

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Recirculation of Recaptured Water Year 2013-2017 San Joaquin River Restoration Program Flows



**U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
Sacramento, 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.

Table of Contents

Section 1	Purpose and Need for Action	1
1.1	Background	1
1.2	Purpose and Need	1
1.3	Scope	2
1.4	Reclamation’s Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action	6
1.5	Resources of Potential Concern	6
Section 2	Alternatives Including the Proposed Action	8
2.1	No Action Alternative	8
2.2	Proposed Action	8
Section 3	Affected Environment and Environmental Consequences	14
3.1	Water Resources	14
3.1.1	Affected Environment	14
3.1.2	Environmental Consequences	55
3.2	Land Use	56
3.3	Biological Resources	58
3.3.1	Affected Environment	58
3.3.2	Environmental Consequences	59
3.4	Cultural Resources	60
3.4.1	Affected Environment	60
3.4.2	Environmental Consequences	61
3.5	National Historic Preservation Act (16 USC § 470 et seq.)	61
3.6	Indian Trust Assets	61
3.6.1	Affected Environment	62
3.6.2	Environmental Consequences	62
3.7	Socioeconomic Resources	62
3.7.1	Affected Environment	62
3.7.2	Environmental Consequences	63
3.8	Environmental Justice	63
3.8.1	Affected Environment	63
3.8.2	Environmental Consequences	64
3.9	Air Quality	64
3.9.1	Affected Environment	64
3.9.2	Environmental Consequences	65
3.10	Global Climate Change	65
3.10.1	Affected Environment	65
3.10.2	Environmental Consequences	65
3.11	Cumulative Impacts	66
Section 4	Consultation and Coordination	67
4.1	National Environmental Policy Act	67
4.2	Fish and Wildlife Coordination Act of 1934 (16 USC § 661 et seq.)	67
4.3	Endangered Species Act of 1973 (16 USC § 1531 et seq.)	67

4.4	National Historic Preservation Act (16 USC § 470 et seq.)	67
4.5	Migratory Bird Treaty Act of 1918 (16 USC § 703 et seq.)	68
4.6	Executive Order 113007 and American Indian Religious Freedom Act of 1978 – Indian Trust Assets and Sacred Sites on Federal Lands	68
4.7	Executive Order 12898 – Environmental Justice in Minority and Low-Income Populations.....	68
4.8	Central Valley Project Improvement Act	69
4.9	Central Valley Project Long-Term Water Service Contracts	69
4.10	State Water Resources Control Board Temporary Water Transfer Approval	69
Section 5	List of Preparers and Reviewers	70
Section 6	References	71

List of Acronyms and Abbreviations

AEWSD	Arvin-Edison Water Storage District
AF	Acre-Feet
Ag	Agricultural
Agreement	Cooperative Agreement for Water Utilization and Conveyance
AID	Alpaugh Irrigation District
AIWD	Atwell Island Water District
BBID	Byron-Bethany Irrigation District
BCID	Banta-Carbona Irrigation District
BMWD	Berrenda Mesa Water District
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
BWSD	Belridge Water Storage District
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic-Feet per Second
CNDDB	California Natural Diversity Database
COF	City of Fresno
Court	U.S. Eastern District Court of California
CSA	County Service Area
CV	Cross Valley
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWD	Cawelo Water District
CWD	Chowchilla Water District
DBCP	Dibromochloropropane
DEID	Delano-Earlimart Irrigation District
Delta	Sacramento-San Joaquin River Delta
DMC	Delta-Mendota Canal
DPWD	Del Puerto Water District
DRWD	Dudley Ridge Water District
DWR	Department of Water Resources
EA	Environmental Assessment
EA/IS	Environmental Assessment/Initial Study
EID	Exeter Irrigation District

EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCWW 18	Fresno County Water Works #18
FID	Fresno Irrigation District
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
FWA	Friant Water Authority
FWCA	Fish and Wildlife Coordination Act
GFWD	Gravelly Ford Water District
GHG	Green House Gases
GSA	General Services Administration
GWD	Garfield Water District
GWD	Grasslands Water District
HMWD	Henry Miller Water District
HVID	Hills Valley Irrigation District
IID	Ivanhoe Irrigation District
ITA	Indian Trust Assets
KCWA	Kern County Water Agency
KDWCD	Kaweah Delta Water Conservation District
KDWD	Kern Delta Water District
KRWA	Kings River Water Association
KTWD	Kern-Tulare Water District
LCWD	Lewis Creek Water District
LHWD	Lost Hills Water District
LID	Lindmore Irrigation District
LSID	Lindsay-Strathmore Irrigation District
LTRID	Lower Tule River Irrigation District
M&I	Municipal and Industrial
MBTA	Migratory Bird Treaty Act
MID	Madera Irrigation District
MWD	Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NKWSD	North Kern Water Storage District
NMFS	National Marine Fisheries Service
NRDC	Natural Resources Defense Council
NRHP	Nation Register of Historic Places
NWR	National Wildlife Refuge
OCID	Orange Cove Irrigation District
Order	Water Rights Order
PCGID	Princeton-Cordora-Glenn Irrigation District

PID	Patterson Irrigation District
PID	Provident Irrigation District
PWD	Panoche Water District
PWRPA	Power and Water Resources Pool Authority
PXID	Pixley Irrigation District
RD 108	Reclamation District 108
Reclamation	Bureau of Reclamation
RRBWSD	Rosedale-Rio Bravo Water Storage District
SBCWD	San Benito County Water District
SCID	Stone Corral Irrigation District
SCVWD	Santa Clara Valley Water District
Settlement	Stipulation of Settlement in <i>NRDC, et al., v. Kirk Rodgers, et al.</i>
SID	Saucelito Irrigation District
SIP	State Implementation Plan
SJREC	San Joaquin River Exchange Contractors
SJRRP	San Joaquin River Restoration Program
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLR	San Luis Reservoir
SOD Facilities	South-of-Delta Facilities
SSJMUD	Southern San Joaquin Municipal Utility District
SWID	Shafter-Wasco Irrigation District
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWSD	Semitropic Water Storage District
TBID	Terra Bella Irrigation District
TCWD	Tehachapi-Cummings Water District
TCWD	Tejon-Castac Water District
TID	Tulare Irrigation District
TLBWSD	Tulare Lake Basin Water Storage District
TPDWD	Tea Pot Dome Water District
TRQID	Tranquillity Irrigation District
USC	United States Code
USFWS	United States Fish and Wildlife Service
WAPA	Western Area Power Administration
WKWD	West Kern Water District
WRMWSD	Wheeler Ridge-Maricopa Water Storage District
WSID	West Stanislaus Irrigation District
WY	Water Year

Definitions

Central Valley Project (CVP): The United States, acting through the Bureau of Reclamation, has constructed and is operating the Central Valley Project, California, for diversion, storage, carriage, distribution and beneficial use, for flood control, irrigation, municipal, domestic, industrial, fish and wildlife mitigation, protection and restoration, generation and distribution of electric energy, salinity control, navigation and other beneficial uses, of water of the Sacramento River, the American River, the Trinity River, and the San Joaquin River and their tributaries.

Class 1 Water: The supply of water stored in or flowing through Millerton Lake which, subject to the contingencies described in the water service or repayment contracts will be available for delivery from Millerton Lake and the Friant-Kern and Madera Canals as a dependable water supply during each Contract Year.

Class 2 Water: The supply of water which can be made available subject to the contingencies described in the water service or repayment contracts for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to the supply of Class 1 water. Because of its uncertainty as to availability and time of occurrence, such water will be undependable in character and will be furnished only if, as, and when it can be made available as determined by the Contracting Officer.

CVP Water: All water that is developed, diverted, stored, or delivered by the Secretary in accordance with the statutes authorizing the CVP and in accordance with the terms and conditions of water rights acquired pursuant to California Law.

Friant Division: The main features of this division are: Friant Dam, Millerton Lake, Friant-Kern Canal (FKC), and Madera Canal, all constructed and operated by the Bureau of Reclamation.

Friant Division Long-Term Contractor Service Area: The area to which a Friant Division Long-Term Contractor is permitted to provide CVP Water under its contract.

Friant Division Long-Term Contractors or Friant Contractors: All long-term water service or repayment contracts between Friant Contractors and the United States Department of the Interior, Bureau of Reclamation that provide water service from the Friant Division of the CVP.

Water Year shall mean the period from and including March 1 of each calendar year through the last day of February of the following calendar year.

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Section 1 Purpose and Need for Action

1.1 Background

In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council (NRDC), filed a lawsuit challenging the renewal of long-term water service contracts between the United States and CVP Friant Division Long-Term Contractors (Friant Contractors). After more than 18 years of litigation, *NRDC, et al., v. Kirk Rodgers, et al.* (Settlement), a settlement was reached. On September 31, 2006, the Settling Parties, including NRDC, Friant Water Users Authority (now represented by the Friant Water Authority [FWA]), and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which was subsequently approved by the U.S. Eastern District Court of California (Court) on October 23, 2006. The Settlement establishes two primary goals:

- Restoration Goal – To restore and maintain fish populations in “good condition” in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.
- Water Management Goal – To reduce or avoid adverse water supply impacts to all of the Friant Division Long-Term Contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

The planning and environmental review necessary to implement the Settlement is authorized under Section 3406(c)(1) of the Central Valley Project Improvement Act (Public Law 102-575) and the San Joaquin River Restoration Settlement Act (Act), included in Public Law 111-11, the Omnibus Public Land Management Act of 2009. The Secretary of the Interior is authorized and directed to implement the terms and conditions of the Settlement through the Act. The San Joaquin River Restoration Program (SJRRP) will implement the Settlement. The Settlement identifies the need for a plan for recirculation, recapture, reuse, exchange or transfer of Interim and Restoration Flows to reduce or avoid impacts to Friant Division Long-Term Contractors

1.2 Purpose and Need

National Environmental Policy Act (NEPA) regulations require a statement of “the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action” (40 CFR 1502.13).

The purpose of the Proposed Action is to implement the provisions of the Settlement pertaining to the Water Management Goal for Water Years (WY) 2013-2017 Interim Flows and Restoration Flows (SJRRP Flows) March 1, 2013, through February 28, 2018. The need for the action is to reduce or avoid water supply impacts to Friant Contractors by providing mechanisms to ensure that recirculation, recapture, reuse, exchange, or transfer of SJRRP Flows occurs.

1.3 Scope

The Water Management Goal of the Settlement and Act includes a requirement for the development and implementation of a plan for recirculation, recapture, reuse, exchange or transfer of interim flows for the purpose of reducing or avoiding impacts to water deliveries to all of the participating Friant Contractors. Paragraph 16 of the Settlement states:

16. In order to achieve the Water Management Goal, immediately upon the Effective Date of this Settlement, the Secretary, in consultation with the Plaintiffs and Friant Parties, shall commence activities pursuant to applicable law and provisions of this Settlement to develop and implement the following:

(a) A plan for recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows for the purpose of reducing or avoiding impacts to water deliveries to all of the Friant Contractors caused by the Interim Flows and Restoration Flows. The plan shall include provisions for funding necessary measures to implement the plan. The plan shall:

- (1) ensure that any recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows shall have no adverse impact on the Restoration Goal, downstream water quality or fisheries;*
- (2) be developed and implemented in accordance with all applicable laws, regulations and standards. The Parties agree that this Paragraph 16 shall not be relied upon in connection with any request or proceeding relating to any increase in Delta pumping rates or capacity beyond current criteria existing as of the Effective Date of this Settlement;*
- (3) be developed and implemented in a manner that does not adversely impact the Secretary's ability to meet contractual obligations existing as of the Effective Date of this Settlement; and*
- (4) the plan shall not be inconsistent with agreements between the United States Bureau of Reclamation and the California Department of Water Resources existing on the Effective Date of this Settlement, with regard to operation of the CVP and State Water Project.*

Reclamation, as the lead agency under the NEPA, is preparing this document. This EA intends to analyze the environmental effects of completing the requirement of returning the recaptured water to the Friant Contractors.

The SJRRP Program Environmental Impact Statement/Impact Report (PEIS/R) was finalized in July 2012 and the corresponding Record of Decision (ROD) was issued on September 28, 2012. The PEIS/R and ROD analyzed at a project-level the reoperation of Friant Dam to release Interim and Restoration flows to the San Joaquin River, making water supplies available to Friant Division long-term contractors at a preestablished rate, and the recapture of Interim and Restoration flows at existing facilities within the Restoration Area and the Delta. The PEIS/R

and ROD also includes program-level actions, which are identified as actions that require the completion of additional analysis pursuant to NEPA and/or CEQA, as appropriate. One of the program-level actions identified in the document includes Settlement Paragraph 16(a) actions for the recirculation of recaptured Interim and Restoration flows. The PEIS/R states that Reclamation will monitor and report the quantity and timing of Interim and Restoration flows that are available for recirculation to the Friant Division long-term contractors. The PEIS/R acknowledges that additional analysis for NEPA and/or CEQA will be needed in the future for the long-term recirculation plan, which may include modifications to new facilities or the construction of new facilities. The PEIS/R and ROD also anticipate that the long-term recirculation plan may require additional exchange agreements and negotiations with water users.

This EA, which is being prepared only for Water Years 2013-2017, will not involve or assess the construction of new facilities and will only examine the recirculation of water using existing facilities within the CVP and State Water Project (SWP) with existing contractors until a long-term recirculation plan can adequately be developed and resulting environmental impacts properly analyzed. Additionally, the recirculation of recaptured SJRRP flows assessed in this EA will not increase beyond existing water contract limitations (this is explained in detail in Section 2.2 – Proposed Action). This EA further incorporates by reference the following information from the PEIS/R:

- **Chapter 3.0 - Considerations for Describing the Affected Environment and Environmental Consequences.** This EA incorporates the analysis and assumptions presented in the chapter. Specifically, analysis of the Study Area for the PEIS/R, the explanation of significance criteria, impact comparisons, impact levels, and mitigation measures are incorporated into the contents of this EA.
- **Chapter 4.0 – Air Quality.** This EA incorporates the analysis performed to assess impacts related to program-level actions, which would include stationary sources associated with the recirculation of water (excluding the analysis which discusses construction of new pumping facilities). The assessment of impacts and ultimate determinations, all being less than significant for the operation of the SJRRP, are incorporated.
- **Chapter 5.0 – Biological Resources - Fisheries.** This EA incorporates the analysis performed in order to support the analysis for the SJRRP. This includes the Appendix C – CVP/SWP Long-Term Operations Sensitivity Analysis completed as part of the PEIS/R. The incorporated material from the PEIS/R also includes the quantitative and qualitative assessments of aquatic species impacts as a result of the implementation of the SJRRP, specifically related to physical processes such as water temperatures, water quality, flow patterns, fish habitat conditions, pollutant discharge and mobilization, turbidity, diversions and entrainment, predation, and food web support in the Sacramento-San Joaquin Delta. The assessment of impacts and determinations are incorporated. For aquatic species, impacts from the implementation of the SJRRP are typically determined in the PEIS/R to be less than significant or less than significant and beneficial.

- **Chapter 6.0 – Biological Resources – Vegetation and Wildlife.** This EA incorporates the analysis performed in the PEIS/R related to the assessment of sensitive species and habitats in or near the project area, including the CVP/SWP water service areas. The incorporated material includes the investigation of the impacts of the SJRRP on the alteration of riparian habitat, changes in invasive plant abundance and distribution, or alteration of special-status plant species or habitats between the Merced River and the Delta or in the Delta. The assessment of impacts and determinations related to the implementation of the SJRRP in the PEIS/R generally lead to findings of less than significant or less than significant and beneficial.

- **Chapter 7.0 – Climate Change and Greenhouse Gas Emissions.** This EA incorporates by reference the discussion of potential changes related to the implementation of the SJRRP. NEPA and CEQA standards related to climate change analysis varies greatly and the PEIS/R analysis incorporates State of California measures to analyze and model greenhouse gas emissions. For project- level actions analyzed in the PEIS/R, it was found that there would be potentially significant and unavoidable impacts related to increased flow releases, which in turn could cause additional traffic from recreational visitors driving to the San Joaquin River and also by increased groundwater pumping and changes in the CVP/SWP energy generation and consumption. This is related to a long-term impact of the SJRRP's flow releases, which could result in an increased use of groundwater pumps due to changes in surface water availability. While 80-90 percent of groundwater pumps in the Friant Division are electric, the remaining additional diesel-powered pumping could result in increased greenhouse gas emissions. As this EA explains in Chapter 3.8- Air Quality and 3.9 – Global Climate Change, the recirculation of water to the Friant Division long-term contractors would reduce some or all of this pumping and result in a reduction in climate-changing emissions. The impacts from the project-level implementation related to operations greenhouse gas emissions and the discussion of recapture of flows through the existing facilities in the Restoration Area and the Delta from the PEIS/R are thereby incorporated by reference into this document.

- **Chapter 12.0 – Hydrology – Groundwater.** The entirety of the PEIS/R chapter is incorporated into this EA. The chapter describes current and historical conditions and explains the aquifer regions surrounding the San Joaquin River, many of which suffer from groundwater overdraft, land subsidence, and water quality concerns. This EA also incorporates the discussion related to the changes and impacts associated with the implementation of the SJRRP in relation to changes in groundwater levels and quality in the CVP/SWP water service areas. Generally, both the groundwater levels and groundwater quality impacts are anticipated to potentially significant and unavoidable in association with the reduction of water supply to the Friant Division long-term contractors. As discussed in this EA in Chapter 3.1 – Water Resources, the recirculation of recaptured Interim and Restoration flows would reduce the need of the Friant Division long-term contractors to pump groundwater which would reduce the deleterious impacts discussed in the SJRRP.

- **Chapter 13.0 – Hydrology – Surface Water Supplies and Facilities Operations.** This EA incorporates by reference the entirety of this PEIS/R chapter. This chapter outlines the operations for water deliveries, storage, and other relevant information related to the CVP and SWP and the impacts from implementation of the SJRRP. The chapter defines the impacts related to Delta operations and their interrelation to the SJRRP at a project-level of analysis. Specific noteworthy items that are most germane to the discussion in this EA are the existing conditions for both the areas between the Merced River and the Delta, the Sacramento – San Joaquin Delta, and the CVP/SWP water service areas. Additionally, the impacts associated with these areas related to Delta excess conditions, Delta inflows, and exports and the subsequent SJR5Q and DSM2 modeling outputs are especially relevant to this EA. Impacts associated with the SJRPP were determined to be less than significant.
- **Chapter 14.0 – Hydrology – Surface Water Quality.** This EA incorporates by reference the entirety of this PEIS/R chapter. This chapter describes the environmental setting and environmental consequences of implementing the SJRRP. Of particular note in this chapter in relation to its relevance to this EA is the analysis performed related to the analysis of impacts on Delta water quality, effects on X2 position, and water quality in the Delta-Mendota Canal at the Jones Pumping Plant and the West Canal at the Clifton Court Forebay. All impacts for these factors associated with the implementation of the SJRRP were determined to be less than significant or less than significant and beneficial.
- **Chapter 16.0 – Land Use Planning and Agricultural Resources.** This EA incorporates by reference the analysis performed to support the findings in Impact LUP-8: *Substantial Diminishment of Agricultural Land Resource Quality and Importance Because of Altered Water Deliveries*. As described in this EA in Chapter 3,2 – Land Use, no long-term changes are anticipated as a result of this temporary 5-year action.
- **Chapter 26.0 – Cumulative Impacts.** This EA incorporates by reference the discussion of the effects of the SJRRP in relation to past, present, and reasonably foreseeable future actions, specifically in the CVP/SWP water service area. This includes discussions of planned actions associated with the collective CALFED Water Resources Projects, other water resource projects, resource management plans and programs, and the related impact analysis from the SJRRP on cumulative air quality, fisheries, vegetation and wildlife, groundwater, surface water supplies and facilities operations, surface water quality, and land use planning.

