RECLAMATION
Managing Water in the West

Draft Environmental Assessment

Firebaugh Canal Water District 5-Year Transfer Program

EA-18-025

U.S. Department of the Interior
Bureau of Reclamation
South-Central California Area Office

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Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

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

Contents

Section 1 Introduction

1.1 Background

The San Joaquin River Exchange Contractors (Exchange Contractors), which include Central California Irrigation District, Firebaugh Canal Water District (Firebaugh), San Luis Canal Company and Columbia Canal Company hold historic senior water rights to water supplies in the San Joaquin River watershed. In exchange for the Central Valley Project's (CVP's) regulation and diversion of the San Joaquin River water at Friant Dam, the Bureau of Reclamation (Reclamation) agreed to provide water to the Exchange Contractors from the CVP's Sacramento-San Joaquin Delta supply.

In 2014, Reclamation approved a series of annual transfers over a 5-year period between Firebaugh, Pacheco Water District (Pacheco), San Luis Water District (San Luis), and Westlands Water District (Westlands), hereafter referred to as the Transfer Recipient Districts. As the program is set to expire, Firebaugh has requested approval from Reclamation to continue the series of annual transfers over another five years. Reclamation analyzed the annual transfers in Environmental Assessment (EA)-14-001 (Reclamation 2014). Based on specific environmental commitments, Reclamation determined that the proposed transfers would not significantly affect the quality of the human environment and a Finding of No Significant Impact (FONSI) was issued in April 2014. EA/FONSI 14-001 is hereby incorporated by reference.

1.2 Need for the Proposed Action

In order to address water supply challenges and pursuant to the Central Valley Improvement Act, Reclamation is required to facilitate transfers and analyze the effects of the proposed transfers of CVP water from willing sellers to willing buyers.

The State of California has experienced unprecedented water management challenges due to severe drought in recent years. South of Delta CVP contractors, such as the Transfer Recipient Districts, experienced reduced water supply allocations from 2007 to 2017 due to hydrologic conditions and regulatory requirements. In addition, based on current hydrologic conditions, Reclamation declared an initial 20 percent allocation for South of Delta CVP agricultural contractors for the 2018 Contract Year[1] which increased to 50 percent in June. As a result, South of Delta water contractors have a need to find alternative sources of water to fulfill demands. The proposed transfers would allow Firebaugh and landowners in the Transfer Recipient Districts greater flexibility to manage limited water supplies (Figure 1).

[1] Contract Year is from March 1 through February 28/29 of the following year.

