; adverse impacts to farmland are temporary or minimal and compensated for and would not result in cumulative impacts to farmland.

3.3 Biological Resources

Although much of both the Proposed Action and the Northern Alignment Alternative routes would traverse lands disturbed by human activity such as agricultural or developed areas, habitat types with native vegetation are present in the Proposed Action Area. These habitats may be used by several special-status species. A Biological Assessment is in progress for submittal to the Service who will prepare a Biological Opinion that may require terms and conditions to minimize or mitigate impacts to Federally listed species. The decision document (Finding of No Significant Impact) will not be approved without the Biological Opinion.

3.3.1 Affected Environment

3.3.1.1 Vegetation Communities

One upland plant community occurs in the Proposed Action Area: nonnative grassland. 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. During these surveys, the accessible portions of the proposed alignment were walked. Assessment of an additional 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. A series of botanical field surveys were conducted in the Proposed Action Area on April 6, May 5, May 7, and on June 28, 2010. No special-status plant species were observed during those surveys. Additional (recently added) temporary staging and access areas were not included in those surveys. When the project area was expanded later 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 3-1.

Table 3-1 Existing Vegetation Communities within Action Alignments

Habitat	Proposed Project (acres)	Northern Alignment Alternative (acres)
Nonnative Grassland*	83	79
Seasonal Wetlands	1.4	not delineated
Riverine	0.1	0.5
Agriculture and Pasture	33	25
Developed Lands	9	13

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

3.3.1.2 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 Proposed 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.

3.3.1.3 Seasonal Wetlands

Seasonal wetlands along the route for the Proposed Action 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). South of the route for the Proposed Project, outside of the proposed right-of-way, several vernal pools are present (CDFG 2010c). 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 Proposed Project and the City will submit it to the U.S. Army Corps of Engineers for verification.

3.3.1.4 Riverine

Limited ephemeral stream habitat is present in the Proposed 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.).

3.3.1.5 Agriculture and Pasture

Agricultural lands along the proposed right-of-way 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.

3.3.1.6 Special-Status Plant Species

Special-status plant species include species listed by the U.S. Fish and Wildlife Service (USFWS) as Threatened or Endangered under provisions of the ESA, as well as Proposed and Candidate species for listing (USFWS 2008).

Special-status species also include plant species listed as endangered, threatened, or rare, by California Department of Fish and Game (CDFG) under provisions of the California ESA and the 1977 Native Plant Protection Act (CDFG 2008b). Special-status species also include plant species on List 1A, List 1B, or List 2 of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2008). These species are subject to state regulatory authority under CEQA.

The following describes special-status plant species that may occur in the Proposed Action Area:

Fleshy (succulent) Owl's-Clover (*Castilleja campestris* ssp. *succulenta*)

Fleshy owl's-clover is federally listed as threatened and is California listed as endangered (Federal Register 1997a; CDFG 2008b). Critical habitat has been designated for this species (Federal Register 2006c) however no critical habitat units are in the Proposed Action Area. Fleshy Owl's Clover Unit 5A is just east of the Friant-Kern Canal, immediately east of the Proposed Action Area.

The nearest reported occurrence is within the Proposed Action area just east of Auberry Road, and occurrences are also reported to the south and west (CDFG 2008c). The reported sighting just east of Auberry Road was last verified in 1998 but more recent surveys for this document

report that this location has been plowed and planted. It is believed that the population may now be extirpated.

California Jewel-Flower (*Caulanthus californicus*)

California jewel-flower is federally and California listed as endangered (Federal Register 1990; CDFG 2008b). No critical habitat has been designated or proposed for California jewel-flower.

Potential habitat exists in the eastern section of the Proposed Action however, this species was not observed in surveys of the Proposed Action Area in 2010 (Live Oak Associates, Inc.). Recently added temporary staging and access areas were not included in those surveys. The nearest reported occurrence is approximately five miles to the southwest of the Proposed Action (CDFG 2008c).

San Joaquin Valley Orcutt Grass (*Orcuttia inaequalis*)

San Joaquin Valley Orcutt grass is federally listed as threatened and is California listed as endangered (Federal Register 1997a; CDFG 2008b). Critical habitat has been designated for San Joaquin Valley Orcutt grass (Federal Register 2006c). No critical habitat units are in the Proposed Action area, but San Joaquin Valley Orcutt Grass Unit 4 is just east of the Friant-Kern Canal, immediately east of the Proposed Action Area.

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. Recently added temporary staging and access areas were not included in those surveys. The nearest reported occurrence is slightly under one mile to the south of the Proposed Action (CDFG 2008c).

Hartweg's Golden Sunburst (*Pseudobahia bahiifolia*)

Hartweg's golden sunburst is federally and California listed as endangered (Federal Register 1997b; CDFG 2008b). No critical habitat has been designated or proposed for this species.

Hartweg's golden sunburst has been observed in Fresno County but populations in Madera and Stanislaus counties constitute 90 percent of the population (Federal Register 1997b; CDFG 2008c).

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 1997b). No individuals of this species were observed in prior surveys conducted in the area south of the Proposed Action. The nearest reported occurrence is approximately 3.5 miles to the north of the Proposed Action (CDFG 2008c).. According to the soil survey for eastern Fresno County (Natural Resource Conservation Service 2007), no areas of Amador or Rocklin soils are present along the Northern Alignment Alternative, but no project-specific soil testing has been conducted on that alignment. Hartweg's golden sunburst was not observed in surveys of the Proposed Action Area in 2010 (Live Oak Associates, Inc. 2010). Recently added temporary staging and access areas were not included in those surveys.

Greene's Tuctoria (*Tuctoria greenei*)

Greene's tuctoria is federally listed as endangered and is California listed as rare (Federal Register 1997a; CDFG 2008b). Critical habitat has been designated for Greene's tuctoria, but the nearest critical habitat unit is 15 miles northwest of the Proposed Action area (Federal Register 2006c).

Greene's tuctoria has been found in Fresno County however the species occurrences recorded in Fresno County have all been extirpated (CDFG 2008a, c).

This species was not observed in surveys of the Proposed Action area in 2010 (Live Oak Associates, Inc.). Recently added temporary staging and access areas were not included in those surveys. The nearest reported occurrence is nearly five miles to the south of the Proposed Action (CDFG 2008c).

Dwarf Downingia (*Downingia pusilla*)

Dwarf downingia is categorized by the CNPS as a List 2 species (CNPS 2008). Although potential habitat for dwarf downingia occurs in the eastern section of the Proposed Action and the northern section of the Northern Alignment Alternative, this species has not been observed in either area in previous surveys. This species was not observed in surveys of the Proposed Action Area in 2010 (Live Oak Associates, Inc. 2010 and 2011). The nearest occurrence is nearly five miles south of the Proposed Action (CDFG 2008c). As the Northern Alignment was not surveyed, the species cannot be ruled out along that alignment.