The PEIS/R addresses the potential recapture of SJRRP Flows at several diversion locations. These locations include existing facilities: in the Delta; in the San Joaquin River at the Banta-Carbona Irrigation District facility and the West Stanislaus Irrigation District facility downstream of the Stanislaus River confluence; at the Patterson Irrigation District facility between the Tuolumne and Merced River confluences; and, within the San Joaquin River Restoration Program Restoration Area (between Friant Dam and the confluence of the Merced River) which includes Mendota Pool at the downstream end of Reach 2B, the Lone Tree Unit of the Merced National Wildlife Refuge (NWR) (Lone Tree Unit) in the Eastside Bypass Reach 2,

and the East Bear Creek Unit of the San Luis NWR (East Bear Creek Unit) in the Eastside Bypass Reach 3. Recirculation is subject to available capacity within the CVP and/or the SWP storage and conveyance facilities, including the Jones and Banks pumping plants, California Aqueduct, DMC, San Luis Reservoir (SLR) and related pumping facilities, and other facilities of CVP/SWP contractors. Available capacity is capacity that is available after all statutory and contractual obligations are satisfied to existing water service or supply contracts, exchange contracts, settlement contracts, transfers, or other agreements involving or intended to benefit CVP/SWP contractors served through CVP/SWP facilities.

1.4 Reclamation's Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action

Several Federal laws, permits, licenses and policy requirements have directed, limited, or guided the NEPA analysis and decision-making process of this EA and include the following as amended, updated, and/or superseded:

- Stipulation of Settlement in *NRDC, et al., v. Kirk Rodgers, et al.*,
- San Joaquin River Restoration Settlement Act, included in Public Law 111-11, the Omnibus Public Land Management Act of 2009,
- Central Valley Project Improvement Act (Public Law 102-575),
- Long-Term Water Service Contracts for Friant Division,
- Title XXXIV Central Valley Project Improvement Act (CVPIA), October 30, 1992, Section 3405(a),
- Reclamation Reform Act, October 12, 1982,
- Reclamation's Interim Guidelines for Implementation of Water Transfers under Title XXXIV of Public Law 102-575 (Water Transfer), February 25, 1993,
- Reclamation and United States Fish and Wildlife Service (USFWS) Regional, Final Administrative Proposal on Water Transfers April 16, 1998,
- Reclamation's Mid-Pacific Regional Director's Letter entitled "*Delegation of Regional Functional Responsibilities to the CVP Area Offices - Water Transfers*", March 17, 2008, and
- National Marine Fisheries Service and U.S. Fish and Wildlife Service Biological Opinion on the Coordinated Operations of the CVP and SWP, 2008
- National Marine Fisheries Service CVP/SWP Operations BO, 2009
- California State Water Resources Control Board, Division of Water Rights, Temporary Urgent Change and Instream Flow Dedication Pursuant to Water Code Sections 1435 and 1707, October 1, 2012
- San Joaquin River Restoration Program Record of Decision, September 28, 2012.

1.5 Resources of Potential Concern

Potentially affected resources and cumulative impacts in the project vicinity include: water resources, land use, biological resources, cultural resources, Indian Trust Assets (ITA), socioeconomic resources, environmental justice, air quality, and global climate change.

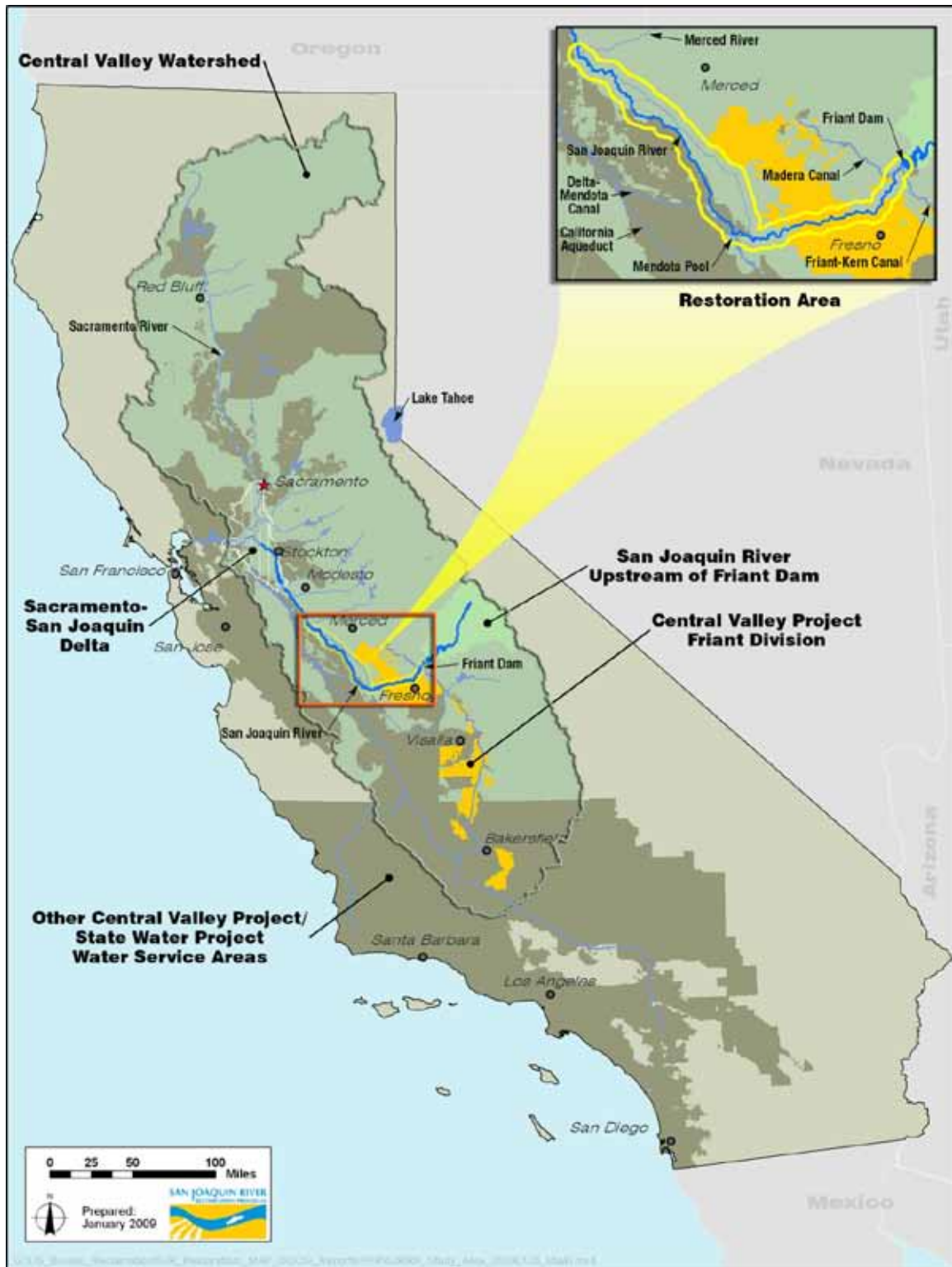


Figure 1
SJRRP Flows Project Area in Relation to Friant Division and Other Water Service Areas

Section 2 Alternatives Including the Proposed Action

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not pursue recirculating recaptured WY 2013-2017 SJRRP Flows (March 1, 2013, through February 28, 2018) to the Friant Contractors. This would not adhere to the Water Management Goal and the terms of the Settlement and Act. Therefore, Friant Contractors would not receive water “for the purpose of reducing or avoiding impacts to water deliveries to all of the Friant Contractors that may result from the Interim Flows and Restoration Flows”. Recaptured water in SLR that would not be recirculated would potentially result in increased evaporative loss to some degree and may spill if not delivered out of the reservoir.

2.2 Proposed Action

Recaptured SJRRP Flows available for recirculation to the Friant Contractors for WY 2013-2017 is expected to vary each WY from a minimum of 0 acre-feet (AF) to a maximum of 260,000 AF; provided, that this EA evaluates a maximum possible recirculation amount of 260,000 AF per WY. Reclamation would make the recaptured SJRRP Flows available in south-of-Delta facilities (SOD Facilities) (e.g. SLR, O’Neill Forebay, Delta-Mendota Canal (DMC), California Aqueduct, etc.) for recirculation and beneficial use by the Friant Contractors. Recirculation to the Friant Contractors would be accomplished through direct delivery, exchange, and/or transfer. This could require the exchange and/or transfer of recaptured SJRRP Flows among Friant Contractors or non-Friant Contractors. The Proposed Action would assist in Reclamation meeting its obligation pursuant to the Settlement and Act to reduce or avoid the adverse water supply impacts on all of the Friant Contractors that may result from the WY 2013-2017 SJRRP Flows. It is acknowledged that there will be a long-term recirculation plan that will be implemented in association with the SJRRP. The details are unknown at this time, but are anticipated to be completed before or at the expiration date of this EA. Therefore, cumulative and long-term impacts associated with the implementation of the long-term recirculation of flows (which may involve modifications to facilities, construction of facilities, or changes to existing contract totals) will be analyzed and comprehensively addressed through a process including public outreach encouraging input and through environmental resources analysis in separate NEPA documentation.

The Federal action would involve Reclamation entering into various direct delivery, exchange, or transfer agreements to recirculate the SJRRP Flows to the Friant Contractors. Reclamation would facilitate the Proposed Action through stipulations present in existing contracts and would use existing Federal, state, and local facilities. The recaptured SJRRP Flows will be recirculated to the listed Friant Contractors whose supplies may be impacted by WY 2013-2017 SJRRP Flows. Friant Contractors may exchange or transfer their water to other Friant Contractors or non-Friant Contractors, but not in excess of the existing water contract amounts.

The Proposed Action is a multi-faceted approach and consists of direct deliveries, exchanges, and transfers that could occur up to a maximum quantity not exceeding any Friant Contractor's contractual CVP Water amount or exceeding the non-Friant Contractors contract amounts.

The Proposed Action would include direct deliveries of recirculation water from SLR to Friant Contractors through existing CVP, SWP, and local facilities. The Proposed Action would also include transfers of recirculation water among Friant Contractors and/or non-Friant Contractors. The transfers would use existing CVP, SWP, and local facilities. This may require several agreements, but do not include any new construction.

Water year types for WY 2013-2017 are speculative at this time because these are assessed with hydrologic data presented on an annual basis. Thus, it is unknown what any water year type will be during the duration of the analysis in this EA. Therefore, the 260,000 AF number is provided as a maximum possible amount available in any given year. With the advent of Interim Flows during WY 2010, 2011, and 2012 and subsequent recapture of flows during each of those consecutive years, the 260,000 AF number has not been reached. However, to allow for full disclosure of the largest amount of potential environmental impacts and to adequately address the total maximum amount of Interim and Restoration flows to be recirculated, this EA assumes the largest possible total quantity.

The Proposed Action would also involve exchanges between Friant Contractors and non-Friant Contractors to recirculate water to Friant. Friant Contractors would make their recirculation water available in SOD Facilities to non-Friant Contractors. In exchange, the non-Friant Contractors would make a local supply of water available to the Friant Contractors. This action could involve a Friant Contractor acting on behalf of several other Friant Contractors to facilitate an exchange into Millerton Lake for integration into the Friant Division's CVP Water supply. The following examples are provided to illustrate this action:

- 1) District A is a Friant Contractor with a supply of 100 acre-feet of recirculation water available in SOD Facilities. District Z is a non-Friant Contractor capable of diverting water from SOD Facilities and has a local supply of 100 acre-feet of water that can be used by District A. Under this example, District A makes its 100 acre-feet of recirculation water available to District Z. In exchange, District Z makes its 100 acre-feet of local water available to District A.
- 2) District A, B, and C are Friant Contractors with 100 acre-feet per district (300 acre-feet combined) of recirculation water available in SOD Facilities. District Z is a non-Friant Contractor capable of diverting water from SOD Facilities, has a local supply of 300 acre-feet of water, and the local water supply can only be used by District A. However, District A also has 200 acre-feet of CVP Water or other contractual supply that it can exchange with District B and C. Under this example, District A, B, and C make their combined 300 acre-feet of recirculation water available to District Z. In exchange, District Z makes approximately 300 acre-feet of local water available to District A. District A then exchanges 200 acre-feet of its CVP Water or other contractual supply to Districts B and C.

In addition, exchanges may provide for less than a 1:1 return of water to Friant Contractors and make take several years to fully execute. For example:

- 1) District A is a Friant Contractor with a supply of 100 acre-feet of recirculation water available in SOD Facilities. District Z is a non-Friant Contractor capable of diverting water from SOD Facilities, but due to losses and other considerations is only willing to make 80 acre-feet of its local water available to District A. Under this example, District A makes its 100 acre-feet of recirculation water available to District Z. In exchange, District Z makes 80 acre-feet of local water available to District A.
- 2) District A is a Friant Contractor with a supply of 100 acre-feet of recirculation water available in SOD Facilities. District Z is a non-Friant Contractor capable of diverting water from SOD Facilities with 20 acre-feet of losses and will have a local supply of 80 acre-feet of water in WY 2018 that can be used by District A. Under this example, District A makes its 100 acre-feet of recirculation water available to District Z in WY 2013. In exchange, District Z makes 80 acre-feet of local water available to District A in WY 2018.

The Proposed Action will not exceed 260,000 AF/per WY. Reclamation would facilitate the Proposed Action through stipulations present in existing agreements and the recirculation of recaptured WY 2013-2017 SJRRP Flows will not increase deliveries to any contractor. All water directly delivered, exchanged, or transferred shall remain within existing contractual amounts and contract service areas for those water contractors. The exact totals directly delivered, exchanged, or transferred through this Proposed Action shall not exceed any contractor's contractual amount. The Proposed Action analyzed in this EA would help supplement any surface water need that a particular contractor could have over WY 2013-2017. The recirculation of recaptured WY 2013-2017 SJRRP Flows will not increase deliveries to any water contractor. All water delivered, exchanged, or transferred shall remain within existing contract amounts.

The Proposed Action would provide for the pre-delivery of WY 2013-2017 SJRRP Flows during periods of excess water supply and capacity in SOD Facilities. While infrequent, there are times when water and capacity is available in SOD Facilities that is in excess of the demands of existing south-of-delta CVP contractors. Through this mechanism Reclamation would: calculate the reasonable volume of water that could be made available in SOD Facilities that is in excess of the demands of existing south-of-Delta CVP contractors; calculate the reasonable volume of WY 2013-2017 SJRRP Flows that is expected to be recaptured within the subsequent 3 months or other reasonably foreseeable timeframe; determine the demand and ability of the Friant Contractors to use pre-delivered water; coordinate with the FWA, San Luis Delta-Mendota Water Authority, San Joaquin River Exchange Contractors Authority, and any other affected parties; make the water available for pre-delivery to Friant Contractors; and, record the amount of water pre-delivered to the Friant Contractors. As WY 2013-2017 SJRRP Flows are actually released and recaptured in accordance with the Settlement hydrograph, the recaptured water would be used first to balance out any pre-delivered water. This mechanism would not result in any involuntary reduction in contract water allocations.

The Proposed Action does not cover the direct discharge of recirculation water from SOD facilities into the Friant Kern Canal. If this action is proposed as an option for the recirculation of WY 2013-2017 Interim and Restoration flows, it would require additional NEPA analysis and review.

Contractors outlined in this EA would notify Reclamation in advance of any proposed direct delivery, exchange, or transfer so that Reclamation can determine if the action is consistent with the EA and existing contracts, and can coordinate with involved water contractors to ensure there is capacity within existing facilities to take the action. In addition, coordination would ensure that Reclamation's obligations to deliver water to other contractors, wildlife refuges, and other requirements would not be adversely impacted.

Reclamation would evaluate any water contractors, described in this EA, that may be currently outside the existing CVP place-of-use in order to determine future agreements or modifications to existing permits or approvals that may be necessary in order to legally transfer, exchange, or deliver WY 2013-2017 SJRRP Flows.

Exchanges and transfers shall further be subject to the following parameters:

- No native or untilled land (fallow for three consecutive years or more) would be cultivated with the water involved in these actions.
- Transferred water can be either Agricultural (Ag) or Municipal and Industrial (M&I) water.
- The ultimate purpose of use can be for Ag, M&I purposes, fish and wildlife purpose and or groundwater recharge.
- All transfers and exchanges will be between willing sellers and willing buyers.
- Transfers or exchanges would occur without new construction or modifications to facilities.
- Transfers or exchanges are limited to existing supply and will not increase overall consumptive use.
- Transfers or exchanges for Ag would be used on lands irrigated within the last three consecutive years.
- Transfers or exchanges would not lead to any land conversions.
- Transfers or exchanges would comply with all applicable Federal, State, Local or Tribal laws or requirements imposed for the protection of the environment and ITA.
- Transfers or exchanges cannot alter the flow regime of natural water bodies such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as not to have a detrimental effect on fish or wildlife, or their habitats.

The Proposed Action only covers direct deliveries, exchanges, or transfers of water recaptured as a result of WY 2013-2017 SJRRP Flows. The Proposed Action does not cover direct deliveries, exchanges, or transfers that do not include recaptured WY 2013-2017 SJRRP Flows.

Table 1: Contract Amounts for Friant Contractors and SOD Contractors

Friant Contractors	Class 1 CVP Supply (AF/year)	Class 2 CVP Supply (AF/year)
Arvin-Edison WSD (PWRPA member)	40,000	311,675
Chowchilla Water District (WD)	55,000	160,000
City of Fresno	60,000	0
City of Lindsay	2,500	0
City of Orange Cove	1,400	0
County of Madera	200	0
Delano-Earlimart Irrigation District (ID)	108,800	74,500
Exeter Irrigation District	11,500	19,000
Fresno Co. Waterworks No. 18	150	0
Fresno ID	0	75,000
Garfield WD	3,500	0
Gravelly Ford WD	0	14,000
International WD	1,200	0
Ivanhoe WD	6,500	500
Kaweah Delta Water CD	1,200	7,400
Kern-Tulare WD – partial assignment	0	5,000
Lewis Creek WD	1,450	0
Lindmore ID	33,000	22,000
Lindsay-Strathmore ID	27,500	0
Lower Tule River ID	61,200	238,000
Madera ID	85,000	186,000
Orange Cove ID	39,200	0
Porterville ID	16,000	30,000
Saucelito ID	21,500	32,800
Shafter-Wasco ID	50,000	39,600
Southern San Joaquin MUD	97,000	50,000
Stone Corral ID	10,000	0
Tea Pot Dome WD	7,500	0
Terra Bella ID	29,000	0
Tulare ID	30,000	141,000
Non-Friant Contractors	Supply (AF/year)	
City of Avenal	3,500	
Banta-Carbona ID (PWRPA member)	20,000	
Byron-Bethany ID	20,600	
City of Coalinga	10,000	
Coelho Family Trust	2,080	
Del Puerto ID	140,210	
Dudley Ridge Water District	50,343	
Eagle Field WD	4,550	
Fresno County	3,000	
Fresno Slough WD	4,000	
Grasslands WD	Level 2 and/or Level 4	
Hills Valley ID	3,346	
City of Huron	3,000	
James ID (PWRPA member)	35,300	
Kern County Water Agency <i>Includes Belridge WSD, Kern Delta WD, Rosedale-Rio Brave WSD, Semitropic WSD, Buena Vista WSD, Cawelo WD (also a PWPRA member), Berrenda Mesa WD, Henry Miller WD, Lost Hills WD, Tehachapi-Cummings WD, Tejon-Castaic WD, West Kern WD, and Wheeler Ridge – Maricopa WD</i>	982,730	

Non-Friant Contractors	Supply (AF/year)
CVPIA San Joaquin Valley National Wildlife Refuges served by the DMC or San Luis Unit	Level 2 and/or Level 4
Kern-Tulare WD Includes Rag Gulch WD	40,000
Laguna WD	800
Lower Tule River ID	31,102
Mercy Springs WD	2,842
Metropolitan WD of Southern California	1,911,500
North Kern WSD	6,000 to 394,000 (variable)
Oro Loma WD	4,600
Pacheco WD	10,080
Panoche WD	94,000
Patterson ID	16,500
Pixley ID	31,102
Rosedale-Rio Bravo WSD	29,900
San Benito County WD	43,800
San Joaquin River Exchange Contractors Water Authority	840,000
San Luis WD	125,080
Santa Clara Valley WD (PWRPA member)	152,500
Sonoma County Water Agency (PWRPA member)	76,000
The West Side ID (PWRPA member)	5,000
City of Tracy Includes Westside ID and Banta-Carbona ID	29,333
Tranquility ID	13,800
Tranquility PUD	70
Tri-Valley Water District	1,142
Tulare County	5,308
Tulare Lake Basin WSD	88,922
West Stanislaus ID (PWRPA member)	50,000
Westlands WD (PWRPA member) Includes Mercy Springs WD, Centinella WD, Widren WD, and Broadview WD	1,150,000
Princeton-Cordora-Glenn ID (PWRPA member)	
Provident ID (PWRPA member)	
Reclamation District 108 (PWRPA member)	

Section 3 **Affected Environment and Environmental Consequences**

This section provides an overview of the physical environment and existing conditions that could be affected by the Proposed Action consistent with NEPA guidelines. Each resource discussion in this section evaluates the impacts of the Proposed Action's alternatives. The baseline conditions assumed consist of the existing physical environmental conditions as of February 2013. Therefore, the baseline environment includes the existing releases and recapture of Interim Flows on the San Joaquin River between Friant Dam and the confluence of the Merced River. Baseline conditions also assume that water is stored in SOD Facilities and is immediately ready for transfer.