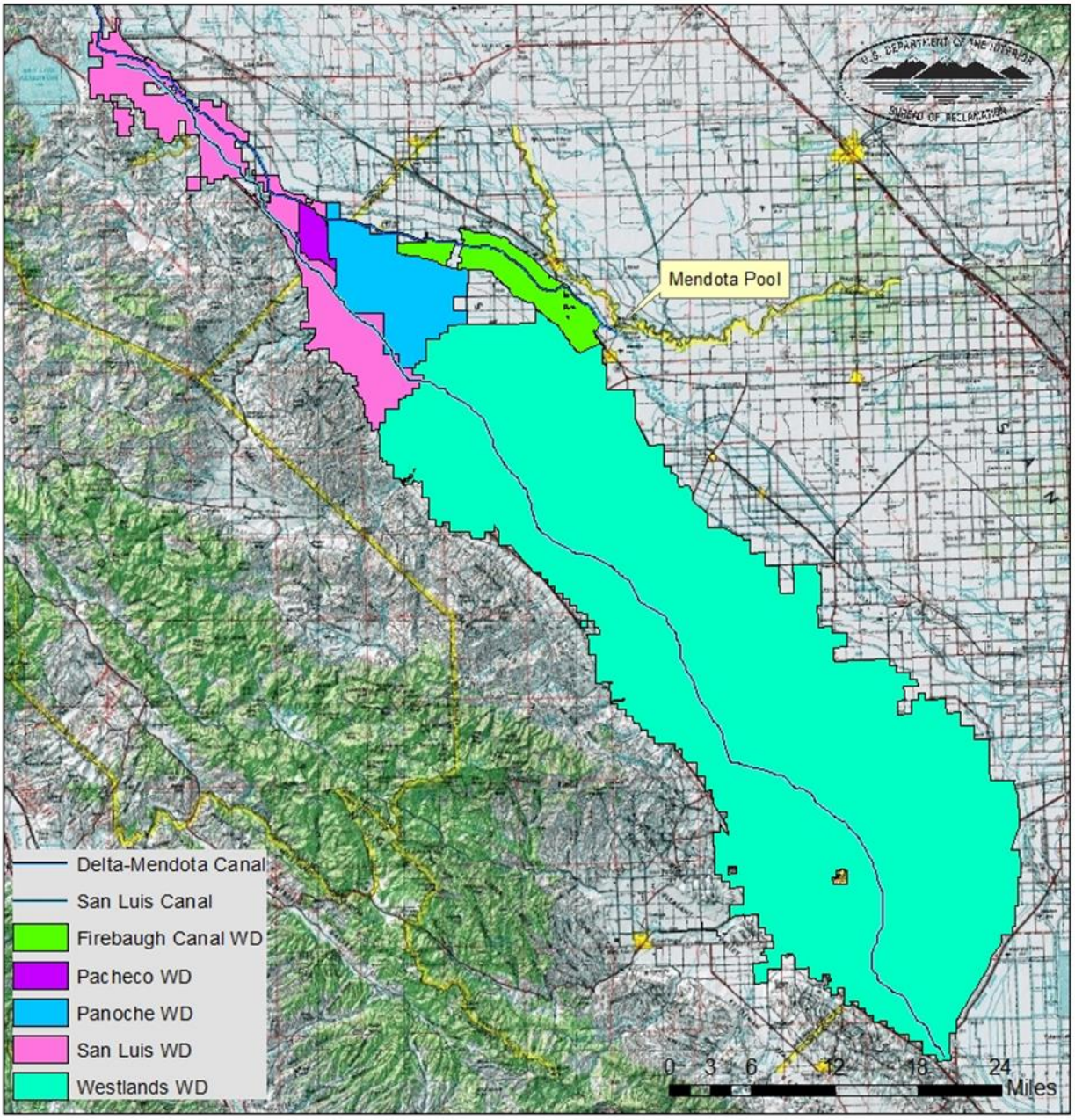

Figure 1 Proposed Action Area

Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve a series of annual transfers over a five-year period (2019 through 2023) of up to 7,500 acre-feet per year (AFY) of Firebaugh's Exchange Contract CVP water supplies to the Transfer Recipient Districts. Reclamation would continue to deliver CVP water to Firebaugh and the Transfer Recipient Districts pursuant to their respective CVP water service contracts.

2.2 Proposed Action

Reclamation proposes to approve a series of annual transfers over a five-year period (calendar year 2019 through 2023) of up to 7,500 AFY of Firebaugh's Exchange Contract CVP water supplies to the Transfer Recipient Districts. The proposed transfers would occur from April through December of each year when water is transferred and would not exceed the maximum of 37,500 AF over the five-year period.

In order to make Firebaugh's CVP water supplies available for the transfers, Firebaugh would pump up to 17 cubic feet per second (cfs) of groundwater (for a maximum of 36 AF/day) from three wells (Figure 1) to meet in-district demands, in lieu of taking surface water deliveries dedicated to Firebaugh under the Exchange Contract. Well specifications for the wells that would be used include:

- 5 cfs well estimated to pump up to 3,500 AF (well #2 also referred to as Hall Well)
- 3 cfs well estimated to pump up to 1,500 AF (well #3 also referred to as City Well)
- 9 cfs well estimated to pump up to 2,500 AF (well #5)

The pumped groundwater would be conveyed in Firebaugh's existing conveyance system, freeing up 7,500 AF of CVP water under the Exchange Contract to be delivered to the Transfer Recipient Districts via the Delta-Mendota Canal and the San Luis Canal. Groundwater from Well #2 and Well #3 would be directly discharged into Firebaugh's Intake Canal and would not enter Mendota Pool. Groundwater from Well #5 would be directly discharged into Mendota Pool, where it would then enter Firebaugh's Intake Canal for internal distribution to its landowners.