Madera Leptosiphon (*Leptosiphon* [= *Linanthus*] *serrulatus*)

Madera leptosiphon is categorized by the CNPS as a List 1B species (CNPS 2008). This species has not been observed in the areas of Proposed Action or the Northern Alignment Alternative and was not observed during surveys of the Proposed Action Area in 2010 (Live Oak Associates, Inc. 2010). Recently added temporary staging and access areas were not included in those surveys. No habitat for this species is present on either alignment (woodlands and forests).

Spiny-Sepaled Button-Celery (*Eryngium spinosepalum*)

Spiny-sepaled button-celery is categorized by the CNPS as a List 1B species (CNPS 2008). Although potential habitat occurs in the eastern section of the Proposed Action Area and the northern section of the Northern Alignment Alternative, this species has not been observed in either area in previous surveys or observed in 2010 surveys (Live Oak Associates, Inc. 2010). Recently added temporary staging and access areas were not included in those surveys.

3.3.1.7 Special-Status 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). Other special-status wildlife species include those species listed as endangered or threatened by CDFG under provisions of the California ESA, or categorized as Fully Protected or as California Species of Special Concern.

The following section discusses Federal and California ESA Special-status wildlife species:

Conservancy Fairy Shrimp (*Branchinecta conservatio*)

The Conservancy fairy shrimp is federally listed as endangered (Federal Register 1994). Critical habitat was designated for Conservancy fairy shrimp on February 10, 2006, but the nearest critical habitat unit is in Merced and Madera counties (Federal Register 2006c).

The Conservancy fairy shrimp is endemic to the grassland and vernal pool habitats of California's Central Valley. This species occurs as a few isolated populations scattered throughout its range.

This species has not been observed in the Proposed Action area. Although potential habitat is provided by depressions in the grasslands in the eastern section of the Proposed Action, these

depressions may not be large enough to provide habitat for the Conservancy fairy shrimp. Potential habitat for this species is present south of the Proposed Action Area, although no individuals of this species were observed in prior surveys.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The vernal pool fairy shrimp is federally listed as threatened (Federal Register 1994). Critical habitat was designated for vernal pool fairy shrimp on February 10, 2006 (Federal Register 2006c). No critical habitat units are in the Proposed Action Area, but Vernal Pool Fairy Shrimp Unit 24B is just east of the Friant-Kern Canal.

The vernal pool fairy shrimp is endemic to the grassland and vernal pool habitats of California's Central Valley, Central Coast mountains, and South Coast mountains. This species is often found in isolated patches.

This species has not been 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.

Midvalley Fairy Shrimp (*Branchinecta mesoallensis*)

Midvalley fairy shrimp is included on the California list of Special Animals (CDFG 2008a). This species is found in vernal pools in the Central Valley usually in shallower pools and appear to have a higher tolerance for warm water temperatures than related species (Helm 1998).

This species has not been observed in the Proposed Action or the Northern Alignment Alternative routes, but potential habitat is provided by small depressions in the grasslands in the eastern and northern sections of the Proposed Action Area. The nearest reported location to the Proposed Action Area is a location approximately 0.25 mile from the Northern Alignment Alternative and approximately one mile from the Proposed Action (CDFG 2008c).

California Linderiella (*Linderiella occidentalis*)

California linderiella is included on the California list of Special Animals (CDFG 2008a). This invertebrate is found in vernal pools and seasonal ponds in unplowed grasslands.

Potential habitat exists for this species however none has been observed within the alignment of either build alternative. However, California linderiella has been observed outside of the Northern Alignment Alternative footprint near Friant-Kern Canal, and at a location approximately two miles southeast of the Proposed Action (CDFG 2008c).

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle is federally listed as threatened (Federal Register 1980). Critical habitat was designated for the valley elderberry longhorn beetle on August 8, 1980, but critical habitat for this beetle is in the Sacramento area, far outside of the Proposed Action Area (Federal Register 1980). According to a recent status review of this species, it has recovered sufficiently to warrant delisting (USFWS 2006).

The valley elderberry longhorn beetle is not expected to occur in the area of the Proposed Action or the Northern Alignment Alternative, because neither of these areas contains elderberry shrubs.

Molestan Blister Beetle (*Lytta moesta*)

Molestan blister beetle is included on the California list of Special Animals (CDFG 2008a). This species has been found in the Central Valley. Little is known about this species, although adults

of the family are often found on flowers. Its preferred habitats are reported as annual grassland, foothill woodland, and saltbush scrub.

Potential habitat for this species is present in the Proposed Action Area. The nearest reported occurrence is 2.5 miles to the north of the Northern Alignment Alternative (4.5 miles north of the Proposed Action).

Central Valley Steelhead (*Oncorhynchus mykiss*)

The Central Valley steelhead is an Evolutionarily Significant Unit and is federally listed as a threatened species (Federal Register 2006a). Critical habitat has been designated for the Central Valley Evolutionarily Significant Unit, but no critical habitat has been designated in Fresno County (Federal Register 2005b, 2006a). The San Joaquin River upstream of the confluence with the Merced River is not considered occupied habitat for steelhead. The nearest steelhead stream with critical habitat is in Merced County.

The California Central Valley steelhead Distinct Population Segment includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries (Federal Register 2006a).

The only riverine aquatic habitat in the Proposed Action Area is the human-made Big Dry Creek Diversion Channel. This channel provides drainage for overflow from Big Dry Creek Reservoir. 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. Little Dry Creek, into which the Diversion Channel flows, is also an intermittent stream. Little Dry Creek converges with the San Joaquin River downstream of Friant Dam (and upstream of the Merced River confluence), but National Marine Fisheries Service (NMFS) does not consider the San Joaquin River upstream of the confluence with the Merced River to be occupied habitat (Federal Register 2005b). Therefore, steelhead are not expected to occur in the Proposed Action Area.

Delta Smelt (*Hypomesus transpacificus*)

The delta smelt is federally and California-listed as threatened (Federal Register 1993a; CDFG 2008a). Critical habitat was designated for delta smelt on December 19, 1994, but no critical habitat exists in the Proposed Action Area. Critical habitat for the delta smelt extends south only to the southern border of San Joaquin County (Federal Register 1993b).

The delta smelt is endemic to the Sacramento-San Joaquin Delta, occurring as far south as Mossdale in San Joaquin County (USFWS 1996). This species occurs seasonally in the Carquinez Strait and San Pablo Bay. The delta smelt does not occur in Fresno County.