Council on Environmental Quality (CEQ) regulations for implementing NEPA specify that environmental documents must succinctly describe the environment in the areas to be affected or created by the alternatives under consideration. The descriptions shall be no longer than necessary to understand the effects of the alternatives. The data and analyses must be commensurate with the importance of an impact, with less important material summarized, consolidated, or simply referenced.

3.1 Water Resources

3.1.1 Affected Environment

3.1.1.1 *Non-Friant Contractors*

Below is a list of non-Friant Contractors, followed by a narrative explanation of each district's water resources.

Cross Valley Contractors

- County of Fresno
- County of Tulare
- Hills Valley Irrigation District
- Kern Tulare Water District¹
- Lower Tule River Irrigation District
- Pixley Irrigation District
- Tri-Valley Water District

Delta Division

- Banta-Carbona Irrigation District
- Byron-Bethany Irrigation
- City of Tracy
- Coelho Family Trust
- Del Puerto Water District

¹ Kern Tulare Water District and Rag Gulch Water District consolidated on January 1, 2009.

- Eagle Field Water District
- Fresno Slough Water District
- Grasslands Water District
- James Irrigation District
- Laguna Water District
- Mercy Springs Water District
- Oro Loma Water District
- Patterson Irrigation District
- Reclamation District No. 1606
- The West Side Irrigation District
- Tranquillity Irrigation District
- Tranquillity Public Utility District
- West Stanislaus Irrigation District

San Felipe Division

- San Benito County Water District
- Santa Clara Valley Water District

San Luis Unit

- Broadview Water District²
- Centinella Water District²
- City of Avenal
- City of Coalinga
- City of Huron
- Pacheco Water District
- Panoche Water District
- San Luis Water District
- Westlands Water District
- Widren Water District²

Metropolitan Water District of Southern California

Dudley Ridge Water District

Kern County Water Agency

- Belridge Water Storage District
- Berrenda Mesa Water District
- Buena Vista Water Storage District
- Cawelo Water District
- Henry Miller Water District
- Kern Delta Water District
- Lost Hills Water District
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water District

² Full assignment to Westlands Water District.

- Tehachapi-Cummings Water District
- Tejon-Castac Water District
- West Kern Water District
- Wheeler Ridge-Maricopa Water Storage District

National Wildlife Refuges

- National Wildlife Refuges

North Kern Water Storage District

San Joaquin River Exchange Contractor's Water Authority

- Central California Irrigation District
- Columbia Canal Company
- Firebaugh Canal Water District
- San Luis Canal Company

Sonoma County Water Agency

Tulare Lake Basin Water Storage District

County of Fresno

The County of Fresno has a CVP water service contract for 3,000 AF/y of water. The County of Fresno currently serves this water to one subcontractor—County Service Area (CSA) #34 that uses the supply for M&I purposes. This subcontractor draws their water directly from Millerton Lake after their CV Delta supply has been exchanged for Friant supplies.

County of Tulare

The County of Tulare entered into a long-term water service contract with Reclamation in 1975 for 5,308 AF/y. The County of Tulare has ten subcontractors that are the recipients of the CVP water under this contract (see below). The County of Tulare requested approval from Reclamation to assign this water to their subcontractors. The ten subcontractors are described below:

<i>Subcontractor CVP</i>	<i>Contract Amount (AF/y)</i>
Alpaugh Irrigation District	100
Atwell Island Water District	50
Hills Valley Irrigation District	2,913
<i>Subcontractor CVP</i>	<i>Contract Amount (AF/y)</i>
City of Lindsay	50
Saucelito Irrigation District	100
Frasinetto Farms, LLC	400
Stone Corral Irrigation District	950
Strathmore Public Utility District	400
Styro-Tek	45
City of Visalia	300

Alpaugh Irrigation District

Alpaugh Irrigation District (AID) is comprised of approximately 10,500 acres, of which 5,400 are irrigated. Groundwater provides the primary water supply to AID. AID also operates 18 wells. Using two of its deep wells, AID provides approximately 300 AF/y of potable water supply to the community of Alpaugh.

AID does not have any other contracts or water rights to surface water supplies. However, during wet years the district has been able to utilize excess waters available in the Homeland Canal located on the westerly side of AID, which if not used, would flow into the historic Tulare Lake.

Atwell Island Water District

Atwell Island Water District (AIWD) is comprised of 7,136 acres, of which, 4,645 are irrigated. AIWD does not operate or maintain groundwater recharge or extraction facilities. Landowners must provide privately owned wells to sustain irrigation during periods when the district does not have surface water available.

In wet years, AIWD purchases supplies for use in the district in lieu of pumping groundwater. The district uses primarily surface water supplies when it is available and relies on groundwater only when surface water is unavailable.

Hills Valley Irrigation District

HVID receives up to 2,913 AF/y of CVP water under its contract with County of Tulare. HVID entered into a long-term renewal contract with Reclamation in 1959. Currently, the district comprises of 19,453 acres, of which 19,057 are irrigated. HVID has an interim renewal water service contract with Reclamation for 3,346 AF/y. Historically, the district has received the CVP contract supplies through an exchange with Arvin-Edison Water Storage District (AEWSD). HVID serves water only to agricultural users. HVID has three regulating reservoirs: Anchor Reservoir (0.53 million gallons), American Reservoir (2.0 million gallons), and a 15 AF regulating reservoir. The district does not own groundwater extraction facilities; therefore, individual landowners must provide their own wells to sustain irrigation during periods when HVID does not have surface water available. HVID is currently executing a contract with Reclamation to obtain 1,250 AF/y of Class 1 CVP supply as a Friant Division contractor.

Saucelito Irrigation District

Saucelito Irrigation District (SID) receives up to 100 AF/y of CVP water under its contract with County of Tulare. SID obtains its CVP water supplies from four diversion points on the FKC between MP 100.64 and 107.35 and Deer Creek diversion at MP 102.69. The district has five individual water users that have rights in Poplar Irrigation Company of 9.5 shares at 55 AF per share from Mole Ditch.

Frasinetto Farms, LLC

Frasinetto Farms, LLC receives up to 400 AF/y of CVP water under its contract with County of Tulare.

Stone Corral Irrigation

Stone Corral Irrigation District (SCID) receives up to 950 AF/y CVP water under its contract with County of Tulare. SCID is comprised of 6,488 acres, of which 5,470 acres are irrigated. In addition to the County of Tulare subcontract, SCID entered into a long-term water service contract with Reclamation for 7,700 AF/y of Friant Division Class 1 water in 1950. In 1991, the contract was amended to 10,000 AF/y of Class 1 water. SCID obtains the CVP water from the FKC at MP 57.90, 59.33, 60.90 and 62.68.

City of Lindsay

In 1958, the City of Lindsay entered into a long-term water service contract with Reclamation for 2,500 AF/y of Class 1 Friant water. The City of Lindsay receives up to 50 AF/y of CVP water under its contract with County of Tulare. Lindsay obtains their CVP water from the FKC at the Honolulu Street turnout. The water treatment plant is at the same location and provides filtration, chemical additions, and chlorination.

Strathmore Public Utility District

Strathmore Public Utility District receives up to 400 AF/y CVP water under its contract with County of Tulare.

Styro-Tek, Inc

Styro-Tek receives up to 45 AF/y of CVP water under its contract with County of Tulare. Styro-Tek is an industry manufacturer of shipping containers. Most of the CVP water is used for cooling. Additionally, the Styro-Tek property is located within the Delano-Earlimart Irrigation District Contractor Service Area and, after Styro-Tek receives its CV allocation, they then receive CVP water from Delano-Earlimart Irrigation District to make up their water needs.

City of Visalia

The City of Visalia receives up to 300 AF/y CVP water under its contract with County of Tulare.

Lower Tule River Irrigation District

Lower Tule River Irrigation District (LTRID) is located in Tulare County. LTRID entered into a long-term renewal contract with Reclamation in 1951 for 61,200 AF/y of Class 1 and 238,000 AF/y of Class 2 water. Additionally, in 1975, LTRID entered into a three-way contract with Reclamation and California Department of Water Resources (DWR) to provide an additional 31,102 AF/y of CVP water supply. Under the original three-way contract, CVP water was diverted from the Sacramento-San Joaquin River Delta (Delta), conveyed through SWP facilities via the California Aqueduct to the Cross Valley Canal (CVC) and delivered to AEWSD. Through the CVC Exchange Program, LTRID and AEWSD “swapped” their Delta and Friant CVP water supplies. The exchange agreement between AEWSD was eventually terminated, but LTRID may enter into similar exchange arrangements with other water districts to obtain their CVP water supplies from the Delta.

Collectively, LTRID owns or controls approximately 163 miles of canals and approximately 47 miles of river channel. LTRID maintains and operates 12 recharge and regulating basins, covering approximately 3,000 acres. In wetter years, LTRID uses these facilities to recharge the groundwater reservoir. LTRID does not own or control groundwater extraction facilities.

Therefore, each landowner must provide privately owned wells to sustain irrigation during periods when LTRID does not have surface water available.

Currently, because LTRID has no exchange arrangements to take delivery of their Cross Valley (CV) supplies, LTRID sells their CVP contract supplies from the Delta and uses the money to purchase other supplies on the water market. LTRID may enter into similar exchange arrangements with other water districts to obtain their CVP water supplies from the Delta.

Pixley Irrigation District

The Pixley Irrigation District's (PXID) water supply is derived from the use of groundwater, diversions from Deer Creek and CVP water. PXID entered into a long-term water service contract with Reclamation in 1975 for 31,102 AF/y. PXID currently contains 69,550 acres. Deer Creek flows westerly through the entire length of the district. The FKC is located between one to five miles east of the PXID boundary.

PXID operates a conjunctive use program by supplying a portion of the irrigated lands and a portion for direct groundwater recharge through Deer Creek, the existing canal system, and sinking basins owned or leased by the district. PXID obtains their CVP supplies through a turnout on the FKC into Deer Creek.

PXID does not own or operate any groundwater extraction facilities; however, groundwater is the primary water supply available to lands within PXID. Privately owned wells currently provide water to all irrigated lands within the district.

Banta-Carbona Irrigation District

Banta-Carbona Irrigation District (BCID) is located in San Joaquin County just south of the City of Tracy and is adjacent to the Del Puerto Water District to the southwest and the WSID to the southeast. The district's primary supply of water is its pre-1914 water rights on the San Joaquin River. Historically, the district uses all of its pre-1914 water rights to irrigate lands within the district. The district has a contract with Reclamation for 20,000 AF of CVP water. CVP water supplements the district's pre-1914 water supply for agricultural purposes.

The distribution system in BCID consists of 2.5 miles of unlined canal, 33.2 miles of concrete lined canal, and 46 miles of underground pipeline. CVP water from the DMC is gravity-fed through two turnouts, then distributed through a pipeline connected to the BCID Main Lift Canal. All the district's facilities are either pump or gravity delivery canals.

Byron Bethany Irrigation District

Byron-Bethany Irrigation District (BBID), near the City of Tracy. BBID has a total CVP contract amount of 20,600 AF/y. Although primarily agricultural, portions of the district are within the sphere of influence for the City of Tracy. BBID's CVP water supply is for irrigation and M&I purposes. Under agreements with the City of Tracy, the district provides raw water for treatment and final delivery back to lands within BBID's boundaries.

City of Tracy

The City of Tracy receives its CVP supply from a turnout on the DMC. Because the CVP water is used for M&I purposes, it must be treated before delivery. The treatment process for the CVP supply consists of chemical oxidation, coagulation, flocculation, filtration, and chlorination. In addition, chloramines (the combination of chlorine and a small amount of ammonia) are used as the residual disinfectant in the water distribution system. The CVP water is transferred by pipeline to the water treatment plant and, after treatment, transferred by pipeline to M&I users. Tracy provides water service to all of its approximately 78,000 residents and to approximately 400 residents of the Larch-Clover County Services District. Tracy also provides water service to the unincorporated Patterson Business Park.

On July 22, 1974 the City of Tracy signed a long-term contract with Reclamation for 10,000 AF of CVP water (Reclamation 1974). Renewal of this contract is not part of the Proposed Action since the long-term water service contract with Reclamation does not expire until 2014; however, Tracy and Reclamation are in ongoing negotiations for contract renewal.

Tracy also has two partial contract assignments: WSID has assigned 2,500 AF/y, with an option for an additional 2,500 AF/y, and BCID has assigned 5,000 AF/y to Tracy. These are the two interim renewal contracts analyzed within this document. The two assignments from BCID and WSID increased Tracy's CVP water supply from 10,000 AF to 17,500 AF and converted the use of these water supplies from agricultural to M&I.

The City of Tracy's water system includes CVP water from the DMC and groundwater pumped from nine groundwater wells located throughout the city. The City of Tracy pumps an annual maximum of 6,700 AF/y comprising 40 percent of Tracy's water supply. There are no other water supply sources serving the city besides CVP water. As noted above, the City of Tracy has negotiated a permanent transfer of a portion of WSID's and BCID's CVP supply to help meet Tracy's growing demand. Plainview Water District also provides up to 1,000 AFY.

In addition, the South County Water Supply Program, which is a cooperative effort of the South San Joaquin Irrigation District and the Cities of Manteca, Escalon, Lathrop, and Tracy, has been designed to provide supplemental water supplies to the cities. Phase I construction of facilities necessary to provide the supplemental supply was completed July 14, 2005. Phase II is scheduled for completion in 2012 (South San Joaquin Irrigation District 2009). **City of Tracy**

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Coelho Family Trust

Coelho Family Trust currently has a CVP contract amount with Reclamation for 2,080 AF/y of water. The Mendota Wildlife Management Area is located on a portion of the Coelho Family Trust area, near Fresno Slough. About 1,128 acres of the Coelho Family Trust property are currently under contract with Reclamation to receive CVP water. The property receives its CVP allocation directly from the Mendota Pool and conveys the water through its own distribution system.

In addition to its CVP supply, the Coelho Family Trust property has groundwater wells that provide a supplemental supply in dry years.

Del Puerto Water District

Del Puerto Water District (DPWD) is a California special district formed under the provisions of Division 13 of the Water code of the State of California. Del Puerto is under contract with the Bureau of Reclamation for its water supply, which is delivered from the DMC. Del Puerto Water District provides irrigation water to permanent crops in the San Joaquin, Stanislaus, and Merced counties. DPWD's CVP contract allocation with Reclamation is 140,210 AF/y.

Del Puerto Water District is located along the DMC corridor in southern San Joaquin County, western Stanislaus County, and northwestern Merced County. The district is primarily agricultural. Currently, the only CVP supply used for M&I use is the one AF of water supplied to the city landfill each month for dust suppression. All remaining CVP supplies are used for agriculture.

Eagle Field Water District

Eagle Field Water District is approximately 1,372 acres in size. The district is located in both Merced and Fresno counties between the Outside Canal and the DMC. Eagle Field Water District receives its CVP water supply directly from two turnouts on the Delta-Mendota Canal. The district has no additional conveyance facilities.

On April 10, 1958, the district signed a long-term contract with Reclamation for 4,550 AF of CVP water. The contract expired on February 25, 1995. Since then, a series of interim renewal contracts have been executed.

In addition to CVP supply, Eagle Field Water District has groundwater wells that provide a supplemental supply in dry years.

Fresno Slough Water District

The Fresno Slough Water District is about 1,200 acres, of which 805 acres are irrigable. The district is located in western portion of Fresno County, adjacent to Tranquillity Irrigation District to the east.

After the DMC releases water into the Mendota Pool, some of the supply flows from the pool into the Fresno Slough (or Kings River Bypass). The Fresno Slough Water District lifts its allocation of CVP water from the Fresno Slough into its own distribution system, which consists of approximately seven miles of unlined canals and two lift pump locations, with two pumps at each lift. Fresno Slough Water District distributes the water to a number of unmetered turnouts. The current contract with Reclamation provides Fresno Slough Water District with 4,000 AF/y of CVP water from the DMC.

In addition to CVP supplies, the district receives 866 AF of Schedule 2 water for a water rights settlement. The district owns one-tenth interest in a groundwater well. No groundwater recharge program is currently in place and the quality of the groundwater in the district is poor with high salinity.

Grasslands Water District

The Grasslands Water District (GWD) is a California Water District formed under Section 34000 of the State Water Code that was established to receive and distribute CVP water. GWD is approximately 51,537 acres in size with the majority of this land in wetland habitat, to which the district delivers CVP water. GWD's primary function is the delivery of water to landowners within its boundaries. The canal system for carrying out this task is approximately 110 miles in length and is operated and maintained by GWD. The area within GWD contains approximately 165 separate ownerships, most of which are hunting or duck clubs. Perpetual easements have been purchased by the USFWS to help preserve wetland-dependant migratory bird habitat on approximately 31,000 acres service by GWD. GWD receives its water in the form of Level 2 and Level 4 supplies.

James Irrigation District

The James Irrigation District encompasses approximately 26,418 acres in central Fresno County, surrounding the City of San Joaquin. The District shares a common boundary with TRQID to the

west. The District provides irrigation water for agricultural purposes. The district contracts for 35,300 AF/y of CVP allocation from Reclamation. Much of the water provided by the district is groundwater (LAFCO, 2007).

District infrastructure includes a main canal and lateral canals, six booster stations, 23 booster pumps, and 34 well pumps on a well field. The James Irrigation District shares their channels, pumps, and diversion facilities, as they are located on land owned by Reclamation District No. 1606. Both districts cooperate in the maintenance of these facilities. Through an mutual agreement,, the James Irrigation District provides all necessary services for the Reclamation District No. 1606 (LAFCO, 2007).

Laguna Water District

Laguna Water District is approximately 417 acres, all of which are irrigable, and is located in Fresno County. Laguna Water District has no distribution facilities of its own. Instead, the district has a contract with the Central California Irrigation District for transportation of its CVP water. The DMC releases water into the Mendota Pool and water is then transported from the pool to the Laguna Water District through the distribution facilities of the Central California Irrigation District.

On May 26, 1982, the district signed a long-term contract with Reclamation for 800 AF of CVP water. This contract expired on December 31, 1995. Since then, a series of interim renewal contracts have been executed.

Mercy Springs Water District

Mercy Springs Water District is approximately 3,390 acres in size. The district is located in Fresno County and spans the Main Canal, Outside Canal, and the DMC. The district receives its CVP water directly from a turnout on the DMC and has no additional conveyance facilities.

On June 21, 1967, the district signed a long-term contract with Reclamation for 13,300 AF/y of CVP water. This contract expired on February 28, 1995. Since then, a series of interim renewal contracts have been executed. On May 14, 1999, the district assigned 6,260 AF of its contract water supply to the Pajaro Valley Water Management Agency, Westlands Water District, and Santa Clara Valley Water District, leaving a balance of 7,040 AF of supply subject to this long-term contract. On March 1, 2003, the district assigned an additional 4,198 AF of its contract supply to the Westlands Water District Distribution District No. 2, leaving a balance of 2,842 AF of supply subject to this long-term contract.

In addition to its CVP supply, Mercy Springs Water District has groundwater wells that provide a supplemental supply in dry years.

Oro Loma Water District

Oro Loma Water District is located in Fresno County between the Outside Canal and the Delta-Mendota Canal. It contains 1,080 irrigable acres. Oro Loma Water District receives its CVP water directly from two turnouts on the DMC and has no additional conveyance or distribution facilities.

On April 7, 1959, the district signed a long-term contract with Reclamation for 4,600 AF/y of CVP water. This contract expired on February 28, 1995. Since then, a series of interim renewal contracts have been executed.

Patterson Irrigation District

Patterson Irrigation District's (PID) distribution system consists of 309 turnouts, 3.8 miles of unlined canal, 51.8 miles of concrete-lined canal, and 84 miles of pipeline. PID provides agricultural water to approximately 770 customers on about 12,800 acres. The district currently receives between 70 to 80 percent of its water supply from the San Joaquin River. The remaining supply comes from groundwater, recirculation projects, and CVP. The total CVP contract amount for PID is 16,500 AF/y.