Figure 2 Firebaugh Canal Water District's Wells Proposed for Groundwater Pumping

2.2.1 Environmental Commitments

Reclamation, Firebaugh, and the Transfer Recipient Districts shall implement the following environmental protection measures to avoid environmental consequences associated with the Proposed Action (Table 1).

Table 1 Environmental Commitment and Resource Protection Measures

Resource	Protection Measure
Water Resources	Firebaugh and their landowners would follow the policy entitled "*Firebaugh Canal Water District Water Transfer Policy*." (Appendix A.)
Biological Resources	Groundwater from Well 5 would only be discharged into Mendota Pool when flow in Fresno Slough is to the south.
Biological Resources	Well water with Total Dissolved Solids (TDS) concentrations greater than 1,600 milligram per liter (mg/L) would not be pumped into the Mendota Pool. During the fall months, when there is reduced flow in the Mendota Pool and water quality at the Mendota Wildlife Area is most critical, well water with TDS higher than 1,200 mg/L TDS will not be pumped into Mendota Pool.
Biological Resources	Selenium in well water pumped into Mendota Pool would not exceed 2.0 micrograms per liter (µg/L).
Biological Resources	No native or untilled land (fallow for three consecutive years or more) may be cultivated with CVP water without additional environmental analysis and approval.
Biological Resources	As described in Appendix B and mentioned in Section 3.2.2, San Luis would not deliver CVP water to developments or other habitat conversions without evidence of Endangered Species Act compliance.
Various Resources	No new construction or modification of existing facilities may occur in order to complete the Proposed Action.
Various Resources	The Proposed Action cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats.
Various Resources	The Proposed Action must comply with all applicable Federal, State and local laws, regulations, permits, guidelines and policies.
Various Resources	The Proposed Action would not increase or decrease water supplies that would result in development.

Environmental consequences for resource areas assume the measures specified would be fully implemented.

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Section 3 Affected Environment and Environmental Consequences

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

3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 2.

Table 2 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Air Quality	Two of Firebaugh's wells have electric motors which do not produce emissions that impact air quality. The third well has a diesel engine; however, this well meets the specifications for compression engines as outlined in San Joaquin Valley Air Pollution Control District Rule 4702, Section 5.2.4 and would not exceed air quality thresholds.
Cultural Resources	The Proposed Action would facilitate the flow of water through existing facilities to existing users. As no construction or modification of facilities would be needed in order to complete the Proposed Action, Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1). See Appendix C for Reclamation's determination.
Environmental Justice	The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.
Global Climate Change	The Proposed Action does not include construction of new facilities or modification to existing facilities. While pumping would be necessary to deliver CVP water, no additional electrical production beyond baseline conditions would occur. In addition, the generating power plant that produces electricity for the electric pumps operates under permits that are regulated for greenhouse gas emissions. As such, there would be no additional impacts to global climate change. Global climate change is expected to have some effect on the snow pack of the Sierra Nevada and the runoff regime. It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack runoff in the winter and early spring months by 2030, compared to recent historical conditions (Reclamation 2016, pg 16-26). However, the effects of this are long-term and are not expected to impact CVP operations within the one-year window of this action. Further, CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility.
Indian Sacred Sites	The Proposed Action would not limit access to ceremonial use of Indian Sacred Sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area.
Socioeconomics	The Proposed Action would have beneficial impacts on socioeconomic resources with the Transfer Recipient Districts as the transferred water would be used to help sustain existing crops and maintain farming within the districts. There would be no adverse

Resource	Reason Eliminated
	socioeconomic impacts within Firebaugh as water needs would still be met and agricultural practices would be unchanged.