California Tiger Salamander (*Ambystoma californiense*)

The California tiger salamander is federally and California-listed as threatened (Federal Register 2004, CDFG 2010b). Critical habitat has been designated for the central population of the California tiger salamander, but the Proposed Action Area does not include any critical habitat areas (Federal Register 2005a). The nearest critical habitat unit is nearly two miles northeast of the Proposed Action.

The California tiger salamander is found in vernal pool complexes is endemic to central California. California tiger salamander habitat has two distinct components: (1) rain pools used for breeding and (2) adults use burrow complexes of California ground squirrel and Botta's pocket gopher in grasslands and sparse oak woodlands for most of the year.

The Proposed Action Area includes both seasonal wetlands and areas with small mammal burrows suitable for adult California tiger salamander occupation, but the seasonally wet depressions in the Proposed Action Area may be too small for this species. Larval California tiger salamanders have been found in pools approximately ½ mile and one mile from the Proposed Action Area (CDFG 2008c). No individuals were observed in the vernal pools south of the Proposed Action Area during previous surveys.

California Red-Legged Frog (*Rana draytonii*)

The California red-legged frog is federally listed as threatened (Federal Register 1996b), and is a California species of special concern (CDFG 2008a). Critical habitat for the California red-legged frog has been designated in San Benito and Merced counties (Federal Register 2006b). No critical habitat has been designated in Fresno County.

The nearest permanent water source to the Proposed Action Area is Big Dry Creek Reservoir, approximately three miles southeast of the Proposed Action Area. Vernal pools are present south of the Proposed Action Area and these pools are ephemeral and have no riparian cover. The Big Dry Creek Reservoir Diversion Channel is ephemeral and supports no riparian vegetation in the Proposed Action Area. No breeding habitat for the California red-legged frog is present in the Proposed Action Area.

Western Spadefoot Toad (*Spea* [= *Scaphiopus*] *hammondi*)

The western spadefoot toad is a California species of special concern (CDFG 2008a). This species ranges throughout the Central Valley and adjacent foothills from sea level to 4,500 feet and are found primarily in grasslands with shallow temporary pools, and occasionally in valley-foothill hardwood. The western spadefoot toad typically lives underground in burrows up to three feet deep during most of the year. Terrestrial burrowing sites may be separated from breeding sites.

While most of the grassland portions of the Proposed Action Area may be suitable for adult toads, suitable aquatic habitat for reproduction is limited. Most of the seasonal wetlands in the Proposed Action Area are too small to hold water long enough for spadefoot larvae to reach metamorphosis. Seasonal wetlands located south of the Proposed Action may inundate long enough to serve as rearing habitat. Along the route for the Northern Alignment Alternative, Little Dry Creek may provide spawning and rearing habitat. The western spadefoot toad has been observed in a pond approximately ¼ mile northwest of the Northern Alignment Alternative and about one mile from the Proposed Action (CDFG 2008c). A second reported sighting of this toad occurs one mile north of Copper Avenue, on the east side of Auberry Road (CNDDDB Rarefind 2010). This sighting of spadefoot larvae is within the Proposed Action Area. Although the occurrence was first observed in 1995 a subsequent report in 2001 indicated that the occurrence may now be extirpated due to recent discing, planting and cattle grazing.

Giant Garter Snake (*Thamnophis gigas*)

The giant garter snake is federally and California-listed as threatened (Federal Register 1993c; CDFG 2008a). No critical habitat has been designated or proposed for the giant garter snake.

The giant garter snake occurs in Central Valley waterways including Fresno County. No habitat for this species is present in the Proposed Action Area. This species has not been observed in the Project vicinity. The nearest record is 35 miles to the west (CDFG 2008c).

Blunt-Nosed Leopard Lizard (*Gambelia* [= *Crotaphytus*] *silae*)

The blunt-nosed leopard lizard is federally listed and California listed as endangered and is a California Fully Protected species (Federal Register 1967; CDFG 2008a). No critical habitat has been designated or proposed for the blunt-nosed leopard lizard.

The blunt-nosed leopard lizard has not been observed in the Proposed Action Area, and is not expected to occur. The Proposed Action Area is not included in lands identified as high priority for habitat protection in the recovery plan for this species (USFWS 1998), and the area is outside the reported range of the species. The nearest reported occurrence for this species is 20 miles to the west (CDFG 2008c).

Western Pond Turtle (*Actinemys marmorata*)

Western pond turtle is a state species of special concern (CDFG 2008a). This turtle occurs in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest, from sea level to about 6,000 feet (Zeiner et al. 1988). It is absent from desert regions except in the Mojave Desert where it is found along the Mojave River and its tributaries.

Suitable habitat for this turtle in the Proposed Action Area is limited to the Friant-Kern Canal. This species had been found in the canal at a location approximately one mile north along the canal from the connection point for the Proposed Action and two miles south of the connection point for the Northern Alignment Alternative (CDFG 2008c).

Western Burrowing Owl (*Athene cunicularia*)

The Western burrowing owl is a species of special concern and is protected by the Migratory Bird Treaty Act. The areas for both the Proposed Action and Northern Alignment contain suitable habitat, (e.g. annual grassland and irrigated pasture). Western burrowing owls use burrows dug by small mammals, particularly ground squirrels. They may either over-winter or breed or do both in a given area.

There are no known observations in the areas along either proposed pipeline alignment.

Fresno Kangaroo Rat (*Dipodomys nitratoide exilis*)

The Fresno kangaroo rat is both federally and California listed as endangered (Federal Register 1985; CDFG 2008a). Critical habitat for the Fresno kangaroo rat was designated in 1985 (Federal Register 1985). 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.

The areas for the Proposed Action and the Northern Alignment Alternative are above the valley floor and the grasslands section is over 10 miles east of the nearest historical population of Fresno kangaroo rat (CDFG 2008c). The Proposed Action and the Northern Alignment Alternative are outside the historical and current range of this subspecies.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

The San Joaquin kit fox is federally listed as endangered and California listed as threatened (Federal Register 1967; CDFG 2008a). No critical habitat has been designated or proposed for the San Joaquin kit fox.

The San Joaquin kit fox is found primarily in the lowlands of the San Joaquin Valley as well as several counties in the coast mountain ranges.

The nearest observation of San Joaquin kit fox is approximately five miles north of the Proposed Action (CDFG 2008c). 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.

Spotted Bat (*Euderma maculatum*)

The spotted bat is a state species of special concern (CDFG 2008a). Although spotted bats were once thought to be very rare (Zeiner et al. 1990a), this species is now known to range widely in western North America from southern British Columbia to Mexico (Pierson and Rainey 1998). In California, these bats probably occur throughout California where suitable habitat exists.