As a pre-1914 water rights holder, PID has the authority and right under California law to divert from the San Joaquin River the water it needs, as long as it is put to beneficial use. San Joaquin River water is pumped by PID uphill into its main canal through a series of pump stations and reservoir pools. Originally designed as settling basins to settle out silt from the San Joaquin River water source, the reservoirs have negligible storage capacity. The main canal flows from east to west and supplies 13 main laterals which flow north and south.

Reclamation District #1606

Reclamation District #1606 is approximately 170 acres. The district is located in Fresno County and is adjacent to James Irrigation District. It was originally formed for flood protection along the Kings River. In 1914, Reclamation District #1606 build two channels along its neighboring district, James Irrigation District, to make a continuous connection from the Kings River to the San Joaquin River, to pass floodwater through the area, and to prevent flooding of the two districts.

The DMC releases water into the Mendota Pool, and some of this supply flows into the Fresno Slough (or Kings River Bypass). Reclamation District #1606 pulls its CVP supply from the Fresno Slough using two lift pumps.

The current CVP contract amount is 228 AF/y. Reclamation District #1606 also receives 342 AF of Schedule 2 water for water rights. The district has no other water supply sources.

The West Side Irrigation District

The West Side Irrigation District was organized on October 12, 1915, and made its first water deliveries in 1919. The district is located in San Joaquin County and is divided in half by the City of Tracy. The district was originally about 12,160 acres in size with 10,800 irrigated acres and is currently 9,436 acres in size with 6,083 irrigated acres.

Current West Side Irrigation District policy requires water users requesting M&I water service and annexation into the City of Tracy to detach from the district and to continue to provide agricultural water to the property until it is developed for urban uses. CVP water is diverted from the DMC through two turnouts. One turnout ties into the district's upper main canal through a 1.8-mile-long concrete pipe and the second turnout ties into the district's upper main canal through a 1.4-mile-long concrete pipe. Both are gravity flow systems. The upper main canal is nine miles in length (including one mile of concrete-lined canal, 3.5 miles of pipeline and 4.5

miles of unlined canal) and includes 11 miles of concrete piped laterals. The lower main canal is also nine miles in length (including 1.5 miles of concrete-lined canal, 3 miles of pipeline, and 5.5 miles of unlined canal) and includes 13 miles of concrete piped laterals. All of the gates in the system are manual and all flows in the district's distribution system are measured regularly.

In June 1977, The West Side Irrigation District entered into a long-term contract with Reclamation for 7,500 AF/y of CVP supply. This new contract expired on February 28, 1995. Since then, a series of interim renewal contracts have been executed. On February 27, 2004, the district, the United States, and the City of Tracy entered into an agreement for an assignment of 2,500 AF of its contract supply to the City of Tracy, leaving a balance of 5,000 AF subject to this long-term contract.

The district has received water from the San Joaquin River from water rights dating back to 1916. San Joaquin River water is diverted through a dredged unlined intake canal and flows by gravity into the district's pumping facilities. The water is then lifted through two pipelines; one terminates at the beginning of the Lower Main Canal and the other discharges into the Upper Main Canal and mixes with CVP water. The water then flows by gravity, similar to the CVP supply, and is delivered to users. San Joaquin River water is used as the district's main supply, with CVP water supplies used as a supplement during peak periods or when needed to improve water quality.

There are no groundwater wells or private irrigation wells within the district. The district has no water supplies other than CVP and San Joaquin River water.

Tranquillity Irrigation District

Tranquillity Irrigation District (TRQID) was formed on January 22, 1918. The main crops grown in the district include cotton, canning tomatoes, alfalfa, sugar beets, and almonds. The main populated community within TRQID is the unincorporated town of Tranquillity (TRQID, www.trqid.com). As a result of its geographical location adjacent to Fresno Slough, a backwater area of the San Joaquin River and flood outlet of the Kings River, TRQID has historic claims to water from both the San Joaquin and the Kings Rivers. The DMC currently serves the district by releasing water into Mendota Pool, where TRQID gets its supply. The District then lifts its allocation of CVP water from the Fresno Slough into its own distribution system, which consists of approximately 42 miles of canal, 10 miles of pipelines, two major lift-pump stations, and a series of secondary lifts (TRQID, www.trqid.com). In addition to surface water, the District operates groundwater wells, which are used as a backup supply during periods of high demand and/or to replace decreased CVP surface water supplies (TRQID, www.trqid.com). TRQID's contract amount for CVP supplies is 13,800 AF/y.

Tranquillity Public Utility District

On October 11, 1967, Melvin D. and Mardella Hughes entered into a contract with the United States for water service to a tract of approximately 66 acres located near the colony of Tranquillity in Fresno County. A binding agreement with the United States for water service and early renewal of the existing contract was signed September 30, 1997. The Tranquillity Public Utility District assumed the contract for Settlement Water (93 AF) and Supplemental Supply (70

AF) of CVP Water from the Mendota Pool on August 29, 2003. The property, now owned by Tranquillity Public Utility District, lies adjacent to Fresno Slough (Reclamation, 2005).

Tri-Valley Water District

Tri-Valley Water District has approximately 2,727 acres of irrigated agriculture. TVWD has a contract with Reclamation to receive up to 1,142 AF/y for irrigation and M&I. TVWD is in the Kings ground water sub basin which has a “safe yield” which is estimate to be 1,048 AF/y. TVWD is currently working with Reclamation to obtain a contract for 400 AF/y of Class 1 CVP Supply as a Friant Division contractor.

West Stanislaus Irrigation District

West Stanislaus Irrigation District (WSID) was formed November 29, 1920. WSID serves an area that is unincorporated and agricultural, located west of the San Joaquin River, northwest of the City of Patterson, and includes the unincorporated communities of Westley, Grayson and Vernalis. A small portion of the district extends into San Joaquin County. WSID’s boundaries include approximately 21,676 acres. WSID’s CVP contract supply is 50,000 AF/y. WSID provides its customers with irrigation water for agricultural purposes. This water I provided via several sources including surface water from the Tuolumne and San Joaquin Rivers, groundwater from four deep wells within WSID’s boundaries, and importing water from the DMC as part of the CVP.

WSID, under a water rights agreement, also sells irrigation water to 13 landowners, which includes approximately 2,203 irrigable acres outside its sphere of influence in the “White Lake” area (north of the unincorporated community of Grayson).

San Benito County Water District

The San Benito County Water District (SBCWD) was formed in 1953 by the San Benito County Water Conservation and Flood Control Act. SBCWD has a CVP contract amount of 43,800 AF/y, which is primarily used as agricultural water for 40 different crops with a small amount used for M&I (SBCWD, 2011). From SLR and the DMC, water is pumped through the 5.2-mile Pacheco Tunnel atop Pacheco Pass to a facility near Casa de Fruta. Here, the water is split between the SCVWD and SBCWD. Once in the county, the water is delivered to customers via 158 miles of a closed pipe distribution system. CVP water brought into the county is also delivered and stored in the San Justo Reservoir and used to supplement deliveries during high demand, to percolate into the groundwater supplies, and for recreation (SBCWD, 2011).

Santa Clara Valley Water District

The Santa Clara Valley Water District (SCVWD) is a water supply wholesaler who conserves, imports, treats, distributes, and is responsible for the quality of water within Santa Clara County. SCVWD provides wholesale water service to 13 retail agencies serving Santa Clara County. SCVWD also provides water directly to the agricultural community and to supplement groundwater.

SCVWD’s water supply consists of two primary sources: local supplies and imported water. Local supplies include captured surface runoff, groundwater, and recycled water. Imported supplies are from the SWP, CVP, and Hetch-Hetchy (San Francisco Public Utilities

Commission). Most imported water comes to SCVWD from the Sierra Nevada Mountains via the Delta and is delivered by the CVP and SWP.

SCVWD has two contracts for water delivery from the CVP. The first CVP contract was executed in 1977 for 152,500 AF/y. The second contract, executed in 1999, is the partial assignment from MSWD which was discussed above and is one of the IRCs analyzed in this EA.

SCVWD imports CVP deliveries via the San Felipe Division of the CVP which originate from Delta water stored in the San Luis Reservoir in Merced County and delivered to the Coyote Creek Pump Station west of Anderson Reservoir via a series of pipelines and tunnels.

SCVWD has a contract with the DWR for 100,000 AF/y from the SWP. Water is delivered via the Banks pumping plant in the southern Delta and the South Bay Aqueduct delivers the water to a terminal tank at the Penitencia Water Treatment Plant in east San Jose.

SCVWD operates 10 local reservoirs, the largest one being Anderson Reservoir with a maximum storage of approximately 89,000 AF. SCVWD also operates a comprehensive groundwater management program, including on-stream and off-stream recharge facilities and extensive monitoring. SCVWD manages pumping demands on the groundwater basin indirectly through its contract and non-contract water rates with retail water agencies.

SCVWD has established rights to 35 percent of the existing Semitropic Groundwater Banking Program in Kern County which is used to offset shortfalls in annual water supplies. The agreement reserves for SCVWD up to 350,000 AF of storage, and improves SCVWD's supply reliability by enabling storage of wet-year water for use during future dry years. Reclamation has approved the delivery of up to 100,000 AF/y of CVP supplies to be banked in Semitropic for 21 years through the year 2027.

City of Avenal

The City of Avenal's sole water supply source is CVP water from the SLC. All of Avenal's CVP water supply is used for M&I purposes. Under a formal agreement, Avenal supplies Avenal State Prison with water. The City of Avenal also provides water service to the urban portions of Avenal and a limited number of connections in the northern portion of the community. Avenal does not pump any groundwater. The poor quality of the groundwater and its high concentrations of sulfate, nitrates, and sodium preclude its use for domestic purposes.

On November 20, 1969, the City of Avenal signed a long-term contract with Reclamation for up to 3,500 AF of CVP water annually (Reclamation 1969). This contract expired December 31, 2008. An interim renewal contract was issued on March 1, 2011 and remains in effect until February 28, 2013.

City of Coalinga

The City of Coalinga's sole water supply source is CVP water obtained at a single turnout from the Coalinga Canal, which is fed by the SLC. The City of Coalinga supplies potable water to almost all of the residences within its service area. Of the approximately a dozen farmers in and near the City of Coalinga's water service area, none receive water from the city for farming.

Domestic water is provided because of the very poor quality of groundwater. The current long-term contract required Coalinga to abandon its former source of water supply (e.g., pumping water from groundwater wells) and to depend on CVP water for M&I uses.

On October 28, 1968, the City of Coalinga signed a long-term contract with Reclamation for up to 10,000 AF of CVP water annually (Reclamation 1968). This contract expired December 31, 2008. An interim renewal contract was issued in 2007 and remains in effect until February 28, 2011. An interim renewal contract was issued on March 1, 2011, and remains in effect until February 28, 2013.

City of Huron

The City of Huron's sole water supply is CVP water received from a lateral connection to the SLC. Water is transported to Huron via Lateral 27, which is operated by WWD. Huron pays WWD O&M costs for transportation of their CVP supply. Huron does not pump groundwater. Groundwater in the area is very deep, of poor quality, and almost non-potable.

On September 26, 1972, the City of Huron signed a long-term contract with Reclamation for a maximum of 3,000 AF of CVP water annually (Reclamation 1972). This contract expired December 31, 2008. An interim renewal contract was issued on March 1, 2011, and remains in effect until February 28, 2013.

Pacheco Water District

Pacheco Water District was formed in 1953 for the purpose of obtaining a CVP water supply. Pacheco entered into a long-term contract with Reclamation for 10,080 AF/y of water supply from the DMC and SLC. CVP is their primary water supply though the district also has a surface water supply from the Central California Irrigation District. The district also owns one groundwater well but does not pump groundwater due to the poor quality. Pacheco Water District is located on the western edge of the San Joaquin Valley near the City of Los Banos in both Merced and Fresno Counties. Currently, all CVP water for the district is supplied from the San Luis Canal with the DMC serving as a backup. In 1999, neighboring Panoche Water District assumed all management responsibilities for Pacheco Water District.

Pacheco Water District's current distribution system consists of concrete-lined ditches, earth-lined canals, and pipelines ranging from 10 to 30 inches in diameter. In 1995, the district also completed the construction of a 450 AF reservoir to store tile drainage water for discharge or reuse. In 1996, a concrete-lined canal and pipeline system was built to extend the delivery of CVP water from the San Luis Canal to the entire district. The completion of this latter project helped conserve water and provide flexibility in the management of fresh water supply and re-circulated drain water.

Panoche Water District

Panoche Water District (PWD) is also located on the western side of the San Joaquin Valley in both Merced and Fresno counties. The PWD conveyance system is composed of approximately 45 miles of canals and pipelines to serve its landowners. This includes approximately 15 miles of unlined canals, 22 miles of lined canals, and almost 8 miles of pipeline. PWD obtains CVP water through two diversion points on the DMC and five diversion points on the SLC.

On August 16, 1955, PWD entered into a long-term contract with Reclamation for 93,988 AF/y of CVP supply from the DMC (Reclamation 1955). This contract was amended on August 30, 1974 to allow a maximum delivery of 94,000 AF of CVP supply from the DMC or SLC. This contract was further revised on January 13, 1986, and November 14, 1988, in amendatory contracts that revised some contract terms but did not revise the maximum quantity of CVP water to be supplied. An interim renewal contract was issued on March 1, 2011, and remains in effect until February 28, 2013.

In addition to its CVP water, PWD has entered into a long-term water supply contract with the Central California Irrigation District and Firebaugh Canal Water District. This agreement provides 3,000 AF/y in supplemental water to PWD through 2033. Some groundwater is used within PWD. There are 42 privately owned and operated groundwater wells in the district's service area in addition to one district owned well. Because of its poor quality, groundwater is primarily used as a supply source during water shortages. PWD is also working on a plan for a 10-year transfer of 5,000 AF/y from the San Luis Canal Company, which is currently undergoing NEPA and CEQA review.

San Luis Water District

SLWD is located on the western side of the San Joaquin Valley near the town of Los Banos and within Merced and Fresno counties. SLWD was formed in 1951 and consists of over 66,000 acres. SLWD's current distribution system consists of 52 miles of pipelines, 10 miles of lined canals, and 7.5 miles of unlined canals. On February 25, 1959, SLWD entered into a long-term contract with Reclamation for 93,300 AF/y of CVP supply from the DMC. This contract was superseded by a contract executed on June 19, 1974, for a maximum of 125,080 AF/y of CVP supply from the DMC and San Luis Canal, which was further amended on January 13, 1986. This contract expired December 31, 2008. An interim renewal contract was issued in 2008 and remains in effect until February 28, 2011 (Reclamation 2007). An interim renewal contract was issued on March 1, 2011, and remains in effect until February 28, 2013.

CVP water is SLWD's only long-term water supply. The district does not own any groundwater wells and has no long-term contracts for surface water or groundwater supplies. There are 20 privately-owned and operated groundwater wells that provide water to 6,000 acres in the direct service area. The vast majority of the SLWD's water users do not have meaningful access to groundwater that can be used for irrigation; therefore, supplementation of the CVP supply is nominal.

Although water deliveries by the SLWD have historically been used, almost exclusively, for agricultural purposes, substantial development in and around the cities of Los Banos and Santa Nella has resulted in a shift of some water supplies to M&I use. The SLWD currently supplies approximately 800 AF/y as a wholesaler and not to end uses. M&I use demands are expected to increase.

Westlands Water District

WWD's contract is for 1,150,000 AF of CVP supply from the SLC and DMC. The district also receives an additional source of CVP water via assignments for approximately 36,490 AF/y. In

addition to these CVP supplies, approximately 200,000 AF/y of water is pumped from the underground aquifers during wet years. The district supplies groundwater to some district farmers and owns some groundwater wells, with the remaining wells privately owned by water users in the district. Other water supply sources in the district include flood flows from the Kings River, which are available periodically and diverted from the Mendota Pool.

WWD receives the majority of its CVP water supply via the SLC. WWD has executed three full or partial CVP contract assignments from DMC contractors to Westlands Distribution District #1 over the last decade. WWD requested and received approval from Reclamation on the contract assignments of 27,000 AF/y from Broadview Water District, 2,990 AF/y from Widren, and 2,500 AF/y from Centinella Water District. Reclamation approved a partial contract assignment of 4,198 AF/y from Mercy Springs Water District to WWD Distribution District #2. WWD has an on-going program to purchase and transfer supplemental water from other sources that would allow a better determination of the water supply sooner in the water year. Average total demand for WWD is approximately 1,394,000 AF/y. With its annual CVP contract entitlement of 1,150,000 AF/y, and an annual safe yield available from groundwater pumping of approximately 135,000 to 200,000 AF/y, the total water supply available from a full CVP contract supply and from groundwater is still less than the total water need. With future CVP water deliveries estimated at 60-70 percent of the contract amount or less, WWD and individual landowners must obtain supplemental water to help make up this deficiency.

Metropolitan Water District of Southern California (MWD)

MWD was created in 1928 under an enabling act of the California State Legislature to provide supplemental water to cities and counties in the Southern California coastal plain. This water is delivered to the MWD 26 member agencies through a regional network of canals, pipelines, reservoirs, treatment plants, and related facilities. In the late 1990s, MWD developed an Integrated Resources Plan that predicted significant water supply deficits for its service area and also outlined the efforts needed on several fronts to avoid significant water shortages, especially in dry years. This plan called for a mix of water resources derived from conservation, reclamation, groundwater conjunctive use, and water transfers to ensure adequate system flexibility to protect public safety, especially during droughts. The plan specifically cites a need for diversification of MWD's source of supply, including accessing transfers, exchanges, and groundwater banking programs involving Central Valley water districts.

MWD uses a variety of water supplies to meet the M&I water demands of its customers. Currently, MWD has a SWP entitlement of 1,911,500 AF/y of water.

Dudley Ridge Water District

The Dudley Ridge Water District (DRWD) was organized in 1963 under California Water District Law. DRWD is located in southern Kings County on the western edge of the San Joaquin Valley. DRWD lies south of Kettleman City and is bounded on the northeast by the Tulare Lake Basin Water Storage District (TLBWSD), on the south by the Kings-Kern County Line, and on the west by the California Aqueduct. The property within the district is agricultural and of the 37,600 total acres, approximately 17,000 acres are currently in crops. These crops primarily include pistachios, almonds, pomegranates, stone fruit, and grapes. Permanent crops within the district are irrigated with drip or low-volume micro sprinkler systems.

DRWD's only water source is surface water supplies as groundwater in the area is generally of poor quality and low yield. In addition to SWP supplies, water has been made available through programs for water stored in off-site groundwater basins and from purchases and transfers from other water contractors. The surface water supply is comprised of an SWP allotment of 50,343 AF, other SWP water as available, and non-project water obtained outside the district and delivered to various banking and exchange programs. In drier years, DRWD's supply is supplemented by banked water retrieved from groundwater storage programs in which the district participates. In wetter years, the supply is typically from surface water sources.

Belridge Water Storage District

Belridge Water Storage District (BWSD) is located in western Kern County. The district has a total size of 92,000 acres, of which 52,000 acres are in agricultural production and include 60% permanent crops consisting of almonds, pistachios, and citrus groves. A portion of the remaining agricultural lands are planted in row crops. BWSD's water supply is 121,508 AF of firm entitlement SWP water. The district and its landowners participate in several groundwater banking programs within Kern County. District lands uphill and west of the California Aqueduct and water is pumped to an elevation of about 300 to 500 feet for irrigation. Lands east of the California Aqueduct are served by gravity turnouts. BWSD is partially outside of the Friant permitted place-of-use, therefore, the transfer, exchange, or delivery of water associated with this action will only occur within this area.

Berrenda Mesa Water District

Berrenda Mesa Water District (BMWD) was formed on September 3, 1963 as a California Water District. On March 1967, a water supply contract was executed with Kern County Water Agency for 105,000 AF of annual water entitlements from the SWP. This contract is through the year 2035. In 1971, the water supply contract with KCWA was amended to the purchase of additional water from Semitropic Water Storage District. This increased the maximum annual entitlement to 155,100 AF.

BMWD consists of approximately 55,000 acres of which 49,000 are presently in the service area. About 6,000 acres do not have a water distribution system available. Groundwater in the area is high in total dissolved solids.