3.2 Biological Resources

3.2.1 Affected Environment

An official list of federally listed threatened and endangered species and critical habitat that occur within the project area and/or may be affected as a result of the Proposed Action was obtained on August 28, 2018, by accessing the United States Fish and Wildlife Service (USFWS) database: https://ecos.fws.gov/ipac/. The list is summarized below (Table 3) and was generated for a polygon that encompassed the entire Proposed Action area. Reclamation further queried the California Department of Fish and Wildlife, California Natural Diversity Database (CNDDB) for records of protected species within 10 miles of the project location (CNDDB 2018). The Proposed Action area does not fall within any proposed or designated critical habitat.

Table 3 Federally Listed Threatened and Endangered Species

Species	Status[1]	Effects[2]	Potential to occur and summary basis for ESA determination [3]
Amphibians			
California red-legged frog (*Rana draytonii*)	T, X	NE	**Absent**: No longer occurs in this part of its historical range.
California tiger salamander (*Ambystoma californiense*)	T, X	NE	**Absent**: No vernal pools or other suitable seasonal wetlands present.
Birds			
Western Yellow-Billed Cuckoo (*Coccyzus americanus*)	T, PX	NE	**Absent**: Extensive cottonwood-willow riparian habitat lacking in the Proposed Action area.
Fish			
delta smelt (*Hypomesus transpacificus*)	T, X	NE	**Absent**: Impacts due to pumping in the Sacramento-San Joaquin Delta, which is where this species occurs and where critical habitat is designated have already been addressed by the long-term coordinated operations of the CVP and SWP.
Invertebrates			
vernal pool fairy shrimp (*Branchinecta lynchi*)	T, X	NE	**Absent**: No vernal pools present.
Mammals			
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	E, X	NE	**Absent**: Known from the Alkali Sink Ecological Reserve but doesn't occur on actively farmed land.
giant kangaroo rat (*Dipodomys ingens*)	E	NE	**Absent**: No longer occurs in this part of its historical range.
San Joaquin kit fox (*Vulpes macrotis mutica*)	E	NE	**Possible**: May use Proposed Action Area for foraging but not expected to den in actively farmed lands (Warrick et al. 2007).
Reptiles			
blunt-nosed leopard lizard (*Gambelia silus*)	E	NE	**Absent**: Does not occur on actively farmed land.
giant garter snake (*Thamnophis gigas*)	T	NE	**Present**: Known from the vicinity in low numbers.

1 Status = Status of federally protected species protected under the ESA.
E: Listed as Endangered
T: Listed as Threatened
X: Critical Habitat designated for this species.
PX: Critical Habitat proposed for this species.
2 Effects = ESA Effect determination

NE: No Effect anticipated from the Proposed Action to federally listed species or designated critical habitat.
3 Definition of Occurrence Indicators
Present: Species recorded in area and suitable habitat present.
Possible: Species recorded in area and habitat suboptimal.
Absent: Species not recorded in study area and suitable habitat absent.

The Action area consists of agricultural fields that provide some habitat values for a few species listed above, particularly the San Joaquin kit fox. However, there is routine disturbance due to on-going farming practices, and so even the San Joaquin kit fox would have very limited use of the area and would generally not be able to den there. It is possible that Western Burrowing Owls and Swainson's Hawks, protected by the Migratory Bird Treaty Act, may nest and forage in the area.

The giant garter snake can potentially be affected by low water quality, and in this portion of its range, the species is threatened with extirpation. Its status has been detailed in the biological opinion issued by the Service for the third use agreement for the Grassland Bypass Project (Service 2010). The biological opinion explains the risks that elevated selenium pose for the giant garter snake, and specifically states that snakes should not be exposed to water with selenium concentrations that exceed two parts per billion in order to avoid selenium toxicosis. Low quality groundwater would be an issue for the giant garter snake for any canal that serves as a water supply channel for Grasslands' wetlands. The only well involved in the Proposed Action that would discharge water into Mendota Pool is Well #5. A giant garter snake was found in the Mendota Pool vicinity (Mendota Wildlife Area) in 2008 (Hansen 2008). The giant garter snake, because of extensive losses of suitable natural wetlands, now relies on rice fields in parts of its range. In 2017, 101 acres of rice were grown in Firebaugh. No water was transferred that year. In 2018, the same 101 acres was planted with rice, and some water was transferred (J. Bryant, pers. comm.).