The nearest observation of this species is at Friant Dam. Due to the proximity of the Proposed Action Area to potential foraging sites, this species may forage in the Proposed Action Area, although no suitable roosting habitat is present.

American Badger (*Taxidea taxus*)

The American badger is a California species of special concern (CDFG 2008a). This badger is an uncommon but permanent resident found throughout most of California. The badger is active throughout the year in most of its range in California, except in the North Coast area where it enters variable periods of torpor in winter.

Uncultivated habitat in the Proposed Action Area is limited to the grasslands at the eastern end of the Proposed Action and the northern end of the Northern Alignment Alternative. The nearest recorded occurrences for this species are seven miles to the south and nine miles to the north. Neither badgers nor their burrows were observed during the reconnaissance surveys.

Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)

The western yellow-billed cuckoo is a federal candidate species and is California listed as endangered (CDFG 2008a).

Western yellow-billed cuckoo is a yearlong resident of California and inhabits primarily riparian habitats throughout its range. This diurnal species requires dense vegetation of trees and shrubs for roosting and nesting (Zeiner et al. 1990b), particularly extensive areas of cottonwood-willow riparian forest.

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 2008c), although the species likely only still occurs within the Central Valley in one area along the Sacramento River.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is California listed as threatened. In California, this species is restricted to portions of the Central Valley and Great Basin regions where suitable nesting and foraging habitat is still available. Central Valley populations are densest from Colusa County to San Joaquin County and are considered sparse in Fresno County (CDFG 2005).

Swainson's hawk requires large, open grasslands with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. The majority of Swainson's hawk territories in the Central Valley are associated with riparian systems adjacent to suitable foraging

habitats. Swainson's hawk often nests peripherally to riparian systems, but also uses lone trees or groves of trees in agricultural fields and rangelands. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 60 feet are the most commonly used nest trees in the Central Valley. Breeding occurs late March to late August, with peak activity from late May through July. (Zeiner et al. 1990a).

There are no observations of Swainson's hawk nests within 0.5 mile of the Proposed Project. The nearest reported occurrence was a 1997 observation of adults with fledglings, but no nearby nest, over nine miles from the Proposed Project. A follow-up search in 1994 located no Swainson's hawks (CDFG 2011). The nearest confirmed nest location, observed in 2000, is 40 miles from 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.

3.3.2 Environmental Consequences

This section describes the potential impacts of construction activities on the habitats and special-status species of each of the action alternatives. 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.

3.3.2.1 No Action

The No Project 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.

3.3.2.2 Proposed Action and Northern Alignment Alternative

The Proposed Action lies primarily in disturbed roadsides dominated by non-native annual grasses and other ruderal (disturbed area) species. The project's eastern end traverses grazing land.

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

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 not 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 and state-listed vernal pool species, to other special-status vernal pool species, to California jewel-flower, to California tiger salamander and western spadefoot toad, to western pond turtle, to San Joaquin kit fox, and to burrowing owls and other breeding birds, if any of these species are present during construction. Long-term operation and maintenance activities could impact these species from vehicular access or impacts may occur in the event of a pipeline rupture. Appendix D addresses measures to avoid, minimize and/or mitigate potential impacts resulting from both the Proposed Action and 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 substantial 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 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 CDFG or USFWS.

The impacts in terms of acres for each alternative on each special-status species are summarized in Table 3-2.

Table 3-2 Determination of Effects for Special-status Species

Federally Listed Species	Determination of Effects¹	Preferred Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment (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	2.8/80 ⁴	79 ⁴

Table 3-2 Determination of Effects for Special-status Species (Continued)

Federally Listed Species	Determination of Effects¹	Preferred Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment (Total Acreage of Impacts)²
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
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

Table 3-3 Determination of Effects for Other Special-status Species

Other Special-status Species	Determination of Effects¹	Preferred Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment (Total Acreage of Impacts)²
American badger	Not likely to adversely affect	2.8/80	79 ⁴
California linderiella	May result in loss of individuals, but will not rise to the level of a population effect	0.1/1.3	-- ⁵
Dwarf downingia	Not likely to adversely affect	0	-- ⁵
Madera leptosiphon	Not likely to adversely affect	0	0
Midvalley fairy shrimp	May result in loss of individuals, but will not rise to the level of a population effect	0.10/1.3	-- ⁵
Molestan blister beetle	May result in loss of individuals, but will not rise to the level of a population effect	2.8/80	79 ⁴
Spiny-sepaed button-celery	Not likely to adversely affect	0	0
Spotted bat	No effect	0	0
Swainson's hawk	Foraging habitat will be permanently adversely impacted, but no individuals would be injured or killed	3.3/105	79 ⁴

Table 3-3. Determination of Effects for Other Special-status Species (Continued)

Other Special-status Species	Determination of Effects ¹	Preferred Alignment (Permanent/Temporary Acreage of Impacts)	Northern Alignment (Total Acreage of Impacts) ²
Western burrowing owl	Habitat will be permanently adversely impacted, but no individuals would be injured or killed	3.3/105	79 ⁴
Western pond turtle	Not likely to adversely affect	0.1/0	0.5
Western spadefoot	May result in loss of individuals, but will not rise to the level of a population effect	3.4/106.4	79 ⁴
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

3.3.3 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 (FMFCD) master plan includes a future storm drain pipeline likely offset to the west of the centerline of the Auberry Road right-of-way. This proposed FMFCD 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.
- 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.

- 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.

3.4 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) 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 (NRHP). Those resources that are on or eligible for inclusion in the NRHP are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (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 (APE), determine if historic properties are present within that APE, determine the effect that the undertaking would 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 FKC), 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 APE.

3.4.1 Affected Environment

Proposed Action and Northern Alignment Alternative

Archaeological and historical investigations identified three previously recorded sites:

- 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.
- 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 FKC was previously determined eligible for inclusion on the NRHP. Construction of the FKC began in 1945 and was completed in 1951. The FKC 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 (U.S. Bureau of Reclamation 1961). The FKC 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 FKC 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.

3.4.2 Environmental Consequences

No Action Alternative

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

It is possible that Cultural Resources could be inadvertently discovered during construction. Construction crews will be informed of the potential to uncover archaeological resources and the protocol to follow in case of any discoveries. The protocol is:

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 professional archaeologist and the City shall also coordinate with Bureau of Reclamation Cultural Resources staff so that Reclamation can fulfill any additional consultation requirements pursuant to 36 CFR Part 800.13(b). The City shall address the discovery by implementing a measure such as avoidance, preservation in place, excavation, documentation, curation, or data recovery.