The cropping pattern in the District has changed from row crops in 1968 to one of the principally permanent crops at present. High water costs have been one of the factors contributing to the present cropping pattern. The major crops grown in the district include pasture, carrots, grapes, hay, pomegranates, pistachios, and almonds.

Buena Vista Water Storage District

Buena Vista Water Storage District (BVWSD) lies in the trough of the southern San Joaquin Valley in Kern County. The district controls an average entitlement of about 158,000 AF per year of surface water from the Kern River. Additional water supplies include annual (21,300 AF) and surplus (3,750 AF) SWP contractor allocations, and groundwater pumping. BVWSD's average annual water supply from actual diversions, pumping and storage release is approximately 185,000 AF. From this, approximately three-fourths of their in-district irrigation

demand is met by surface water. The remaining irrigation demand is met via replenishment of the groundwater, which is subsequently pumped by BVWSD and local landowners. The district does not directly supply any municipal and industrial water.

BVWSD operates a surface water delivery system with more than 125 miles of earthen canals which experience an average annual loss of 45,000 AF due to evaporation and seepage. Only portions of the Alejandro, East Side, and BV2 canals are concrete lined for a total of just over 5 miles. System delivery losses due to seepage and evaporation are approximately 30-35 percent for the short pre-irrigation run and approximately 28 percent of total flow for an average summer run (BVWSD 2009). Seepage losses through the unlined canals recharge the primarily unconfined aquifer below. In areas experiencing lateral flow problems with canal seepage, affected landowners will occasionally install an interceptor.

Cawelo Water District

Cawelo Water District (CWD) operates a long-term in-lieu fee Water Banking Program with Alameda County Flood Control and Water Conservation District Zone 7. CWD is considered a non-CWP contractor since they have never had a CVP long-term water service contract. (CWD has had temporary CVP contracts; however, this does not provide CWD with the designation of a CVP contractor.) CWD is located in the north-central portion of Kern County, encompassing 45,000 acres between State Route 65 and State Route 99 and extending from Seventh Standard Road in Bakersfield, north to McFarland and just east of the FKC alignment. CWD obtains its water (38,200 AF) from the State Water Project (SWP) through its contract with Kern County Water Agency (KCWA). CWD's other water sources consist of stored Kern River water, oilfield produced water, Poso Creek water, and groundwater.

Henry Miler WD

Henry Miller Water District (HMWD) provides groundwater surface water from the Kern River, and purchased water from KCWA to agricultural lands within its service area. HMWD has an entitlement of 35,500 AF per year from the SWP.

Kern Delta Water District

Kern Delta Water District (KDWD) is located in Bakersfield. KDWD has an SWP contract allocation of 25,500 AF. Additionally, KDWD can obtain up to 30,000 AF of Article 21 surplus water. The district covers approximately 128,000 acres and serves SWP and Kern River Water to approximately 90,000 acres, of which are mostly agricultural with some residential zones. Until recently, farmland in KDWD was mostly cotton and alfalfa/hay. However, this is progressively changing to produce corn, oats, wheat, grapes, melons, safflower, sod, strawberries, fruit trees, and nut trees. KDWD has historically received CVP surplus water either by direct contract with Reclamation, through participation with the Kern County Water Agency, or by exchange with AEWS. Regardless of the contract method, KDWD receives CVP water through a direct connection with AEWS. KDWD has the capability of taking CVP water from the Arvin-Edison Intake Canal running mostly west to east across the northern portion of KDWD and crossing several of KDWD's canals.

Lost Hills Water District

The Lost Hills Water District (LHWD) was formed on February 8, 1963, for the purposes of providing irrigation water from the SWP to land within the District. A water supply contract between Lost Hills Water District and the KCWA was executed on November 10, 1966, for SWP water delivery.

LHWD contains approximately 72,183 acres within its boundaries, beginning at the town of Lost Hills and extending north and west to the Kings-Kern County line. The District lies in the northwest portion of Kern County, just west of the Kern National Wildlife Refuge.

Of the 72,183 acres in the District, 70,314 are farmable, although not all this acreage is currently being farmed. Historically, the major crops grown within LHWD has been cotton, followed in acreage by barely, pistachios, almonds, grapes, olives, and alfalfa as well as an assortment of vegetable and additional row crops.

Rosedale-Rio Bravo Water Storage District

Rosedale-Rio Bravo Water Storage District (RRBWSD), located west of the City of Bakersfield, was established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the regional Kern County aquifer. RRBWSD has an SWP contract allocation of 29,900 AF. Additionally, RRBWSD can obtain up to 35,000 AF of Article 21 surplus water. RRBWSD's Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program, currently manages approximately 300,000 AF of stored groundwater in the underlying aquifer, which has an estimated total storage capacity in excess of 930,000 AF. RRBWSD acquires water for its Conjunctive Use Program from the Kern River, the FKC when available, and the SWP through a water supply contract with KCWA.

RRBWSD is a SWP contractor and member unit of the KCWA. The district does not provide any municipal and industrial water to customers within its service area and irrigation water used within the district is presently supplied from landowner wells pumping from the groundwater basin. RRBWSD owns and operates over 2,000 acres of recharge ponds capable of recharging up to 600 cubic feet per second (cfs). RRBWSD manages the portion of the regional Kern County groundwater sub basin that is within its boundaries.

Semitropic Water District

Semitropic Water Storage District (SWSD) is located in Kern County and delivers water to provide irrigation for approximately 140,000 acres of agriculture over its 220,582 acre district area. SWSD has utilized a groundwater storage program since the 1990's to aid in the reduction of groundwater overdraft in the region. The district banks 700,000 AF of water in a groundwater storage bank with a capacity of 1.65 million AF (SWSD). When needed, the district returns stored water to the California Aqueduct for use by its partners via exchanges or through pump-back. SWSD has the ability to deliver a maximum of 90,000 AF per year to the aqueduct and the State of California would deliver the water to SWSD's groundwater banking partners. Semitropic WSD receives a SWP contract amount of 133,000 AF per year and can receive up to 315,000 AF per year from banking partners to place into groundwater storage. Crops within SWSD consist primarily of alfalfa, cotton, fruit, grain, nuts, and vegetables.

Tehachapi-Cummings Water District

The Tehachapi-Cummings Water District (TCWD) is located in the Tehachapi Mountains east of the City of Bakersfield and encompasses approximately 266,000 acres. The District imports State Water Project water from the California Aqueducts and sells this imported water to agricultural and municipal/industrial customers. Approximately two-thirds of imported water sales is for agricultural use in a typical year. The local groundwater supply is located in three basins, which are Brite, Cummins, and Tehachapi Basins. The District is the court-appointed water master for these three adjudicated groundwater basins. The district began importing 20,000 AF of water annually from SWP in 1973. The water is pumped 3,425 vertical feet and is stored in J.C. Jacobsen Reservoir. Non-potable SWP water is then percolated back into the groundwater basins to maintain safe groundwater levels. The district operates and maintains a 31-mile long pipeline and five pump plants in order to provide water to customers.

Tejon-Castac Water District

The Tejon-Castac Water District (TCWD) is a local water district that has 5,278 AF of SWP allocation. In addition, TCWD has approximately 34,000 AF of water stored in Kern County water banks.

West Kern Water District

West Kern Water District (WKWD) is a county water district formed by election in 1959. The District is located within the southern San Joaquin Valley and provides municipal and industrial water to a variety of consumers encompassing 300 square miles with 7,600 metered accounts.

The District contracts with the KCWA to receive water from the SWP. WKWD's SWP entitlement is 31,500 AF per year. Water purchased from the state through KCWA is used to replenish the groundwater basin beneath the vicinity of the District's groundwater banking area, which lies adjacent to the Kern River. As a result of varying annual allocations, predetermined by the state, the District may not receive all of its allotted annual state water supply; however payment of one hundred percent of its cost is required. Purchasing water and utilizing the District's banking program, which is a concept of storing water in wet years into an underground aquifer and extracting in dry years allows WKWD to compensate for shortfalls.

The District's groundwater banking program is the oldest banking program in Kern County. WKWD's banking project began in the early 1960's as a partnership between West Kern Water District and Buena Vista Water Storage District. The water supply is obtained from eight groundwater wells and is treated before it enters the distribution system of more than 250 miles of pipeline. The District's infrastructure also includes 11 pumping plants and 25 storage tanks.

Wheeler Ridge-Maricopa Water Storage District

The Wheeler Ridge-Maricopa Water Storage District (WRMWSD) is a public agency whose jurisdiction encompasses about 147,000 acres of land in Kern County south of Bakersfield. It provides water supplies to approximately 90,000 acres of farmland.

The District was formed in 1959 under California Water Storage District law for the purpose of securing a surface water supply for agricultural purposes from the Feather River Project (now the SWP). Most of the District's water supply is obtained via the California Aqueduct under contract

with KCWA. This 197,088 AF supply is allocated and distributed to 72,074 acres of farm lands within the district. Current WRMWSD facilities can also provide temporary water service to about 18,000 acres of farmland. An additional 20,000 acres of farmland and 10,000 acres of other developed lands rely primarily on groundwater supplies. Another 27,000 acres are undeveloped and used primarily for grazing. Except for a few locations along Interstate 5, WRMWSD is exclusively rural. There are no cities or towns within WRMWSD's boundaries.

About 97% of the land within the District is irrigable, with 90% of the soils classified as having wide crop adaptability with no limitations. A wide variety of crops are grown. Crops with a total acreage of over 1,000 acres within the District are cotton, safflower, wheat, alfalfa, carrots, lettuce, melons, onions, peppers, tomatoes, wine and table grapes, almonds, pistachios, lemons, and oranges. Among other crops grown are asparagus, walnuts, plums and grapefruit.

National Wildlife Refuges

There are several federal refuges located in areas that normally receive CVPIA Level 2 and Level 4 water supplies, and may be able to receive recaptured WY 2012 Interim Flows. These refuges are those located in the San Joaquin Valley and are served by the DMC or the San Luis Unit. The refuges typically contain a mixture of heavily managed waterfowl habitat, vernal pools, grasslands, floodplain, irrigated pasture land, and permanent or seasonal wetlands. The refuges that may be able to take advantage of the opportunity to obtain recaptured water through the mechanisms of deliver, transfer, or exchange include the East Bear Creek Unit, Merced National Wildlife Refuge, San Joaquin National Wildlife Refuge, Pixley National Wildlife Refuge, Kern National Wildlife Refuge, Salt Slough Unit, San Luis Unit, Freitia Unit, West Bear Creek Unit, and the Kesterson Unit.

North Kern Water Storage District

North Kern Water Storage District (NKWSD)'s primary source of surface water is the Kern River. NKWSD's surface water supplies have ranged from less than 10,000 AF in a dry year to nearly 400,000 AF in a wet year, owing generally to its highly variable Kern River supply. NKWSD also has a contract with the City of Bakersfield for 20,000 AF per year of Kern River supplies through 2012. NKWSD conjunctively uses surface water and groundwater to meet the irrigation water demands of its landowners. In particular, the district's highly variable surface water supply is regulated, in part, in the underlying groundwater basin. The surface water which is placed in groundwater storage is subsequently pumped by both the district and its landowners to meet agricultural irrigation water needs.

Sonoma County Water Agency

As the local project sponsor for the construction of the Coyote Valley and Warm Springs dams, the Water Agency retains rights to some of the water stored in these reservoirs and controls the releases from the reservoirs' water supply pools. The Water Agency also has rights for direct diversion and re-diversion of water at the Wohler and Mirabel collectors. The Water Agency is required to maintain minimum stream flows, according to Decision 1610, at various points on the Russian River and Dry Creek in accordance with its water rights permits. The Water Agency manages and maintains a [water supply and transmission system](#) that provides naturally filtered Russian River water to nine cities and special districts that in turn delivers drinking water to

more than 600,000 residents in portions of Sonoma and Marin counties. In 2009, the Water Agency delivered approximately 46,000 AF of water to its wholesale contractors.

Tulare Lake Basin Water Storage District

TLBWSD is a member unit of the Kings River Water Association (KRWAA). As a member of the KRWAA, TLBWSD has a share of Kings River water storage of 6,404 AF and Pine Flat Reservoir storage rights of 33,229 AF.

TLBWSD is a public agency which manages South Fork water deliveries at Empire No. 2 Weir near Stratford in Kings County. Its boundary includes nearly the entire Tulare Lake bed and the service area is 185,800 acres. The district is a State Water Project contractor and is connected to the California Aqueduct. Despite the district's state contract, the Tulare Lake bed relies most heavily on Kings River water for irrigation purposes. TLBWSD is located southwest of the city of Corcoran in Kings County. TLBWSD was formed in 1926 at which time all the lands in the District were fully developed. All deliveries from TLBWSD are for agricultural purposes. Main crops are cotton, seed alfalfa and grain. TLBWSD has a turnout on the California Aqueduct and is able to exchange its supplies of Kings River and Kaweah River water with several Friant contractors.

Friant Division Long-Term Contractors

Below is a list of Friant Division Long-Term Contractors, followed by a narrative explanation of each district's water resources.

- Arvin-Edison Water Storage District
- Chowchilla Water District
- City of Fresno
- City of Lindsay
- City of Orange Cove
- County of Madera
- Delano-Earlimart Irrigation District
- Exeter Irrigation District
- Fresno County Waterworks No. 18
- Fresno Irrigation District
- Garfield Water District
- Gravelly Ford Water District
- International Water District
- Ivanhoe Irrigation District
- Kaweah Delta Water Conservation District
- Kern-Tulare Water District
- Lewis Creek Water District
- Lindmore Irrigation District
- Lindsay-Strathmore Irrigation District
- Lower Tule River Irrigation District
- Madera Irrigation District
- Orange Cove Irrigation District
- Porterville Irrigation District
- Saucelito Irrigation District
- Shafter-Wasco Irrigation District
- Southern San Joaquin Municipal Utility District
- Stone Corral Irrigation District
- Tea Pot Dome Water District
- Terra Bella Irrigation District
- Tulare Irrigation District

Arvin-Edison Water Storage District

AEWSD is located in southern Kern County. AEWSD has a repayment contract with Reclamation for 40,000 AF/y of Class 1 and 311,675 AF/y of Class 2 water supplies. The Class 2 water supply comprises a large fraction of their contract allocation. However, this supply is variable. AEWSD manages this supply by using transfers and exchanges as well as utilizing an underlying groundwater reservoir to regulate water availability and to stabilize water reliability by percolating water through various spreading basins. AEWSD takes Friant CVP water from

their Intake Canal, located at the terminus of the FKC, and serves landowners within its district through 45 miles of lined canals and 170 miles of pipeline.

AEWSD is located in Kern County in the southeasterly portion of the San Joaquin Valley. AEWSD was formed in 1942 and currently comprises 132,000 acres, of which, 109,230 acres are irrigated. Urbanization has changed approximately 2,500 acres of agricultural lands to M&I. AEWSD has a repayment contract with Reclamation for 40,000 AF of Class 1 and 311,675 AF of Class 2 water. The main crops in AEWSD are grapes, carrots, potatoes, oranges, and wheat.

AEWSD takes Friant CVP water from a turnout located at the terminus of the FKC. AEWSD has 45 miles of lined canals and 170 miles of pipeline. AEWSD maintains various spreading basins to percolate water into the aquifer for storage. Gravity and pressure fed ponds are filled from surface water supplies in “wet” years, while groundwater wells are used to extract stored water in “dry” years to meet Surface Water Service Area demands.

In addition, AEWSD engages in exchanges of CVP water with the Cross Valley CVP Contractors. Historically, up to 128,300 AF/y of CV Contractor’s CVP water or other water supplies were delivered to AEWSD. This water is diverted from the Delta through the Aqueduct and to the CVC. In exchange, the Friant CVP water that would have flowed down the FKC to AEWSD is diverted by the CV Contractors in the FKC. Due to the variances in allocations of Friant CVP water, these exchanges may not even out each year. However, modeling indicated over the long-term that amounts of water would roughly balance. Two of the CV Contractors have terminated their exchange arrangements with AEWSD, resulting in approximately up to 70,984 AF/y maximum delivered to the remaining six CV Contractors and approximately up to 66,096 AF/y of water returned to AEWSD. Over the last five years, on average, approximately 30,000 AF/y have been exchanged (of various sources) between AEWSD and CV contractors.

In 1997, AEWSD entered into a 25-year agreement with the Metropolitan Water District of Southern California (MWD), in which AEWSD agreed to bank approximately 250,000 AF of MWD State Water Project Supply for later extraction in drought years. AEWSD has completed construction of an Intertie pipeline connecting the terminus of its canal to the California Aqueduct to enhance the water banking and exchange program.

In 2004, AEWSD joined the Power and Water Resources Pooling Authority (PWRPA). PWRPA is authorized to, among other things, effectively study, promote, develop, conduct, design, finance, acquire, construct, and operate water and energy-related projects and programs. PWRPA member units utilize electric power to convey and treat water and recognize that water delivery and electric power consumption are directly related and that exchange of water and electric power resources is a variable means of managing both electric power consumption and water supplies. PWRPA members include AEWSD, Banta-Carbona Irrigation District, Byron-Bethany Irrigation District, Glenn-Colusa Irrigation District, James Irrigation District, Lower Tule River Irrigation District, Princeton-Codora-Glenn Irrigation District, Provident Irrigation District, The West Side Irrigation District, West Stanislaus Irrigation District, Cawelo Water District, Reclamation District 108, Santa Clara Valley Water District, Sonoma County Water Agency, and Westlands Water District. PWRPA member units possess the right to receive capacity and

energy from the Western Area Power Administration (WAPA), a federal agency engaged in the marketing and distribution of power generated by federally-owned facilities, including the CVP.

Chowchilla Water District

Chowchilla Water District (CWD) encompasses 123.95 square miles of land primarily to the west of California State Highway 99 and straddling California State Highway 152. There are 65,000 irrigated acres in the district, all of which is irrigated with CVP water. The district grows 6 primary crops and receives an average of 125,000 AF/y. The total contract total allocated for the district is 265,000 AF/y under 2 contracts.

As of 1999, there were 13,200 acres of alfalfa, 14,600 acres of almonds, 7,600 acres of cotton, 9,000 acres of corn, 8,100 acres of grapes and 5,000 acres of sorghum grown in the district. The district maintains and operates 160 miles of unlined canals and 46 miles of pipe for agricultural water delivery. The primary way that the district gets its water is through the Madera Canal and the Fresno River.

City of Fresno

The City of Fresno (COF) has prepared a General Plan projected growth in 2025 and identifies the North Growth Area and Southeast Growth Area. The areas would accommodate approximately 10,000 and 55,000 people, respectively. This change in boundaries includes approximately 20 square miles (approximately 12,800 acres).

In 1961, COF entered into a long-term water service contract with Reclamation for 60,000 AF/y of Class 1 Friant water. Fresno serves municipal and industrial water supplies only. Their entire annual allocation is used to recharge the groundwater in and around the city allowing them to withdraw groundwater on demand to serve municipal and industrial needs.

Fresno is a municipal corporation wholly within the boundaries of Fresno Irrigation District (FID) and shares the water distribution system with FID. FID is a CVP Long-term Contractor also. FID and COF entered into a Cooperative Agreement for Water Utilization and Conveyance dated May 25, 1976 (Agreement). This Agreement provides the terms and conditions for FID to convey and deliver water to Fresno.

FID has combined resources with the COF, the City of Clovis, the County of Fresno, and the Fresno Metropolitan Flood Control District in a cooperative effort to develop and implement a comprehensive surface and groundwater management program. The main goal of the program involves using flood control basins for recharge during the summer when the basins are not needed to control urban storm runoff. This program also contains elements designed to protect the quality of groundwater in the area.

City of Lindsay

Lindsay is located on the east side of the San Joaquin Valley in Tulare County near the base of the Sierra foothills and has falling grade from east to west. Lindsay is traversed by State Highway 65 running north and south along the west side of the City. Lindsay is located approximately 12 miles east of Tulare and State Highway 99, approximately 11 miles north of Porterville and 15 miles southeast of Visalia. The agricultural industry is built around citrus

(oranges), and twelve orange packing houses, providing the major component of the economic base.

In 1958, the City of Lindsay entered into a long-term water service contract with Reclamation for 2,500 AF/y of Class 1 Friant water under contract number 5-07-20-W0428. City of Lindsay receives up to 50 AF/y of CVP water under its contract with County of Tulare. Lindsay obtains their CVP water from the FKC at the Honolulu Street turnout. The water treatment plant is at the same location and provides filtration, chemical additions and chlorination.