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

Most of the habitat types required by species protected by the Endangered Species Act do not occur in the Action area (see Table 3). The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more years. In addition, the Proposed Action would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or to birds protected by the Migratory Bird Treaty Act. Land within San Luis, which is considered by the USFWS and the California Department of Fish and Wildlife to be important for connecting kit fox populations to the south with those in the northern range, would be protected by the commitment made by the district (see Appendix B). Since no natural stream courses or additional surface water pumping would occur, there would be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat would be affected.

The giant garter snake would be protected by the restrictions incorporated into the Proposed Action as outlined in Table 1. These restriction include the following: (1) well water from well #5 would only be pumped into Mendota Pool when flow in Fresno Slough is to the south, (2) well water with TDS concentrations greater than 1,600 mg/L would not be pumped into the Mendota Pool, (3) well water with TDS higher than 1,200 mg/L TDS would not be pumped into Mendota Pool during the fall months, when there is reduced flow in the Mendota Pool and water quality at the Mendota Wildlife Area is most critical, and (4) selenium in well water pumped into Mendota Pool would not exceed 2.0 µg/L. As described previously, and included in Appendix D, water quality data for all three wells complied with these requirements from 2014-2018. The Proposed Action is not expected to affect whether or not rice is grown in Firebaugh, or the acreage planted with rice. For example, rice cultivation occurred in 2017 when no water transfers occurred, and cultivation continued in 2018, when water transfers occurred.

The short duration of the water availability, the requirement that no native lands be converted without consultation with the Service, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife, whether Federally listed or not.

Cumulative Impacts

As the Proposed Action is not expected to result in any direct or indirect impacts to biological resources, there would be no cumulative impacts.

3.3 Water Resources

3.3.1 Affected Environment

The affected environment is the same as was previously covered in EA 14-001 (Reclamation 2014) which has been incorporated by reference. Groundwater in Firebaugh has generally not been pumped for direct irrigation use without mixing with surface water supplies due to high salinity concentrations; however, Wells #2 and #3, and occasionally #5 have been pumped since 2014 for use in-district under a previous transfer program. All of the wells pump from a relatively shallow level above the Corcoran clay (180 to 240 feet below ground surface).

Table 4 Transfer Water Pumped Since 2014 in Relation to SOD CVP Agricultural Allocations

Year	South of Delta CVP Agricultural Allocation (% of Contract Total)	Transfer Quantity Approved (AF)	Quantity Actually Pumped (AF)
2018	pending	7,500	pending
2017	100%	7,500	0
2016	5%	7,500	4,183
2015	0%	7,500	4,017
2014	0%	7,500	4,610
Average			**12,810**

Two of the three wells proposed for pumping under the Proposed Action discharge directly into Firebaugh's Intake Canal and would not leave the District's water conveyance system. Water quality testing by Firebaugh indicate that the two wells (Well #2 and Well #3) do not have TDS, selenium, or boron concentrations that would harm in-district uses. Well #5 is the only well that

would pump into Mendota Pool prior to entering the Intake Canal. Results from water quality testing of this well in 2018 are included in Appendix D. TDS for this well was approximately 848 mg/L, boron was 0.65 mg/L, and selenium was non-detect by a detection method of no more than 1 μg/L.

Groundwater Resources in the Action Area

The Proposed Action area overlies the Delta-Mendota Subbasin. The California Department of Water Resources (DWR) has designated the Delta-Mendota Subbasin as critically overdrafted requiring a groundwater sustainability plan pursuant to the Sustainable Groundwater Management Act (SGMA) by January 31, 2020 (DWR 2016, 2018a). Groundwater provides approximately 37% (~509,687 AF) of overall water supplies from 7,132 wells in the Delta-Mendota Subbasin (DWR 2018b).