Implementation of this measure would reduce the risk of impacts to Cultural Resources.

3.4.3 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.

3.5 Indian Trust Assets

3.5.1 Affected Environment

Indian Trust Assets (ITA) are legal interests in assets that are held in trust by the U.S. Government for Federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the United States on behalf of Federally recognized Indian tribes. "Assets" are anything owned that holds monetary value. "Legal interests" means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. ITA cannot be sold, leased or otherwise alienated without the United States'

approval. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something; which may include lands, minerals and natural resources in addition to hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITA may be located off trust land. Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITA reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

3.5.2 Environmental Consequences

3.5.2.1 No Action

This alternative would have no adverse effect to Indian Trust Assets.

3.5.2.2 Proposed Action and Northern Alignment Alternative

The proposed action does not have a potential to affect Indian Trust Assets. The nearest ITA is the Table Mountain Reservation approximately 5 miles NE of the Proposed Action Area.

3.5.3 Cumulative impacts

Cumulative impacts to ITAs would not occur with any alternative.

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

3.6.2.1 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.

3.6.2.2 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, 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.

3.6.3 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 would be temporary and compensation for crop losses would be determined during easement negotiations. 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.

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.

3.7.1 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 a 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.

3.7.2 Proposed Action and Northern Alignment Alternative

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.

3.7.3 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

This section addresses potential air quality impacts to comply with the Federal Clean Air Act.

3.8.1 Affected Environment

The Proposed Action area lies within the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The pollutants of greatest concern in the San Joaquin Valley are carbon monoxide (CO), ozone (O₃), O₃ precursors such as 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 SJVAB has reached Federal and State attainment status for CO, nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). Federal attainment status has been reached for PM₁₀ but is in non-attainment for O₃, PM_{2.5}, and VOC (Table 3-3). There are no established standards for nitrogen oxides (NO_x); however, NO_x does contribute to NO₂ standards (SJVAPCD 2010a).

Table 3-4 San Joaquin Valley Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
O ₃	8 Hour	0.070 ppm	Nonattainment	0.075 ppm	Nonattainment
	1 Hour	0.09 ppm	Nonattainment	--	--
CO	8 Hour	9.0 ppm	Attainment	9.0 ppm	Attainment
	1 Hour	20.0 ppm	Unclassified	35.0 ppm	Unclassified
NO ₂	Annual arithmetic mean	0.030 ppm	Attainment	0.053 ppm	Attainment
	1 Hour	0.18 ppm	Attainment	--	--
SO ₂	Annual average	--	--	0.03 ppm	Attainment
	24 Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1 Hour	0.25 ppm	Attainment	--	--
PM ₁₀	Annual arithmetic mean	20 µg/m ³	Nonattainment	--	--
	24 Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Attainment
PM _{2.5}	Annual Arithmetic mean	12 µg/m ³	Nonattainment	15 µg/m ³	Nonattainment
	24 Hour	--	--	35 µg/m ³	Attainment
Lead	30 day average	1.5 µg/m ³	Attainment	--	--
	Rolling-3 month average	--	--	0.15 µg/m ³	Unclassified

Source: CARB 2010; SJVAPCD 2010b; 40 CFR 93.153

ppm = parts per million

mg/m³ = milligram per cubic meter

µg/m³ = microgram per cubic meter

-- = No standard established

3.8.2 Environmental Consequences

3.8.2.1 No Action

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

3.8.2.2 Proposed Action and Northern Alignment Alternative

The Proposed Action and Northern Alignment Alternative would result in temporary emissions from construction activities (primarily from vehicle use). During the construction phase, approximately 15 vehicles (as well as other equipment) with a maximum of 30 vehicles would be used. Particulate matter (PM₁₀ and PM_{2.5}) from vehicle use would be the primary pollutant generated during construction however, short-term emissions of nitrogen oxides, sulfur oxides and carbon monoxide, would also occur.

Estimated air quality emissions for construction activities were calculated utilizing the South Coast Air Quality Management District's *EMFAC2007 Version 2.3* emission factors (Table 3.5).

Table 3-5 Estimated Construction Activity Emissions

Construction Activity	CO (tons)	VOC (tons)	NO _x (tons)	SO _x (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)	CO ₂ (tons)	CH ₄ (tons)
Ground Disturbance	0.16	0.05	0.48	0.05	106.76	22.21	49.68	0.01
Asphalt Paving Operations	0.06	0.00	0.01	0.00	0.00	0.00	11.52	0.00
Total Emissions	0.22	0.05	0.49	0.05	106.76	22.21	61.19	0.01

Emissions from the construction, operation and/or maintenance 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 D);
- Measures included in the SJVAPCD air quality maintenance plan would be utilized (Appendix D);
- 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.

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.

3.8.3 Cumulative impacts

There would be cumulative impacts to air quality in that there would be a slight increase in area emissions primarily involving particulate matter in both the PM₁₀ and PM_{2.5} range. These emission increases would be temporary and minimized with measures included in the San Joaquin Valley Air Pollution Control District air quality maintenance plan that will address air pollution and meet the standards over the long term.

3.9 Global Climate Change

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer and is considered a cumulative impact. Many environmental changes can contribute to climate change [changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.] (EPA 2010c)

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, CH₄, nitrous oxide, and fluorinated gases (EPA 2010c). Between 1990 and 2009, CO₂ was the primary GHG (approximately 85 percent) produced in the U.S. due to the combustion of fossil fuels. Methane steadily declined within the same time period (EPA 2010d).

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 (EPA 2010e). 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).

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 the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is further directed to set a GHG 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 2010f). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of GHG by large source emitters and suppliers that emit 25,000 metric tons or more of GHG 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 2010f).

3.9.1 Affected Environment

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).

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

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

3.9.2.2 Proposed Action

GHG emissions from construction of the Proposed Action will include CO₂ and CH₄.

The EPA calculates the reporting threshold for GHG emissions in metric tons. Estimated emissions of CO₂ for construction of the Proposed Action are 55.5 metric tons (61.19 US tons). Estimated emissions of CH₄ for construction of the Proposed Action are 0.009 metric tons (0.01 US tons).

Calculated CO₂ and CH₄ emission estimates for the construction and operation of the Proposed Action are well below the EPA's 25,000 metric tons (27,550 US tons) per year threshold for annually reporting GHG emissions (EPA 2009).

3.9.3 Cumulative Impacts

GHG emissions are considered cumulatively significant; however, the 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.

4 Consultation and Coordination

This section describes consultation and coordination activities with other agencies and the public performed by Reclamation and the City.