City of Orange Cove

The City of Orange Cove has a CVP water service contract for 1,400 AF/y that is used for M&I purposes.

County of Madera

The County of Madera maintains 30 water service districts and 15 sewer service districts throughout the County. Only one of these water service districts receives CVP water, that district is the Hidden Lake Estates. Hidden Lake Estates is located on the north side of Millerton Lake off of Hidden Lake Boulevard, a spur of Madera County Road 210. Hidden Lake Estates is approximately 153 acres and is served through pipes.

Delano-Earlimart Irrigation District

Delano-Earlimart Irrigation District (DEID) is located in Tulare and Kern Counties on the eastern side of the San Joaquin Valley, approximately 10 miles from the Sierra foothills. DEID is comprised of 56,474 acres, of which 48,680 are irrigated. DEID primarily serves agricultural water supplies. DEID entered into a long-term contact with Reclamation for 108,800 AF/y of Class 1 and 74,500 AF/y of Class 2 water. The main crops in DEID are grapes, almonds, pistachios, and deciduous and subtropical orchards.

DEID obtains its CVP water from nine turnouts on the FKC and delivers the water to its customers through 172 miles of pipeline. DEID recharges the groundwater during surplus “wet” years through operations utilizing the White River channel and 160 acres of developed groundwater recharge basins. This contiguous 160 acre recharge site has nine separate cells and dual methods for introducing water to each cell from either DEID’s distribution system or from direct diversions out of White River. DEID also extracts previously banked recharge water from this same site utilizing 5 dedicated deep wells that discharge directly into the District’s distribution system. The FKC flows north to south through DEID and Lake Woollomes is located adjacent to DEID. Lake Woollomes is a feature of the FKC and CVP facilities. DEID does not obtain supplies or recreational opportunities from Lake Woollomes.

Exeter Irrigation District

Exeter Irrigation District (EID) is located in Tulare County on the east side of the San Joaquin Valley, nine miles east of the City of Visalia. EID was formed in 1937 and in 1950 entered into a long-term contract with Reclamation for 10,000 AF/y of Class 1 and 19,000 AF/y of Class 2 water. In 1953, the Class 1 water supply was increased to 11,500 by an amendment to the contract. EID is comprised of approximately 15,184 acres and 12,700 are irrigated. The City of Exeter is located within EID.

However, EID serves only agricultural water. EID obtains its CVP water from seven turnouts on the FKC located between MP 74.6 and MP 81.4. EID's distribution system is comprised of approximately 60 miles of pipeline. EID maintains two small balancing or regulating reservoirs with a capacity of less than one AF each. Yokohl Creek is an intermittent stream which traverses through the northern portion of EID in a northwesterly direction for approximately 2 miles. The main crops grown in EID are citrus, grapes, plums and olives.

Fresno County Waterworks No. 18

Fresno County Water Works #18 (FCWW 18) has a repayment contract with Reclamation for up to 150 AF/y of Class 1 water. A pipeline from the discharge works of the Friant Dam is FCWW 18's diversion point and connects the water stored behind Friant Dam to the water treatment plant nearby. FCWW 18 provides this water for M&I use to the community of Friant, Millerton State Park and Reclamation needs at Friant Dam.

Fresno Irrigation District

FID was formed in 1920 under the California Irrigation Districts Act, as the successor to the privately owned Fresno Canal and Land Company. FID purchased all of the rights and property of the company. The assets of the company consisted of over 600 miles of canals and distribution works which were constructed between the years 1850 and 1880, as well as water rights on Kings River.

FID is located entirely within Fresno County and has contracts for approximately 26 percent of the average runoff of the Kings River (its main supply). FID originally entered into a long-term contract with Reclamation in 1964. In 2001, FID entered into a long-term renewal contract with Reclamation for 75,000 AF/y of Friant Division Class 2 water (FID does not have a Friant Division Class 1 CVP contract). FID delivers the water to its customers through 800 miles of canals and pipelines. FID also has a long-term Cooperative Agreement with the City of Fresno for their water utilization and conveyance. Total irrigated area in FID exceeds 150,000 acres, mainly consisting of grapes, citrus, and cotton.

In a normal year, FID diverts approximately 500,000 AF of water and delivers most of that to agricultural users, although an increasing share of FID's water supply is used for groundwater recharge in the urban area. Depending upon hydrological conditions and Kings River flows, FID diverts water and allocates a proportional share of the water to its customers including the City of Fresno and Clovis. In addition to its entitlement from Kings River, FID and the City of Fresno have signed contracts to purchase up to 135,000 AF annually from the Friant Division of the CVP. Historically, excess water applied by the farmers has percolated beyond the root zone and recharged the extensive aquifer underlying FID. Between 85% and 90% of the groundwater supply can be attributed to water imported and distributed by FID.

FID has combined resources with the City of Fresno, the City of Clovis, the County of Fresno, and the Fresno Metropolitan Flood Control District in a cooperative effort to develop and implement a comprehensive surface and groundwater management program. The main goal of the program involves using flood control basins for recharge during the summer when the basins

are not needed to control urban storm runoff. This program also contains elements designed to protect the quality of groundwater in the area.

Garfield Water District

Garfield Water District (GWD) is located in Fresno County on the east side of the San Joaquin Valley near the foothills of the Sierra Mountains. GWD is comprised of 1,750 acres, of which, 1,300 are irrigated acres.

The main crops are grapes, almonds, olives, stone fruit, citrus and pasture. The distribution system consists of approximately 8 miles of pipeline. GWD is a CVP contractor with 3,500 AF/y of Class 1 Friant water. GWD has no other sources of surface water. GWD is near the foothills and groundwater supply is limited.

Gravelly Ford Water District

Gravelly Ford Water District (GFWD) is located southwest of the City of Madera, California. The district is approximately 13 square miles in size. There are 7,603 irrigated acres in the district the district receives an average of just over 6,000 AF/y. This water is used in conjunction with approximately 10,000 acre feet of water to 4 primary crops. Vines cover just over 4,000 acres of land in the district and are the primary crop. Almonds, cotton and alfalfa are also grown in the district, covering roughly 1,100 acres, 1,400 acres and 500 acres respectively. The district operates 15 miles of unlined canals and 5 miles of pipe in order to deliver water to its customers.

International Water District

International Water District has a CVP water service contract supply of 1,200 AF/y. This water is delivered for agricultural purposes to permanent crops, mainly citrus.

Ivanhoe Irrigation District

Ivanhoe Irrigation District (IID) is located in Tulare County on the east side of the San Joaquin Valley approximately 50 miles southeast of Fresno and 8 miles northeast of Visalia. IID is generally located between the St. Johns River on the south and Cottonwood Creek on the north. As early as 1915 the lands began to be developed for agricultural uses. Irrigation was from groundwater pumping, precipitation and surface diversions from runoff on the Kaweah River. IID was formed in 1948 and has acquired private surface water rights through the Wutchumna Water Company. IID owns 7.9 shares of Wutchumna Water stock equaling approximately 3,950 AF of water. In 1949, IID entered into a long-term contract with Reclamation for 7,700 AF/y of Class 1 and 7,900 AF/y of Class 2 water. The non-CVP water supplies are diverted from the Kaweah River through the Wutchumna Ditch to IID's diversion facility and is co-mingled with the CVP supply. IID obtains its CVP water supplies through two turnouts on the FKC. IID's distribution system comprises approximately 48 miles of pipeline and three groundwater recharge areas. The three groundwater recharge areas cover approximately 15 acres and are used when surplus water is available. Approximately three miles of a portion of Cottonwood Creek is also used for recharge purposes.

IID does not own or operate groundwater extraction facilities. Therefore, landowners must provide their own wells to sustain irrigation during periods when IID does not have surface water

supplies available. IID comprises of 11,202 acres, of which 10,648 are irrigated. The main crops in IID are grapes, citrus, deciduous fruits, and olives.

Kaweah Delta Water Conservation District

On March 1, 2010, Kaweah Delta Water Conservation District (KDWCD) received a partial assignment of 7,400 AF/y of Class 2 and 1,200 AF/y of Class 1 CVP water from Ivanhoe Irrigation District, and is now considered a Friant Division CVP contractor. KDWCD is located in the south-central portion of the San Joaquin Valley and lies in both Tulare and Kings Counties with a total area of about 337,000 acres. KDWCD is comprised of four districts that are entirely or partially within KDWCD boundary: Lakeside Irrigation Water District, Kings County Water District, Corcoran Irrigation District, and Tulare Irrigation District (TID). Nearly all of the lands within KDWCD served with Kaweah River water also use groundwater wells to supply irrigation water, primarily due to the erratic, relatively undependable, nature of flow on the Kaweah River. All M&I water uses within the KDWCD are supplied from groundwater. KDWCD can take delivery of CVP water from the FKC, which passes through the eastern portion of the district.

KDWCD lands are primarily agricultural, although the cities of Visalia and Tulare constitute significant areas of urbanization. Farmersville is the other incorporated area. Smaller unincorporated rural communities include Goshen, Ivanhoe, Waukena, and Guernsey. A high degree of agricultural development exists in the KDWCD, with approximately 266,000 acres presently devoted to the production of a variety of irrigated crops, 3,200 acres idle or fallow (including roads and canals), 13,000 acres in farmsteads, 23,300 acres undeveloped and approximately 31,500 acres of urbanized land. The principal crops are cotton, miscellaneous field crops, deciduous fruit and nut trees and alfalfa.

KDWCD encompasses the alluvial fan of the Kaweah River, extending about 40 miles in a southwesterly direction from the foothills of the Sierra Nevada Mountains on the east to the center of the San Joaquin Valley in the vicinity of the Tulare Lake bed on the west. KDWCD is generally bounded on the north and west by the service area of the Kings River and on the south by the service area of the Tule River.

Numerous public and private entities within KDWCD's boundaries divert water from the Kaweah River and its distributaries. Nearly all of the lands served with Kaweah River water also use groundwater wells to supply irrigation water, primarily due to the erratic, relatively undependable, nature of flow on the Kaweah River. All municipal and industrial water uses within KDWCD are supplied from groundwater.

KDWCD and its sub-entities have historically received substantial quantities of water surplus to the needs of CVP Contractors. Over the past 50 years, an excess of 5 million AF of CVP water has been imported into KDWCD. KDWCD and the Kaweah River groundwater basin have experienced long-term groundwater overdraft estimated in 1972 to be 89,000 AF per year.

KDWCD is currently undergoing new studies of groundwater data to determine the extent and volume of groundwater overdraft within its boundaries. There are currently 40 recharge basins within KDWCD covering approximately 5,000 acres. While KDWCD owns and operates many of the groundwater recharge basins, it does not provide water-banking services for others.

Kern-Tulare Water District

Kern-Tulare Water District (KTWD) provides irrigation water to high-value permanent crops in Kern and Tulare counties. The annual irrigation demand is approximately 54,000 AF, of which the water districts currently provide approximately 40,000 AF of imported KTWD water. The remaining 14,000 AF/y is from groundwater pumped by water users. KTWD has a 40,000 AF/y CVP water service contract and an assignment contract from Rag Gulch Water District for 13,300 AF/y. KTWD also has two Kern River contracts which expire in 2012 for a total of 23,000 AF/y.

KTWD has long-term banking approval for CVP water to be deposited in both the Rosedale Rio-Bravo Water Storage District and North Kern Water Storage District groundwater banks. From Rosedale Rio-Bravo, KTWD can withdraw up to 9,000 AF/y of previously banked water and from North Kern 5,000 AF/y of previously banked water may be withdrawn. There are four regulating reservoirs in the district totaling 510 AF of storage. Because KTWD's distribution system is inadequate to fully satisfy irrigation demands, and because system capacities must be prorated during the summer months, water users rely upon privately-owned wells, even in the wettest years. KTWD is scheduled to complete an assignment of a 5,000 acre- foot Class 2 contract from SSJMUD in February 2012.

Lewis Creek Water District

Lewis Creek Water District (LCWD) is located on the east side of the San Joaquin Valley in Tulare County near the base of the Sierra foothills and has falling grade from east to west.

Lindmore Irrigation District

Lindmore Irrigation District (LID) is located in Tulare County at the base of the Sierra foothills. LID's northern boundary extends approximately 2 miles from Lindsay and extends approximately 1 ½ miles south of Strathmore. LID is approximately 9 miles long and 10 miles wide and comprises 27,255 acres, of which 25,700 are irrigated. LID was formed in 1937 and in 1948 entered into a long-term contract with Reclamation for 33,000 AF/y of Class 1 and 22,000 AF/y of Class 2 water. LID obtains their CVP supplies from four turnouts on the FKC between MP 88.4 and 93.2. LID's conveyance system comprises of 123 miles of pipeline and five reservoirs. The main crops grown in LID are oranges, olives, cotton, and alfalfa.

LID lies over the Kaweah Basin. LID operates a conjunctive use program to manage surface and groundwater supplies and uses groundwater at the beginning of the growing season to warm the CVP water while filling LID's pipeline system. This reduces maintenance costs and leaks in the concrete irrigation pipes due to contraction of cold water.

Lindsay-Strathmore Irrigation District

Lindsay-Strathmore Irrigation District (LSID) was formed in 1915 and is located in Tulare County on the east side of the San Joaquin Valley. LSID comprises 15,700 acres, of which 12,700 acres are irrigated to permanent crops. LSID's original imported water supply was from the Kaweah River through LSID's ownership of Wutchumna Water Company stock and 39 deep wells. The supplies from the Wutchumna Water Company range from 5,000 to 14,000 AF/y. LSID enters into Warren Act Contracts with Reclamation to transport this water within LSID using CVP facilities. The groundwater supply is limited to 18,000 AF/y. In 1948, LSID entered

into a long-term contract with Reclamation for 3,900 AF/y of Class 1 water. In 1985, the contract amount was amended to 27,500 AF/y. The main crops in LSID are oranges and olives. LSID serves only agricultural water. LSID obtains their CVP water supplies from its turnout at MP 85.56 of the FKC. LSID's distribution system is approximately 115 miles of pipeline and three balancing reservoirs.

No usable groundwater basin underlies LSID. LSID lies too far east against the foothills to be influenced by either the Kaweah or Tule Rivers. LSID does not operate recharge areas or a conjunctive use program. LSID contractually uses the conjunctive use capacity of the Tulare Irrigation District, a common stockholder in the Wutchumna Water Company, by delivering LSID's Kaweah River water through the Wutchumna Ditch to the Tulare Irrigation District turnout. Tulare Irrigation District either uses this water for irrigation (in lieu recharge) or direct sinking in their groundwater recharge basins. During "dry" years, Tulare Irrigation District's farmers utilize the groundwater delivered by LSID. Tulare Irrigation District returns surface water to LSID through either the FKC or through the Kaweah River system.

Lower Tule River Irrigation District

See the description above in the South-of-Delta contractor section (3.1.1.1).

Madera Irrigation District

Madera Irrigation District (MID) receives 85,000 AF/y of Class 1 and 186,000 AF/y of Class 2 water from the Friant Division of the CVP. In 1975 Hidden Dam was completed on the Fresno River, providing a more regulated flow. MID entered into a long-term contract with Reclamation for water from Hensley Lake behind Hidden Dam. MID annexed lands for 24,000 AF/y projected average yield for new water generated by the Hidden Dam project. This 24,000 AF/y is both federal water and MID's water rights water from the Fresno River, including Big Creek Diversion from the Merced River watershed and the Soquel Diversion from the San Joaquin River watershed. MID has pre-1914 water rights of 20,000 AF/y from Soquel-Big Creek. Water supplied under the Hidden Dam contract with Reclamation is for the conservation yield. The Big Creek and Soquel diversions provide an annual average supply of 10,000 and 9,700 AF respectively. The Fresno River adjudicated and appropriate average annual supply is approximately 20,000 AF and is inclusive of the Big Creek and Soquel diversions.

MID and surrounding area is within a groundwater deficient area as designated by the State DWR. MID considers their recharge to be from percolation ponds located throughout the district. MID monitors the depth to static water level within the district although MID does not provide groundwater. Private landowners have wells and extract groundwater when surface water supplies are not available. The groundwater quality is considered to be of excellent quality as it does not exceed any of the maximum contaminant levels for secondary drinking water standards. However, in recent years the groundwater in areas near Hwy 99 and Avenue 12 has a plume of the nematicide (dibromochloropropane (DBCP)) that flows southwesterly through the basin. Studies conducted in 1993 indicated the DBCP in the groundwater had decreased significantly. The groundwater in areas surrounding the Tri-Valley Growers olive plant (Oberti Olives) near Avenue 13 and Road 26 contains salt brine. Tri-Valley Growers are implementing remediation measures to correct this problem under the regulatory direction of the Regional Water Quality Control Board.

A portion of the city of Madera lies within the boundaries of MID. These lands are assessed on a per square-foot basis and receive groundwater recharge benefit from canals that pass through the city. MID does not provide surface water supplies to the city of Madera. The main crops in Madera Irrigation District's service area are grapes, almonds, cotton, cereals, and grasses.

Orange Cove Irrigation District

Orange Cove Irrigation District (OCID) is located in Fresno and Tulare Counties and was formed in 1937. OCID is about 30 miles southeast of Fresno and 20 miles north of Visalia. OCID is 14 miles long and 3 miles wide and has 28,000 acres, of which approximately 26,788 are irrigated. In 1949, OCID entered into a long-term contract with Reclamation for 31,800 AF and in 1989, the contract amount was amended to 39,200 AF/y of Class 1 water. OCID obtains their CVP water supplies from fifteen diversion points on the FKC between MP 35.87 to 53.32. OCID's distribution system is 105 miles of pipeline and one regulating reservoir with a capacity of 8 AF.

A groundwater basin is almost non-existent under OCID. The area immediately east of Smith Mountain and the area in the vicinity of Navelencia contain basin water. The majority of wells are located in this area. The safe yield does not exceed 28,000 AF/y. OCID does not operate any groundwater wells or recharge facilities due to the existing groundwater conditions. OCID provides approximately 1.4 AF per acre. Therefore, the balance of water needs for crops are made up from precipitation and groundwater pumping. The landowners in OCID manage the groundwater supplies through conjunctive use practices. OCID transfers unused water supplies out to other districts for storage and banking. The main crops in OCID are citrus, grapes, deciduous and subtropical orchards, olives, and nuts.

Porterville Irrigation District

Porterville Irrigation District is located in Tulare County and is comprised of 17,400 acres, of which 13,061 are irrigated. Porterville Irrigation District was formed in 1949. Porterville Irrigation District entered into a long-term contract with Reclamation for 16,000 AF/y of Class 1 and 30,000 AF/y of Class 2 water and has an average annual entitlement of 12,900 AF/y of water supply from the Tule River.

The FKC enters Porterville Irrigation District at the northeast corner and exists in the south central portion. The Tule River passes through Porterville Irrigation District in a northwesterly direction. Porterville Irrigation District owns the facilities of two improvement districts. Improvement District No. 1 consists of approximately four miles of pipeline and serves 854 acres. Improvement District No. 2 consists of 3.3 miles of open ditch and serves 1,266 acres. Porterville Irrigation District obtains their CVP supplies from six diversion points on the FKC. In addition to its owned facilities, Porterville Irrigation District has entered into agreements with LTRID and other entities to utilize non-District owned facilities to convey Porterville Irrigation District's Water. Through an agreement between Porterville Irrigation District and LTRID, CVP water deliveries are conveyed through facilities owned or operated by LTRID within Porterville Irrigation District. These facilities consist of 13 miles of unlined canals. Porterville Irrigation District also conveys both CVP supplies and Tule River water through facilities owned by the Porter Slough Ditch Company, the Hubbs-Miner Ditch Company, the Rhodes-Fine Ditch Company and the Gilliam-McGee Ditch Company. These facilities consist of

approximately 13 miles of unlined ditch within Porterville Irrigation District. The facilities belonging to these companies are operated by Porterville Irrigation District under long-term agreements with the entities. Porterville Irrigation District operates two percolation basins. Porterville Irrigation District owns no storage facilities. It does, however, own a portion of the water conservation storage space within Success Reservoir. This storage space is used to store water rights water owned by ditch companies with which Porterville Irrigation District has operating agreements. Porterville Irrigation District serves agricultural water only. The main crops in Porterville Irrigation District are walnuts, cotton, grapes, alfalfa, prunes, corn and citrus.