Subsidence

Land subsidence is caused by subsurface movement of earth materials. Principal causes of subsidence within the San Joaquin Valley include: aquifer compaction due to groundwater pumping, hydrocompaction caused by application of water to dry soils, and oil mining. Compaction can be "elastic" or "inelastic". Elastic compaction occurs relatively immediately in response to water level declines which can later be reversed when groundwater levels recover. Inelastic compaction occurs when water levels decline and are not able to rebound (expand) when water levels recover (LSCE & KDSA 2017).

Reclamation surveys a network of over 70 control points across the San Joaquin Valley in July and December of each year to monitor ongoing subsidence. Various other entities, including the U.S. Geological Survey, California Department of Water Resources, the San Luis & Delta-Mendota Water Authority, and the San Joaquin River Exchange Contractors also monitor subsidence trends within the Central Valley. Total subsidence from July 2012 to July 2018 within the Action area that would involve groundwater pumping is shown in Figure 3.

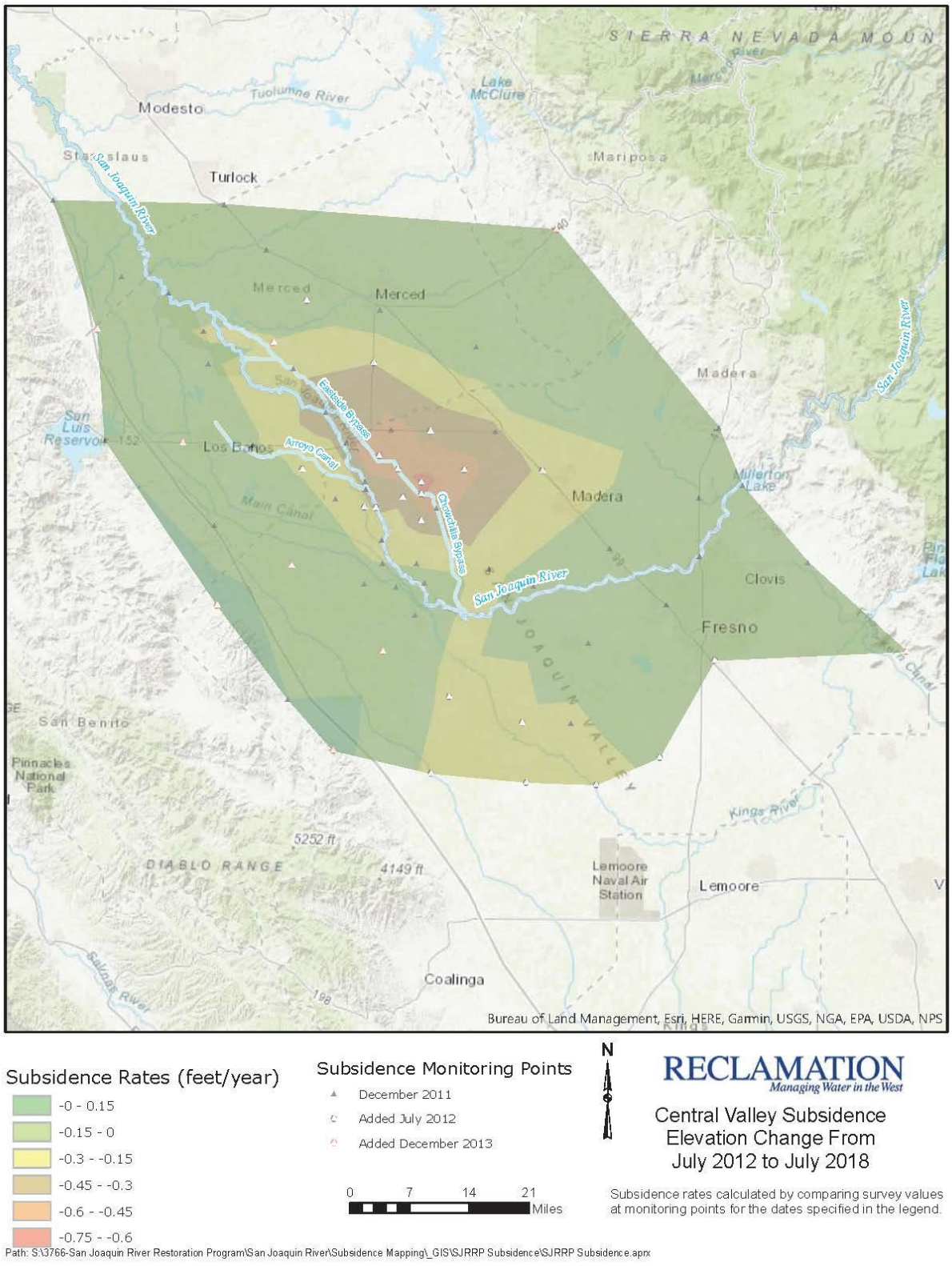

Figure 3 Central Valley Total Subsidence July 2012 to December 2016

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, opportunities to address water shortages, especially during drought years, would be reduced as would opportunities for recharge of depleted groundwater. Reclamation would continue to convey and deliver CVP water to Firebaugh and the Transfer Recipient Districts pursuant to their respective CVP contracts as water is available. Firebaugh's CVP water would continue to be used in Firebaugh to meet in-district irrigation demands or for other water transfers as it has in the past.

If other water supplies are not available for the Transfer Recipient Districts increased groundwater pumping may be needed to meet existing demands and/or increased fallowing may occur.

Proposed Action

The Proposed Action would provide Transfer Recipient Districts additional water supplies to meet existing demands during periods of water shortages with available surface water supplies reducing the need for additional groundwater pumping. CVP and State Water Project facilities would not be impacted as the transferred water must be scheduled and approved by Reclamation and Department of Water Resources in advance.

Data collected for the Mendota Pool Group groundwater pumping program indicate that sediment above the Corcoran Clay layer is composed of coarse grain sediments that are primarily susceptible to elastic compaction, i.e. subsidence in these layers is able to when groundwater levels recover (LSCE & KDSA 2017). Impacts to water levels under the Proposed Action would be temporary until rain events are able to replenish groundwater levels. Therefore, groundwater pumping from the three Firebaugh wells that are above the Corcoran Clay layer would not cause irreversible subsidence.