4.1 Federal Agencies

NEPA requires that Reclamation consult with Federal agencies that have responsibility over resources involved or any other interest. Specifically, ESA Section 7(a)(2) requires Federal agencies to consult with the USFWS and/or the National Marine Fisheries Service on any activities that may affect any Federally listed species and Section 7(a)(4) requires consultation on any activities that may jeopardize the continued existence of any proposed species of plant or animal. If potential effects to listed or proposed species or their designated critical habitat are identified, these effects require the initiation of the Section 7 process.

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 with the Army Corps of Engineers was held on February 5, 2009, to discuss the project in relation to compliance with Section 404 of the Clean Water Act.

4.2 Non-Federal Agencies and the Public

In addition, 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
- California Regional Water Quality Control Board: Prior to construction
- San Joaquin Valley Air Pollution Control District: Prior to construction

The Draft EA will also be circulated to affected property owners/tenants and other interested parties.

4.3 Public Review Period

Reclamation is providing the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft EA from August 19, 2011 to September 19, 2011.

4.4 Applicable Laws

4.4.1 Fish and Wildlife Coordination Act (16 USC § 661 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (Federal and state) on all water development actions that could affect biological resources. The Proposed Action and Northern Alignment Alternative would not impound, divert, control or otherwise modify Reclamation facilities; therefore, the FWCA does not apply.

4.4.2 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior, 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.

A Biological Assessment has been prepared for review by the U.S. Fish and Wildlife Service for use in the issuance of a Biological Opinion. The Final EA/FONSI will reflect the Biological Opinion determinations and minimization measures to ensure compliance with ESA.

4.4.3 Migratory Bird Treaty Act (16 USC § 703 et seq.)

The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the MBTA, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action and Northern Alignment Alternative would both include measures to protect Burrowing owls and other birds during construction which would prevent take of migratory birds.

4.4.4 National Historic Preservation Act (16 USC § 470 et seq.)

The NHPA of 1966, as amended (16 USC 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 NRHP. The 36 CFR Part 800 regulations implement Section 106 of the NHPA.

Section 106 of the NHPA requires Federal agencies to consider the effects of Federal undertakings on historic properties, properties determined eligible for inclusion in the NRHP. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties.

Reclamation has determined that there would be no potential to affect historic properties by the Proposed Action or Northern Alignment Alternative pursuant to 36 CFR 800.3(a)(1). Approval of the FONSI is dependent on SHPO Concurrence.

4.4.5 Clean Water Act (16 USC § 703 et seq.) Section 401

Section 401 of the Clean Water Act (CWA) (33 USC § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 USC § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit 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 with both the Proposed Action and Northern Alignment Alternative.

4.4.6 Clean Water Act (16 USC § 703 et seq.) Section 404

Section 404 of the CWA authorizes the U. S. Army Corps of Engineers to issue permits to regulate the discharge of “dredged or fill materials into waters of the United States” (33 USC § 1344). An Individual or Nationwide 404 Permit would be required with both the Proposed Action and Northern Alignment Alternative.

4.4.7 Clean Air Act (42 USC § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 USC § 7401 (a)) before the action is otherwise approved. In this context, conformity means that such Federal actions must be consistent with a SIP’s purpose of eliminating or reducing the severity and number of violations of the NAAQS 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 will, in fact conform to the applicable SIP before the action is taken.

Estimated emissions for construction of the Proposed Action are well below the SJVAPCD’s *de minimis* thresholds; therefore, a conformity analysis is not required and there would be no adverse impacts to air quality.

4.4.8 Farmland Protection Policy Act (Subtitle I of Title XV, Section 1539-1549)

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible Federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland.

The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Impacts to prime farmland, unique farmland, and land of statewide or local importance would be temporary in nature resulting in no permanent conversion of farmland. As such, consultation and/or coordination with the Natural Resource Conservation Service pursuant to the FPPA was not required.

4.4.9 Executive Order 11988 – Floodplain Management

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands.

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. Areas disturbed during construction within existing 100-year flood zones however could impede flood flows if a flood occurred during construction or afterwards if the disturbed areas remain.

4.4.10 Executive Order 13007 – Indian Sacred Sites

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites. At this time no Indian Sacred Sites have been identified. Should a sacred site be identified in the future, Reclamation would comply with Executive Order 13007.

4.4.11 Executive Order 12898 – Environmental Justice

To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Marian Islands.

Under the Proposed Action and Northern Alignment Alternative, all of the City's residents would have greater access to a secure water source; therefore, the Proposed Action and Northern Alignment Alternative are anticipated to have a beneficial (but not substantial) effect to all of the City's residents with no disproportionate effect to any low income and minority populations. Therefore consultation and/or coordination with representatives of these groups was not required.

State and Local permits would be required including:

4.4.12 Construction General Permit

The Project would require coordination with the State of California to obtain the state Construction General Permit, which includes the preparation of a Storm Water Pollution Prevention Plan. This permit will also be coordinated with the corresponding Regional Water Quality Control Board. A Dust Control Plan will be required and will be prepared in coordination with the San Joaquin Air Pollution Control District.

4.4.13 Conditional Use Permit

The City of Fresno Development and Resource Management Department requires a Conditional Use Permit (CUP) for additional onsite work proposed at the northeast SWTF including underground piping and valves and the new hydropower plant. A CUP is required pursuant to Fresno Municipal Code Section 12-304-B, subsections 10 and 11, which designates government facilities and public utility structures as conditional uses. The original CUP No. C-01-130 for the SWTP was supplemented with CUP No. C-09-041 on January 21, 2010 for additional onsite work that was recently completed. Improvements associated with the proposed Raw Water Pipeline Project will require approval of another CUP by the Department.

4.4.14 Fresno County

Applicable encroachment and construction permits will be obtained from Fresno County for the construction of facilities within the County road right-of-ways.

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6 References

A substantial portion of this EA incorporated information from the City of Fresno December 2010 Draft Initial Study completed by Provost and Prichard Engineering Group and Cardno Entrix Inc. The Initial Study used the following references:

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7 Appendices

7.1 Appendix A Biology



LIVE OAK ASSOCIATES, INC.
an Ecological Consulting Firm

July 22, 2010

Ronald J. Samuelian, P.E.
Provost & Pritchard Consulting Group, Inc.
286 W. Cromwell Avenue
Fresno, CA 93711-6162

RE: Results of the Rare Plant Surveys, City of Fresno Raw Water Pipeline Project, Fresno County, California.