Saucelito Irrigation District

Saucelito Irrigation District (SID) was formed in 1941 and is located in Tulare County, approximately ten miles southwest of Porterville, two miles south of Poplar, eight miles east of Tipton and five miles west of Terra Bella. Deer Creek crosses SID, for about 5 miles, near its southerly boundary and runs during wet years. SID takes no diversions off Deer Creek. The FKC is located on the eastern boundary of SID.

SID entered into a long-term contract with Reclamation in 1959 for the construction of facilities. Water deliveries began in 1961 for 21,200 AF/y Class 1 and 32,800 AF/y of Class 2 water. Currently, SID comprises of 19,453 acres, of which 19,057 are irrigated. SID has five individual water users that are Riparian Water rights holders totaling 9.5 shares at 55 AF per share from Mole Ditch. SID engages in exchanges with the Cross Valley Contractors. SID obtains its CVP water supplies from 4 diversion points on the FKC between MP 11.64 and 107.35 and Deer Creek diversion at MP 102.69. SID's distribution system is 55 miles of pipeline with one recharge pond that covers approximately ½ acre. Deer Creek also provides groundwater recharge in wet years. The main crops in SID are milo, wheat, cotton, grapes and almonds.

Shafter-Wasco Irrigation District

Shafter-Wasco Irrigation District (SWID) was formed in 1937 and is located in Kern County about 20 miles northwest of Bakersfield. Currently, SWID is comprised of 38,766 acres, of which 32,000 are irrigated. Included within its boundaries are the cities of Shafter and Wasco covering approximately 2,400 acres. SWID entered into a long-term contract with Reclamation in 1955 for 50,000 AF/y of Class 1 and 39,600 AF/y of Class 2 water. SWID does not have any other long-term surface water supplies.

SWID obtains its CVP water supplies from two turnouts on the FKC at MP 134.4 and 137.2. The distribution system is 0.75 miles of lined canals and 117 miles of pipeline. SWID does not own or operate any water storage facilities or groundwater extraction facilities. Landowners must provide wells to meet irrigation demands when SWID does not have adequate surface water supplies available. The main crops in SWID are almonds, cotton, alfalfa, nursery stock, grains, grapes, beans and carrots.

Southern San Joaquin Municipal Utility District

Southern San Joaquin Municipal Utility District (SSJMUD) was formed in 1935 and is located in Kern County, approximately 75 miles southeast of Fresno and 30 miles northwest of Bakersfield. Currently, SSJMUD is comprised of approximately 61,000 acres, of which 47,000 are irrigated.

SSJMUD entered into a long-term contract with Reclamation in 1945 for 97,000 AF/y of Class 1 and 50,000 AF/y of Class 2 water and does not have other long-term surface water supplies.

SSJMUD obtains its CVP water supplies from nine diversion points on the FKC between MP 119.6 and 130.4. The distribution system is 158 miles of pipeline. SSJMUD operates eleven regulating reservoirs that provide groundwater recharge. Poso Creek and other smaller foothill drainages provide recharge to the groundwater. SSJMUD does not own and operate groundwater production facilities. Landowners must provide well to irrigate during times when SSJMUD does not have surface water supplies available to meet irrigation demands. The main crops in SSJMUD are alfalfa, citrus, grapes, cotton, nuts and barley. SSJMUD does not typically transfer water in or out.

Stone Corral Irrigation District

Stone Corral Irrigation District was formed in 1948. SCID is located in Tulare County, approximately 30 miles southeast of Fresno and 10 miles north-northeast of Visalia. SCID is comprised of 6,488 acres, of which 5,470 acres are irrigated. SCID entered into a long-term contract with Reclamation for 7,700 AF/y of Class 1 water in 1950. In 1959, the contract was amended to 10,000 AF/y of Class 1 water. SCID receives a small amount of water through exchange arrangements with CVC Contractors. This amount is 950 AF/y of CVP water. The safe yield for the groundwater supply in SCID is approximately 3,200 AF.

The FKC runs approximately along the north and east boundaries. SCID obtains the CVP water from the FKC at MP 57.90, 59.33, 60.90 and 62.68. The conveyance system is 27 miles of pipeline. SCID serves only agricultural water. The main crops are citrus, and deciduous and subtropical fruit.

Tea Pot Dome Water District

Tea Pot Dome Water District (TPDWD) was formed in 1954 and is located in southeastern Tulare County, approximately three miles south of Porterville. TPWD is comprised of 3,282 acres, and all are irrigated. TPDWD relies mostly on their CVP contract water supplies.

In 1958, TPDWD entered into a long-term contract with Reclamation for 7,500 AF/y of Class 1 water. TPDWD does not have any other long-term surface water supplies. TPDWD does not own or operate groundwater recharge or extraction facilities. Landowners pump small amounts of groundwater. TPDWD receives its CVP water supplies from its turnout on the FKC. The distribution system is 20 miles of pipeline. The main crops are citrus and olives.

Terra Bella Irrigation District

Terra Bella Irrigation District (TBID) was formed in 1915 and is located in Tulare County about 75 miles southeast of Fresno and about eight miles south of Porterville. Deer Creek flows westerly and passes through the northern portion. Fountain Spring Gulch flows in a northwest direction, traversing a portion of TBID. TBID is comprised of 13,962 acres, of which, 11,165 are irrigated. The town of Terra Bella is located within TBID's boundaries with an estimated population of 3,870. TBID provides CVP and groundwater CVP for domestic purposes and to the town of Terra Bella.

TBID entered into a long-term contract with Reclamation in 1950 for 29,000 AF/y of Class 1 water. TBID receives its CVP water supplies from the FKC at MP 103.64, MP 102.69 and Deer Creek to a percolation pond. The distribution system is 152 miles of pipeline. TBID does not have any other long-term surface water supplies.

TBID's deep well system is barely adequate to support small winter demands. Historically, there were a total of 83 wells drilled over the years in TBID. Currently, TBID owns and operates 10 wells. Recently, TBID has lost the use of three wells due to chemical contamination. TBID is losing its groundwater supply. There are no significant grower or landowner wells. TBID uses three regulating reservoirs during the irrigation season and are also used for storage in the winter. Station 1 has a capacity of 0.185 million gallons, Station 2 has 0.212 million gallons and Station 3 has a 1.880 million gallon capacity.

TBID has developed groundwater banking arrangements with other districts. Groundwater banking arrangements have enabled TBID, a groundwater deficient district, to produce crops during drought years. In years when surplus amounts of water are available, TBID transfers water to other districts for direct use, resale, or percolation through recharge basins. TBID and LTRID have a long history of water exchanges. TBID transfers water to LTRID and, in turn, transfers water to TBID in dry years. TBID provides agricultural water, in addition to, municipal and industrial water for domestic use.

The main crops are nuts, deciduous fruit orchards, and citrus.

Tulare Irrigation District

TID is located in western Tulare County on the east side of the San Joaquin Valley. TID provides agricultural water supplies and does not service the City of Tulare. TID entered into a long-term renewal contract with Reclamation in 1950 for 30,000 AF/y of Class 1 and 141,000 AF/y of Class 2 water supplies. The District has pre-1914 water rights on the Kaweah River system for approximately 70,000 AF/y of water. The District-owned Kaweah River water rights are Crocker Cut, Deep Creek and Packwood Creek on the Lower Kaweah Branch, and Tulare ID and Packwood Canal Co. on the St. Johns Branch. Water is also made available through share holdings in the following Kaweah ditch companies: 1) Tulare Irrigation Co. on both the Lower Kaweah Branch and the St. Johns Branch, 2) Evans Ditch Co. on the Lower Kaweah Branch and the St. Johns Branch, 3) Wutchumna Water Co. on the Kaweah River, 4) Persian Ditch Co. on the Lower Kaweah Branch, and 5) Consolidated Peoples Ditch Co. on the Lower Kaweah Branch.

TID obtains its CVP water supplies from three turnouts along the FKC diverting water to the St. Johns Branch and Kaweah Branch of the Kaweah River and to the District's Main Intake Canal, all generally located approximately 15 miles northeast of the District's service area. The Main Intake Canal, as well as other distributaries from the St. Johns and Lower Kaweah branches, convey water to the District's service area along its easterly and northerly boundaries.

3.1.1.2 North-of-Delta Contractors

AEWSD commented on the WY 2011 EA requesting that "all members [of the Power and Water Resources Pooling Authority] be incorporated as potential agencies of receiving Recirculation

Water.” AEWSD stated that Princeton-Cordora-Glenn Irrigation District, Provident Irrigation District, Reclamation District 108, Sonoma County Water Agency and Cawelo Water District should be included. Reclamation has agreed to make all of the recommended changes except for the inclusion of the Sonoma County Water Agency since it is not within the Central Valley Project Consolidated Place of Use. (Cawelo Water District is described in 3.1.1.2 as a South-of-Delta contractor.) Below is a list of North-of-Delta contractors that may be affected by the proposed action:

Princeton-Codora-Glenn Irrigation District

Princeton-Cordora-Glenn Irrigation District (PCGID) encompasses 12,000 acres and is located east of Willows. PCGID is adjacent to the Sacramento River. The District has a contract with Reclamation to divert water for irrigation from April through October. In addition, the districts have riparian and appropriative rights to divert water during the non-irrigation season for agricultural operations and wetlands management. The Sacramento River water rights held by PCGID are senior to those of the CVP.

Provident Irrigation District

Provident Irrigation District (PID) encompasses 16,000 acres and is located west of Willows. PID is located just to the west of PCGID, with the Colusa Drain being the boundary between the two districts. The District has a contract with Reclamation to divert water for irrigation from April through October. In addition, the district has riparian and appropriative rights to divert water during non-irrigation season for agricultural operations and wetlands management. The Sacramento River water rights held by PID are senior to those of the CVP.

Reclamation District 108

Reclamation District 108 (RD 108) has a Settlement Contract with Reclamation to divert water from the Sacramento River. RD 108 operates seven pumping plants that divert water from the Sacramento River for irrigation, and one that diverts water from the Colusa Basin Drain as a supplemental irrigation supply. RD 108’s permit allows 75 cubic feet per second to be pumped from the Colusa Basin Drain.

3.1.1.3 Groundwater Resources

San Joaquin River Hydrologic Region The San Joaquin River Hydrologic Region covers approximately 9.7 million acres and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties. The region is heavily reliant on groundwater. Changes in groundwater levels are evaluated on annual water level measurements by the DWR and cooperators. Water level changes were evaluated at the quarter-township level using a DWR computer modeling program. On average, the sub basin water level has increased by 2.2 feet total from 1970 through 2000. The period from 1970 through 1985 showed a general increase, topping out in 1985 at 7.5 feet above the 1970 water level. The nine-year period from 1985 to 1994 saw general declines in groundwater levels, reaching back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level, then water levels fluctuated around this value until 2000 (DWR 2003).

Tulare Lake Hydrologic Region The Tulare Lake Hydrologic Region covers approximately 10.9 million acres and includes all of Kings and Tulare counties and most of Fresno and Kern counties. The extensive use of groundwater has historically caused subsidence of the land surface along the west and south end of the San Joaquin Valley. Groundwater levels were generally at their lowest levels in the late 1960s, prior to importation of surface water. Groundwater levels gradually increased to a maximum in about 1987-1988. Water levels began to drop again during the 1987-92 drought. Through a series of wet years after the drought, water levels recovered to nearly 1987-88 levels by 1998 (DWR 2003).

Central Coast Hydrologic Region The Central Coast Hydrologic Region covers approximately 7.22 million acres and includes all of Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties, most of San Benito County, and parts of San Mateo, Santa Clara, and Ventura counties. Groundwater in this region is an extremely important water supply. In 1995, groundwater accounted for 83 percent of the annual supply used for agricultural and urban purposes. Conjunctive use of surface water and groundwater is a long-standing practice. Several reservoirs within the region are operated primarily for the purpose of groundwater recharge. Much of the groundwater in the region is characterized by calcium sulfate to calcium sodium bicarbonate sulfate water types because of marine sedimentary rock in the watersheds. Some aquifers in the region are experiencing saltwater intrusion, which was first documented in the 1930s (DWR 2003).

South Coast Hydrologic Region The South Coast Hydrologic Region covers approximately 6.78 million acres of the southern California watershed that drains to the Pacific Ocean. The region underlies all of Orange County, most of San Diego and Los Angeles counties, parts of Riverside, San Bernardino, and Ventura counties, and an amount of Kern and Santa Barbara counties. The majority of MWD is located within the South Coast Hydrologic Region. Groundwater provides about 23 percent of water demand in normal years and about 29 percent in drought years. Conjunctive use of surface water and groundwater is a long-standing practice in the region. Groundwater quality varies, but is generally of calcium sulfate, calcium bicarbonate with local impairments of excess nitrate, sulfate, and volatile organic compounds (DWR 2003).

3.1.1.4 Conveyance Facilities

Contractors analyzed in this EA have the potential of utilizing the following conveyance facilities for the delivery, transfer, or exchange of water. A figure of water conveyance facilities in California can be seen in Figure 2.

California Aqueduct/San Luis Canal and San Luis Reservoir/O'Neill Forebay

Except for the California Aqueduct, these joint-use facilities are a part of the SWP and CVP, respectively. The San Luis Canal is the Federally-built and operated section of the California Aqueduct and extends 102.5 miles from O'Neill Forebay in a southeasterly direction to a point west of Kettleman City. At this point, the facility becomes the State's California Aqueduct; however, the California Aqueduct actually begins at the Banks Pumping Plant where the canal conveys water pumped from the Sacramento-San Joaquin River Delta directly into O'Neill Forebay. The overall average capacity of the California Aqueduct is 13,100 cubic feet per second.

SLR serves as the major storage reservoir and O'Neill Forebay acts as an equalizing reservoir for the upper stage dual-purpose pumping-generating plant. O'Neill Forebay is used as the hydraulic junction point for Federal and State waters. Pumps located at the base of O'Neill Dam take water from the DMC through an intake channel (a Federal feature) and discharge it into O'Neill Forebay. The pumping-generating units lift the water from O'Neill Forebay and discharge it into SLR. When not pumping, these units generate electric power by reversing flow through the turbines. During irrigation months, water from the California Aqueduct flows through O'Neill Forebay into the San Luis Canal instead of being pumped into SLR. Both reservoirs also provide recreation and flood control benefits.

Cross Valley Canal

The Cross Valley Canal (CVC), a locally-financed facility completed in 1975, extends from the California Aqueduct near Tupman to Bakersfield. Starting in 2007 and ending recently, the CVC was expanded. This expansion consisted of increasing the canal capacity and installing five new 500 cubic-feet per second (cfs) pumping plants, raising the canal liner in certain stretches, and constructing siphons and turnouts over 15 miles of its length. Kern County Water Agency (KCWA) also constructed a turn-out on the south side of the control structure to the AEWS Intake Canal, a gravity bypass pipeline that connects to the newly-lined canal with an approximate capacity of 500 cfs, and a stub connection from the control structure that connects to a 500 cfs bi-directional pipeline intertie with the FKC. A 500 cfs turnout/turn-in structure and pipeline was also constructed, which connects the California Aqueduct to the CVC. The overall design capacity was expanded to 1,422 cfs.

Delta-Mendota Canal

The DMC, completed in 1951, carries water southeasterly from the Tracy (C.W. "Bill" Jones) Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera Canals. The DMC is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno. The initial diversion design capacity is 4,600 cfs, which is gradually decreased to 3,211 cfs at the terminus. The DMC is a part of the CVP, Delta Division.

Friant-Kern Canal

The FKC carries water over 151.8 miles in a southerly direction from Friant Dam to its terminus at the Kern River, four miles west of Bakersfield. The FKC has an initial design capacity of 5,000 cfs that gradually decreases to 2,000 cfs at its terminus in the Kern River (Reclamation, 2010). The water conveyed in the FKC is from the San Joaquin River and originates from snow melt from the Sierra Nevada. Water from Millerton Lake delivered to the Friant Contractors via the FKC is representative of water quality conditions at Millerton Lake and in the upper San Joaquin River watershed. Water upstream from Friant Dam is generally soft, with low concentrations of minerals and nutrients because of the insolubility of the watershed's granitic soils and the river's granite substrate. The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern Counties. The FKC is a part of the CVP, which annually delivers about seven million AF of water for agricultural, urban, and wildlife use.

Madera Canal

The Madera Canal originates at Millerton Lake and runs approximately 36 miles north along the eastern edge of the San Joaquin Valley, ending at the Chowchilla River. The canal makes CVP water deliveries to the north to augment irrigation capacity. The canal has a design capacity of 1,000 cfs, and decreases in capacity along its length to 625 cfs at the terminus. Water conveyed in the Madera Canal is considered of good quality as its origin is that of snow melt from the Sierra Nevada range. The canal is maintained by the Madera-Chowchilla Water and Power Authority.

3.1.2 Environmental Consequences

3.1.2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not pursue recirculating recaptured San Joaquin River Restoration to the Friant Division long-term contractors or willing districts for transfers or exchanges to be put to beneficial use. This would not adhere to the Water Management Goal and the terms of the Settlement and Act. Therefore, Friant Division long-term contractors or designated transfer or exchange contractors would not receive water “for the purpose of reducing or avoiding impacts to water deliveries to all of the Friant Division long-term contractors caused by the Interim and Restoration Flows”. Water in SLR that would not be recirculated to Friant would potentially result in evaporative loss to some degree and may spill if not delivered out of the reservoir before demands for storage with high priorities occur. It is also reasonable to assume an increase in groundwater pumping in the districts as a result of the potential loss of recirculation water.

3.1.2.2 Proposed Action

Overall water supply changes for the Friant Division long-term contractors as a result of the implementation of the SJRRP Interim and Restoration Flow actions, and including recapture of Interim and Restoration Flows, is discussed in the SJRRP PEIS/R. Therefore, discussion of water supply impacts associated with the implementation of Interim and Restoration Flow releases from Friant or the recapture of flows will not be discussed in this document. This document intends only to focus on recirculation of flows. Recirculation, in this document, means moving recaptured SJRRP water from storage facilities back to the Friant Division long-term contractors or facilitating the transfers or exchanges necessary to meet the terms of the Settlement.

Under the Proposed Action, recirculation of water would occur through the execution of deliveries, transfers or exchanges utilizing existing facilities for conveyance. The exchange would not increase or decrease existing CVP or SWP allocations. Water moved through this process would not require additional diversions and would not impact the overall existing operation of the water districts or their facilities.

The California State Water Resources Control Board (SWRCB), Division of Water Rights issued a Temporary Urgent Change and Instream Flow Dedication Pursuant to Water Code Sections 1435 and 1707 on October 1, 2012. .. Condition #3 of the Order states in part: “*Any San Joaquin River Settlement Interim Flows that are recaptured and stored or routed through San Luis Reservoir shall be used consistent with the Settlement and Settlement Act. The water need not be delivered back to the Friant Division Contractors, but may be made available to others through transfers, exchanges and sales. Reclamation shall document that it has taken all practicable measures to provide contract water to the Friant Division Contractors, while complying with all other conditions of this water right.*”

Therefore, this Order allows for transfers and exchanges of Friant water that need not be directly delivered to the Friant contractors provided this water is put to beneficial use in other districts. The Proposed Action would comply with this approval from the SWRCB.

The Order specifies necessary terms and conditions to be carried out for WY 2013 until the end of March 2013. It is anticipated that Reclamation will obtain either a long-term water rights order with similar terms and conditions for the release, recapture, and recirculation of Interim

and Restoration flows, or that another temporary change with a similar condition will be issued on or before March 29, 2013, which is the expiration of the temporary urgency order.

The Proposed Action would provide recirculated water for the Friant Division long-term contractors from SLR and provide a mechanism for transfers and exchanges between Friant contractors and to SOD contractors and MWD. The recirculation of recaptured Interim and Restoration flows will not increase deliveries to any water district. All water delivered, transferred, or exchanged shall remain within existing contract totals for those districts, each of which had previous contract amounts. Further, the Proposed Action is this EA does not exceed those existing contract amounts. Further, the Proposed Action is strictly limited to Interim and Restoration flows that are recaptured and stored for WY 2013-2017. Therefore, this action is temporary and short-term in nature and not intended to extend beyond WY 2017.

3.2 Land Use

3.2.1 Affected Environment

A general explanation of land uses in the water districts involved in the deliveries, transfers, and exchanges are generally contained within Section 3.1.1 of this EA. The majority of water districts are primarily agricultural, with some M&I uses. Cities within the districts are generally anticipated to expand over the long-term based on land use plans within these areas. However, urban expansion has slowed significantly due to the current economic downturn, although population levels within California are anticipated to continue to rise. Due to the projection of increased populations, it can still be reasonably assumed that development will continue (CCSCE, 2009).