Cumulative Impacts

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action. These include various projects (transfers, exchanges, groundwater pumping programs, etc.) in order to manage limited water supplies due to changes in hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on overall water supply during critically dry years.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that over the course of the Proposed Action, districts will request various water service actions, such as transfers, exchanges, and Warren Act contracts (conveyance of non-CVP water in CVP facilities). Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects would not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat. Since the Proposed Action would not involve construction of new facilities, nor interfere with CVP operations, there would be no cumulative impacts to existing facilities or other contractors.

Overdraft and increased rates of subsidence are ongoing cumulative issues within the San Joaquin Valley (Figure 3). Due to ongoing hydrologic conditions and/or regulatory constraints that reduce the availability of surface water supplies, it is likely that groundwater levels would continue to decline resulting in increased rates of subsidence until SGMA is fully implemented.

Reclamation requires specific water quality (surface and groundwater), water level, and subsidence monitoring for any groundwater exchange program with federal involvement, such as the one proposed by Firebaugh. Implementation of avoidance measures and monitoring programs minimize potential impacts to these resources. In addition, as described previously, all three Firebaugh wells occur above the Corcoran Clay and would not result in inelastic subsidence. Therefore, the Proposed Action would not result in cumulative long-term adverse impacts to water levels or subsidence within the Action area.

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation intends to provide the public with an opportunity to comment on the Draft FONSI and Draft EA during a 30-day public review period.

4.2 List of Agencies and Persons Consulted

Reclamation has consulted with the following regarding the Proposed Action:

- Firebaugh Canal Water District
- San Joaquin River Exchange Contractors
- Pacheco Water District
- San Luis Water District
- Westlands Water District

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