Dear Mr. Samuelian,

Live Oak Associates, Inc. (LOA) conducted rare plant surveys for the City of Fresno Raw Water Pipeline project site located just northeast of Fresno and south of Friant, in Fresno County, California. These surveys were limited to non-native grassland and wetland habitats identified by ENTRIX along approximately 3.25 miles of the pipeline alignment north of Copper Avenue, within an approximately 200 foot wide easement/staging area (See Figure 1 Rare Plant Survey Area). The survey area is located primarily along portions of North Willow Avenue, Auberry Road, and private roads east of Auberry Road. The site can be found in Sections 5, 6, 7, 12, and 13 of Township 12 South, Range 20 and 21 East, Mount Diablo Base and Meridian, as depicted on the Friant, California 7.5 Minute Series USGS topographical quadrangle.

Surrounding land use is ranchland, farmland, residential, and commercial. Current land use of the survey area consists primarily of cattle and sheep grazing. The topography of the site consists of slightly undulating terrain that ranges in elevation from approximately 390 feet National Geodetic Vertical Datum (NGVD) along Copper Avenue in the southwestern corner of the property to approximately 415 feet NGVD at the junction with the Friant-Kern Canal.

Focused surveys were conducted for eight special status plant species during their blooming periods. Federally listed species surveyed for included succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), California jewelflower (*Caulanthus californicus*), San Joaquin Valley orcutt grass (*Orcuttia inaequalis*), Greene's tuctoria (*Tuctoria greenei*), and Hartweg's golden sunburst (*Pseudobahia bairdii*). Other plant species surveyed for include two species placed on the California Native Plant Society's (CNPS) List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), the spiny-sealed button celery (*Eryngium spinosepalum*) and Madera leptosiphon (*Leptosiphon serrulatus*). The last species surveyed for include one species placed on the CNPS List 2B (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere), the dwarf downingia (*Downingia pusilla*). Following is a brief discussion of each species.

San Jose Office: 6830 Via Del Oro, Suite 205 • San Jose, CA 95119 • Phone: 408-224-8300 • Fax: 408-224-1411
Oakhurst Office: P.O. Box 2697 • 49430 Road 426, Suite B • Oakhurst, CA 93644 • Phone: 559-642-4880 • Fax: 559-642-4883

Succulent owl's clover

This member of the Figwort Family (Scrophulariaceae) was listed as Federally Threatened in 1997 according to provisions of the Federal Endangered Species Act and California Endangered in 1979 according to provisions of the State Endangered Species Act. The California Native Plant Society (CNPS) has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between April and May, depending on rainfall and spring temperatures. This species was not observed during the 2010 surveys, although one occurrence has been documented less than 0.5 miles from the site (CNDDDB 2010). Succulent owl's clover occurs in vernal pools within valley and foothill grasslands.

California jewelflower

This member of the Mustard Family (Brassicaceae), was listed as Federally Endangered in 1990 according to provisions of the Federal Endangered Species Act and California Endangered in 1987 according to provisions of the State Endangered Species Act. The California Native Plant Society (CNPS) has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between February and May, depending on rainfall and spring temperatures. One historical population has been documented within nine miles of the site, within the City of Fresno (CNDDDB 2010). California jewelflower occurs in non-native grassland, upper Sonoran subshrub scrub, cismontane juniper woodland, and scrub. The nearest known extant population of this species is located in the Kreyenhagen Hills in western Fresno County, which is managed by the Bureau of Land Management (BLM).

San Joaquin Valley orcutt grass

This member of the Grass Family (Poaceae) was listed as Federally Threatened in 1997 according to provisions of the Federal Endangered Species Act and California Endangered in 1979 according to provisions of the State Endangered Species Act. The California Native Plant Society (CNPS) has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between April and September, depending on rainfall and spring temperatures, but usually exhibits a peak bloom in June or July. One population has been documented within two miles of the site and several other populations have been documented in the vicinity (CNDDDB 2010). San Joaquin Valley orcutt grass occurs in deep vernal pools of California's Central Valley.

Greene's tuctoria

This member of the Grass Family (Poaceae) was listed as Federally Endangered in 1997 according to provisions of the Federal Endangered Species Act. The California Native Plant Society (CNPS) has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between May and September, depending on rainfall and spring temperatures. One population has been documented within six miles of the site and several historic populations have been documented within the vicinity (CNDDDB 2010). This species is considered extirpated from Fresno County. Greene's Tuctoria occurs in deep vernal pools of California's Central Valley.

Hartweg's golden sunburst

This member of the Sunflower Family (Asteraceae) was listed as Federally Endangered in 1997 according to provisions of the Federal Endangered Species Act and California Endangered in 1981 according to provisions of the State Endangered Species Act. The California Native Plant Society (CNPS) has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between March and April, depending on rainfall and spring temperatures. One population has been documented within six miles of the study area (CNDDDB 2010). Hartweg's golden sunburst occurs in grasslands of the western foothills of the Sierra Nevada in volcanic pumice soils, most often of the Rocklin series.

Spiny-sealed button celery

This member of the Carrot Family (Apiaceae) has been neither state nor federally listed as threatened or endangered. The CNPS has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between April and May, depending on rainfall and spring temperatures. One population has been documented within 10 miles of the site, but individuals have been reported elsewhere within Fresno County (CNDDDB 2010). Spiny-sealed button celery occurs in vernal pools in valley and foothill grasslands within Fresno and Tulare Counties.

Madera leptosiphon

This member of the Phlox Family (Polemoniaceae) has been neither state nor federally listed as threatened or endangered. The CNPS has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between April and May, depending on rainfall and spring temperatures. One population has been documented within eight miles of the site (CNDDDB 2010), and is known to be extant from LOA observations in 2010. Madera leptosiphon occurs in cismontane woodland, lower montane coniferous forests, and annual grasslands.

Dwarf downingia

This member of the Bellflower Family (Campanulaceae) has been neither state nor federally listed as threatened or endangered. The CNPS has placed this species on its List 2B (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere). This herbaceous species blooms between March and May, depending on rainfall and spring temperatures. One population has been documented within one mile of the site (CNDDDB 2010), and within the vicinity. Dwarf downingia occurs in vernal pools, playa pools, and on margins of vernal lakes within valley and foothill grassland with alkaline and non-alkaline soils.

SURVEY METHODS

LOA biologists conducted focused surveys for eight rare plant species on April 6 (by Jeff Gurule and Joanne Freemire), May 5 (by Dave Hartesveldt and Geoff Cline), May 7 (by Jeff Gurule and Geoff Cline), and on June 28, 2010 (by Jeff Gurule). Surveys were conducted within the easement/staging areas as shown in Figure 1 according to protocols created by CNPS and California Department of Fish and Game (CDFG).

A literature search augmented LOA botanist's first hand experience with the subject plant species. The literature search preceded the 2010 surveys and focused on the habitat requirements and the guidelines for conducting special status plant surveys. Specifically, this literature search involved a review of the *CNPS Botanical Survey Guidelines* (See Attachment A) and the *CDFG Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009) (See Attachment B), the *Inventory of Rare and Endangered Plants* (CNPS 2001), and querying the California Natural Diversity Database (CNDDB) (California Department of Fish and Game 2010). The purpose of the CNDDB query was to identify the nearest known populations of special status plant species for use as reference populations.

LOA biologists visited nearby accessible reference sites of succulent owl's clover, Hartweg's golden sunburst, San Joaquin Valley orcutt grass, Greene's tuctoria, and Madera leptosiphon. Inquiries were made to various botanists having recent or current experience with the target plant species for which a reference population is not readily accessible. Wendy Fisher (former LOA botanist), Kathy Sharum (BLM Biologist, Carrizo Plain), Neal Kramer (LAO botanist), and Reagen O'Keefe (Environmental Specialist with Caltrans) were contacted to discuss the status of regional populations of the remaining special status plants. Conversations with these local botanists combined with first hand observations of local reference populations ensured that surveys for each of the eight special status plant species potentially occurring on the study area were conducted during a time that other known populations were in bloom or exhibiting the phenological characteristics necessary to identify them.

LOA biologists walked approximately 25-foot transects within the survey area to survey for upland plant species Hartweg's golden sunburst, California jewelflower, and Madera leptosiphon. Wetland maps prepared by ENTRIX were used as a guide to identify wetland habitat suitable for special status vernal pool and wetland plant species (i.e. succulent owl's clover San Joaquin Valley orcutt grass, Greene's tuctoria, spiny-sealed button celery, and dwarf downingia). Wetland areas were then searched systematically to ensure visual coverage of the entire wetland area. All plant species observed over the course of the survey were recorded in a field notebook. A complete list of plant species observed on the site is presented in Attachment C.

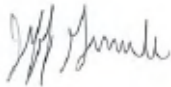
RESULTS

The special status plant species surveys conducted in April, May, and June 2010 found none of the eight target species with potential to occur on the Fresno Raw Water Pipeline project area. California jewel flower, Succulent owl's clover, Hartweg's golden sunburst, San Joaquin Valley orcutt grass, Greene's Tuctoria, spiny-sealed button celery, dwarf downingia, and Madera leptosiphon do not occur within the survey area. Given that rainfall was above normal during the 2009/2010 rainy season and that land use appears to be consistent with years past there is no

reason to believe that environmental conditions were unfavorable for any of the subject plant species.

Based on the findings of the 2010 surveys, I have concluded that construction of the Fresno Raw Water Pipeline project will not adversely impact any special status plant species. If you have any questions, please do not hesitate to give me a call.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Gurule". The signature is written in a cursive, slightly slanted style.

Jeff Gurule

Senior Project Manager

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7.2 Appendix B SHPO Letter/Concurrence

Placeholder

A letter of concurrence from the State Historic Preservation Office confirming the findings is required prior to approval of the Final Environmental Assessment and Finding of No Significant Impact.

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7.3 Appendix C ITA Determination

From: Rivera, Patricia L
Sent: Tuesday, August 17, 2010 4:38 PM
To: Siek, Charles R
Subject: RE: Fresno City Raw Water Pipeline

Chuck,

I reviewed the proposed action. The Proposed Action Area is defined as the area that could be impacted by construction and operation of a new raw water conveyance facility. The Action Alternatives comprised of the Proposed Action and Northern Alignment are located northeast of the City, in unincorporated Fresno County. The Proposed Action would be located between the Surface Water Treatment Facility (SWTF) near Chestnut and Behymer Avenues and the Friant-Kern canal to the northeast. Connection to an existing 60-inch-diameter pipeline is required for each of the action alternative alignments. The proposed pipeline would connect to the existing pipeline in Willow Avenue east of the Clovis Unified School District site, and at the northern property boundary of the SWTF.

The proposed action does not have a potential to affect Indian Trust Assets. The nearest ITA is the Table Mountain Reservation approximately 5 miles NE of the Proposed Action Area.

Patricia

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7.4 Appendix D 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.	In the Project-specific SWPPP, the Contractor(s) would be required to: ▪ 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. The SWPPP will identify: ▪ 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. 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: ▪ 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.	Pre-construction and construction phase. The Contractor would be responsible for implementation of the SWPPP with oversight and verification by City of Fresno.
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.	Pre-construction and construction phase. The Contractor would be responsible for implementation of the SWPPP with oversight and verification by City of Fresno.

7.4 Appendix D Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Land Use (Agriculture)	Agricultural land use impacts are the temporary loss of standing crops within the construction easement and possible loss of future crop productivity resulting from the loss of topsoil and soil compaction. These impacts would be reduced with implementation of these measures.	- 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.	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.	Land use impacts, specifically impacts to residences within 50 feet of the construction area, would be reduced with implementation of the following measures: - 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.	Pre-construction and construction phase. The Contractor would be responsible for implementation of land use measures with oversight and verification by City of Fresno.
Biology	Monitoring	The FCR who would be responsible for overseeing compliance with protective requirements for listed species.	Construction phase. Field contact representative with oversight and verification by City of Fresno.

7.4 Appendix D 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:	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. Existing routes to and from the construction and inspection sites would be used. Cross-country use of vehicles and equipment would be strictly prohibited. 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. 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. 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. 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. 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. 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. 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. 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.	Pre-construction and construction phase. Field contact representative with oversight and verification by City of Fresno.

7.4 Appendix D Mitigation/Minimization Measures (Continued)

Resource	Discussion	Measures	Scheduling and Responsible Agency
Biology	Additional Measures	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. 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. 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. 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). 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. 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. 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. 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. Nests of breeding birds protected by the Migratory Bird Treaty Act must be protected from disturbance until the eggs hatch and the nestlings fledge. 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.	Pre-construction and construction phase. Field contact representative with oversight and verification by City of Fresno.
Cultural	Discovery	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 Development and Resource Management 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. The professional archaeologist and the City shall also coordinate with Bureau of Reclamation Cultural Resources staff so that Reclamation can fulfill any additional consultation requirements pursuant to 36 CFR Part 800.13(b).	Construction phase. The Contractor would be responsible with oversight and verification by City of Fresno.

7.4 Appendix D 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.	▪ 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	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 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.	Air Quality and Global Climate Change Measures are identical as emissions effect both. ▪ 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.	Air Quality and Global Climate Change Measures are identical as emissions effect both. ▪ 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.