3.2.2 Environmental Consequences

3.2.2.1 No Action

Under the No Action Alternative, the water in SLR would not be put to beneficial use via delivery to the Friant contractors or through transfers or exchanges. This has the potential to result in land fallowing as a result of the loss of up to 260,000 AF of water which would have been used to irrigate agricultural lands. This land fallowing could result in potentially adverse impacts on agricultural land use.

3.2.2.2 Proposed Action

Under the Proposed Action, there would not be any land conversions and no land fallowing or habitat restoration would be deferred as a result of the delivery, transfer, or exchange of recaptured WY 2013-2017 Interim and Restoration flows. No lands would be annexed into any existing service areas to specifically use the exchanged water. Based on existing land use patterns in the area, the majority of land use is agricultural and irrigation water is provided mainly for agricultural purposes. This is not expected to change as a result of the transfer or exchange of water under the proposal. Because the Proposed Action is for Reclamation to enter into temporary delivery, transfer, and exchange agreements to recirculate the recaptured water to be placed into beneficial use, this would not provide a long-term or reliable supply to support long-term land use changes.

The Proposed Action represents the optimization of the use of water available from SJRRP recapture that is available in SLR. The Proposed Action will not have an impact on land use.

3.3 Biological Resources

3.3.1 Affected Environment

By the mid-1940s, most of the valley's native habitat had been altered by man, and as a result, was severely degraded or destroyed. It has been estimated that more than 85 percent of the valley's wetlands had been lost by 1939 (Dahl and Johnson 1991). When the CVP began operations, over 30 percent of all natural habitats in the Central Valley and surrounding foothills had been converted to urban and agricultural land use (Reclamation 1999). Prior to widespread agriculture, land within the Proposed Action area provided habitat for a variety of plants and animals. With the advent of irrigated agriculture and urban development over the last 100 years, many species have become threatened and endangered because of habitat loss. Of the approximately 5.6 million acres of valley grasslands and San Joaquin saltbush scrub, the primary natural habitats across the valley, less than 10 percent remains today. Much of the remaining habitat consists of isolated fragments supporting small, highly vulnerable populations (Reclamation 1999). The Proposed Action area is dominated by agricultural habitat that includes field crops, orchards, and pasture. The vegetation is primarily crops and frequently includes weedy non-native annual and biennial plants.

Reclamation requested an official species list from the United States Fish and Wildlife Service (USFWS) through the Sacramento Field Office's and Ventura Field Office's website on February 13, 2013. The list is for Colusa, Glenn, Sacramento, Fresno, Tulare, Kings, Madera, Merced, Santa Clara, San Joaquin, Stanislaus, Tuolumne, and Kern Counties in the United States Geological Survey 7 ½ Minute Quadrangles (Appendix A), Document Number 130213040301. Additionally, species reports for species potentially present within San Benito, Los Angeles, Orange, San Bernardino, Riverside, Ventura, and San Diego counties are also in Appendix A.

Because all deliveries, transfers, and exchanges are occurring between the SLR, Millerton Lake, and all points south or inland through existing conveyance or supply facilities covered under existing biological opinions (BO), it can be assumed that anadromous and Delta species, such as steelhead and any species listed by National Marine Fisheries Service (NMFS) and their designated critical habitat, are outside of the Proposed Action area and are therefore not discussed further.

Existing Biological Opinions

Reclamation and certain CVP Contractors are subject to commitments from two biological opinions that govern transfers, among other things. These are the "Biological Opinion on Implementation of the CVPIA and Continued Operation and Maintenance of the CVP" issued in 2000, and the "Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contracts" issued in 2001. The commitments are listed below. The second opinion governs exchanges and transfers involving Friant and/or Cross Valley Contractors.

CVPIA Biological Opinion

Transfers will be consistent with section §3405(a)(1) of the CVPIA in that, among other considerations: (1) no transfer will be authorized unless the transfer is consistent with State law, including but not limited to provisions of the California Environmental Quality Act (§3406(a)(1)(D)); (2) no transfer will be authorized if it has a significant adverse impact on the ability to deliver CVP contract water or fish and wildlife obligations under the CVPIA because of limitations in conveyance or pumping capacity (§3406(a)(1)(H)); and (3) no transfer will be authorized if it results in a significant reduction in quantity or quality of water currently used for fish and wildlife purposes, unless it is determined that such adverse effects would be more than offset by the benefits of the proposed transfer. In the event of such a determination, mitigation activities will be developed and implemented as integral and concurrent elements of any such transfer, so as to provide fish and wildlife benefits substantially equivalent to those lost as a consequence of such transfer (§3406(a)(1)(L)).

2001 Friant/Cross Valley Biological Opinion

1. Transfers and exchanges will be executed for one year only for any district that does not have an established listed-species baseline as described in the draft BO on operations and maintenance of the CVP and implementation of the CVPIA;
2. Transferred or exchanged water will be delivered and applied only to areas that were in cultivation from October 15, 1991 (the date of the Friant BO), until one of the following occur and there is no net loss of potential listed-species habitat as a direct or indirect result of the transfer:
 - consultation on the effect of putting the area into cultivation has been completed, or,
 - there is an HCP in place that addresses impacts to the area receiving the water, or,
 - the CVP Conservation Program has a line-item, specific increase in funding to compensate fully for the transfer and is in place prior to the transfer.
3. All other non-historic CVP transfers and exchanges that do not meet the above criteria would require separate section 7 or section 10 authorization. [carried over from 2000 Interim Opinion Term and Condition IV(F)].

3.3.2 Environmental Consequences

3.3.2.1 No Action

Under the No Action Alternative, water that would not be recirculated to the Friant contractors or moved through transfers and exchanges would potentially result in evaporative loss to some degree and may be forced to spill if not delivered out of the reservoir. As this spill would occur by utilizing existing conveyance facilities, this would have no known effect to species or critical habitat in area. It is also reasonable to assume an increase in groundwater pumping in the districts as a result of the potential loss of recirculation could occur. In some areas, groundwater quality is degraded, and irrigation with this water could result in detrimental impacts to species related to selenium concentrations.

3.3.2.2 Proposed Action

The Proposed Action plans to utilize existing facilities to deliver, transfer, and exchange recirculation water that will be stored in SLR or Millerton Lake. As a result, there will be no disturbance of ecologically sensitive lands due to construction activities. As this is a short-term transfer and exchange agreement to recirculate the recaptured water released from the SJRRP, no land use changes will occur due to increased or decreases in cultivation activities or fallowing of fields. All water will be delivered to existing agricultural lands or existing urbanized areas. As no land use changes or additional disturbance would occur as a result of the Proposed Action, no habitat changes would occur that could potentially affect species covered under the Migratory Bird Treaty Act (MBTA).

Because there will be no disturbance or land use changes associated with this Proposed Action, there will be no effect to listed species, critical habitats, or species listed under MBTA.

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 Federal agencies to take into consideration the effects of their undertakings on cultural resources included in, or eligible for inclusion in the National Register of Historic Places (NRHP). Cultural resources that are included in or are eligible for, inclusion in the NRHP, are referred to as historic properties.

3.4.1 Affected Environment

The San Joaquin Valley is rich in both prehistoric and historical cultural resources. Prehistoric resources include a variety of cultural remnants, resulting from the use of the area by indigenous human populations for thousands of years before European settlement in the West. Prior to the 18th Century, numerous Native American groups inhabited California’s Central Valley, with the San Joaquin Valley and surrounding foothills supporting extensive populations.

Ethnographically, Northern Valley Yokuts, Southern Valley Yokuts, and Foothill Yokuts were the principal inhabitants of these areas. Land conversion and intensive farming practices over the past century have impacted many Native American cultural sites; however, it is possible that additional Native American cultural resources lie undiscovered throughout the region.

Historic-era cultural resources within the San Joaquin Valley include various built environment features related to agriculture, ranching, and transportation. Many water storage and conveyance features, such as those comprising the CVP and SWP, have historical significance and can be considered cultural resources. Several components of the CVP have been determined to be historic properties eligible for inclusion in the NRHP. A multiple properties submission for the CVP, in which the eligible property types and CVP contributing elements are identified, is under review for submission to the Keeper of the NRHP.

3.4.2 Environmental Consequences

3.4.2.1 No Action

Under the No Action Alternative, Reclamation would not enter into new delivery, transfer, or exchange agreements to recirculate recaptured water to Friant contractors. There would be no Federal undertaking as defined in Section 301(7) of the NHPA, and Reclamation would be under no obligation to complete the Section 106 process, as described in the NHPA implementing regulations at 36 CFR Part 800. The No Action Alternative would result in no impacts to cultural resources.

3.4.2.2 Proposed Action

The Proposed Action Alternative to enter into delivery, transfer, or exchange agreements is an undertaking as defined in Section 301(7) of the NHPA and subject to Section 106 review. As the delivery, transfer or exchange of water, as described would occur through existing facilities and within current water service area boundaries, without modification to existing facilities, construction of new facilities, or change in land use, the Proposed Action has no potential to cause effects on historic properties pursuant to 36 CFR Part 800.3(a)(1). The Proposed Action Alternative would result in no impacts to cultural resources.

3.5 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. The activities associated with the Proposed Action would include no new ground disturbance, no change in land use, and the use of existing conveyance features to move and store water. Reclamation has determined that there would be no potential to affect historic properties by the Proposed Action pursuant to 36 CFR 800.3(a)(1).

3.6 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.

3.6.1 Affected Environment

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.

3.6.2 Environmental Consequences

3.6.2.1 No Action

Under the No Action Alternative, Reclamation would not approve the transfers and conditions would remain the same as existing conditions; therefore, there would be no impacts to ITA.

3.6.2.2 Proposed Action

Approval of the transfers and exchanges between districts would not involve any construction and would utilize existing conveyance facilities; therefore, activities associated with the Proposed Action would not impact ITA.

3.7 Socioeconomic Resources

3.7.1 Affected Environment

The majority of the service areas within the Proposed Action area are rural and agricultural, with some populated zones. The agricultural industry significantly contributes to the overall economic stability of the San Joaquin Valley. There are many small communities where farm workers live, and many small businesses that support the agricultural industry. These communities and businesses rely on the efficient and cost-effective utilization and supply of water to the surrounding agricultural lands to sustain the agriculturally-based economy. Depending upon the

variable hydrologic and economic conditions, water transfers and exchanges can be prompted. Economic variances in the community may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, increased fuel and power costs. The cost and availability of water has historically had a direct secondary economic impact on the communities of the area as it can drive the type of crop grown or contribute to the potential fallowing of land.

3.7.2 Environmental Consequences

3.7.2.1 No Action

Under the No Action Alternative, economic conditions in the vicinity of the Proposed Action area could worsen. If the release of recirculation water via delivery, transfer, or exchange was not carried out, the surrounding community could suffer from the result of up to a 260,000 AF shortfall of water for WY 2013-2017. This may be significant enough to take agricultural land out of production, thus decreasing the need for farm labor and small business support from the local community. The economic impacts of reduced agricultural production could adversely impact the affected environment.

3.7.2.2 Proposed Action

The Proposed Action would assist in sustaining existing agricultural production and allow for water deliveries to be made within the existing districts. This would help maintain the stability of the agricultural market and economical vitality for the San Joaquin Valley to a certain degree. The transfers are temporary actions and would not result in long-term increases in water supplies that would encourage urbanization, construction or other land-disturbing activities. The Proposed Action will not have an impact on socioeconomic resources.

3.8 Environmental Justice

3.8.1 Affected Environment

The February 11, 1994, Executive Order 12898 requires all federal agencies to address potentially disproportionate impacts to economically disadvantaged communities and minority populations.

Many cities and towns in the San Joaquin Valley are steeped in the agricultural community, and include high percentages of minority and/or low-income populations. Some of these communities support centers of migrant laborers, and populations tend to increase during the late summer harvest. The San Joaquin Valley's migrant workers are typically of Hispanic origin, from Mexico and Central America. Migrant workers depend exclusively on seasonal agricultural practices to provide sufficient income to support themselves and their families. The agricultural industry and agricultural businesses are the main industry in the Proposed Action area, and thus, are the main industries to provide employment opportunities for minority and/or disadvantaged populations.

3.8.2 Environmental Consequences

3.8.2.1 No Action

The No Action Alternative could result in an adverse impact to minority and/or disadvantaged populations within the vicinity of the Recipient Districts because lands could be taken out of production if up to 260,000 AF of water was not released from SLR to provide irrigation to agricultural lands. This could potentially result in the fallowing of lands, and subsequently the loss of jobs in the local community.

3.8.2.2 Proposed Action

The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. Water transfers executed by this action in WY 2013-2017, would allow the continued irrigation of agricultural lands in the Proposed Action area. This would result in neither employment gain nor loss, but rather in sustained job rates and would not create an overall change in the area. The Proposed Action would reduce dislocation and promote continued employment within the affected environment and would not disproportionately impact economically disadvantaged or minority populations. Agricultural unemployment rates in the Fresno, Tulare, Kings, and Kern Counties suggest that any actions that maintain seasonal jobs should be considered beneficial.

3.9 Air Quality

Section 176 (c) of the Clean Air Act (CAA) (42 U.S.C. 7506 (c)) 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 State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 U.S.C. 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken. On November 30, 1993, the Environmental Protection Agency promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

3.9.1 Affected Environment

The project area is located within the San Joaquin Valley Air Basin (SJVAB) which is the second largest air basin in California. Despite years of improvements, the SJVAB does not meet State and Federal health-based air quality standards. The governing body over the SJVAB, the San Joaquin Valley Air Pollution Control District (SJVAPCD), has adopted stringent control measures to reduce emissions and improve overall air quality within the SJVAB.

3.9.2 Environmental Consequences

3.9.2.1 No Action

Under the No Action Alternative, it would be reasonable to assume an increase in groundwater pumping in the districts as a result of the potential loss of 260,000 AF of Friant recirculation water. This could contribute to a greater release of emissions associated with combustion of fossil fuels, and thus, impacts to air quality.

3.9.2.2 Proposed Action

Under the Proposed Action, movement of water between districts and exchange partners would be done via gravity flow and/or pumped using electric motors which have no emissions. The air quality emissions from electrical power have been considered in environmental documentation for the generating power plant. There are no emissions from electrical motors and therefore a conformity analysis is not required under the CAA and there would be no impact on air quality. The Proposed Action would not involve any construction or land disturbing activities that could lead to fugitive dust emissions and/or exhaust emissions associated with the operations of heavy machinery.

3.10 Global Climate Change

3.10.1 Affected Environment

Climate change refers to significant change in measures of climate that last for decades or longer. Many environmental and anthropogenic factors can contribute to climate change, including the burning of fossil fuels, deforestation, changes in ocean currents, urbanization, etc.). Carbon dioxide, which is produced when fossil fuels are burned, is a green house gases (GHG) that effectively traps heat in the lower atmosphere. Some carbon dioxide is liberated naturally, but this may be augmented greatly through human activities.

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. Approximately 20 million Californians rely on the CVP and SWP for water deliveries. Global shifts related to climate change may lead to impacts to California's water resources and project operations.

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

Under the No Action Alternative, it would be reasonable to assume an increase in groundwater pumping in the districts as a result of the potential loss of 260,000 AF of Friant recirculation water. This could contribute to a greater release of emissions, and thus GHGs, associated with combustion of fossil fuels and would impact air quality.

3.10.2.2 Proposed Action

GHG generated by a project is expected to be extremely small compared to sources contributing to potential climate change since the transfer of water would be conveyed mostly via gravity and little, if any, additional pumping from electric motors would be required. While any increase in

GHG emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would result in potentially minimal increases in GHG emissions and a net increase in GHG emissions among the pool of GHG would not be detectable.

3.11 Cumulative Impacts

Contract execution for the delivery, transfer, and exchange of recaptured SJRRP water would not have any controversial or highly uncertain effects, or involve unique or unknown environmental risks. The Proposed Action would not trigger other water service actions and does not contribute to cumulative effects to physical resources when added to other water service actions. The canals, distribution, rivers, creeks, and conveyance facilities associated with the Proposed Action are managed primarily for agricultural supplies. The Proposed Action would not interfere with the deliveries, operations, or cause substantial adverse changes to the conveyance facilities.

The remainder of the SJRRP actions, including the continued release of future Interim and Restoration flows from FriantDam, the recapture of flows at specific San Joaquin River diversion and/or pumping facilities, and future site-specific actions are all reasonably foreseeable and required under the Settlement and the Act. Future program actions related to the SJRRP have been addressed in the SJRRP PEIS/R discussed earlier in this EA. Areas of potential concern, such as water supply impacts, recapture mechanisms, and cumulative impacts have been discussed within this program document. This EA is being prepared for short-term transfer and exchange agreements to recirculate the recaptured water to the Friant contractors or to south-of-Delta contractors where the water may be put to beneficial use. The total amount of water transferred would not increase beyond the 260,000 AF per year quantity analyzed in this document for WY 2013-2017. It is speculation to assume what type of contracts, transfers, or exchanges will occur for each water year addressed during this period or what quantities would be available for transfer based on water year type designation. Therefore, the maximum quantity of recirculation is assumed to form the potential largest extent of environmental impacts analyzed.

The proposed transfers, when added to other actions, do not contribute to significant increases or decreases in environmental conditions. These water service actions are proposed to occur only to distribute up to 260,000 AF of recaptured SJRRP flows and are short-term. These transfer actions are not precedent-setting. The Proposed Action was found to have no impact on water resources, land use, biological resources, cultural resources, ITA, socioeconomic resources, environmental justice, air quality, or global climate change and therefore there is no contribution to cumulative impacts on these resources areas.

Section 4 Consultation and Coordination

4.1 National Environmental Policy Act

This EA has been prepared pursuant to NEPA, which was signed into law in 1969 (42 USC Section 4321 *et seq.*). In addition, it was prepared in accordance with CEQ regulations for implementing NEPA, 40 CFR Parts 1500- 1508, and General Services Administration (GSA) Order ADM 1095.1F. NEPA provides a commitment that Federal agencies will consider the environmental effects of their proposed actions and adhere to regulations, policies, and programs to the fullest extent possible, in accordance with NEPA's policies of environmental protection. This EA assesses if the Proposed Action would cause any significant environmental effects. If it is determined that the Proposed Action would have no significant environmental effects, a FONSI will be signed.

4.2 Fish and Wildlife Coordination Act of 1934 (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 projects that could affect biological resources. The Proposed Action does not involve federal water development projects; therefore, the FWCA does not apply.

4.3 Endangered Species Act of 1973 (16 USC § 1531 *et seq.*)

Section 7 of the Endangered Species Act (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.

The Proposed Action would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species. In addition, the short duration of the water availability, the requirement that no native lands be converted without consultation with the USFWS, and the stringent requirements for transfers under applicable laws would prevent any adverse impact to any federally listed species or any critical habitat.

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. The activities associated with the Proposed Action would include no new ground disturbance, no change in land use, and the use of existing conveyance features to move and store water. Reclamation has determined that there would be no potential to affect historic properties by the Proposed Action pursuant to 36 CFR 800.3(a)(1).

4.5 Migratory Bird Treaty Act of 1918 (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 would not change the land use patterns of the cultivated or fallowed fields that do have some value to birds protected by the MBTA; therefore, the Proposed Action would have no effect on birds protected by the MBTA.

4.6 Executive Order 113007 and American Indian Religious Freedom Act of 1978 – Indian Trust Assets and Sacred Sites on Federal Lands

Executive Order 113007 and the American Indian Religious Freedom Act of 1978 are designed to protect ITA, accommodates access and ceremonial use of Native American sacred sites by Native American religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and protect and preserve the observance of traditional Native American religions. The Proposed Action would not violate these protections.

4.7 Executive Order 12898 – Environmental Justice in Minority and Low-Income Populations

Executive Order 12898 requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income populations. The Proposed Action has been assessed for potential environmental, social, and economic impacts on minority and low-income populations. Minority and low-income populations would not be disproportionately exposed to adverse effects relative to the benefits of the action.

4.8 Central Valley Project Improvement Act

Reclamation's evolving mission was written into law on October 30, 1992, in the form of Public Law 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992. Included in the law was Title 34, the CVPIA. The CVPIA amended previous authorizations of the CVP to include fish and wildlife protection, restoration, and mitigation as project purposes having equal priority with irrigation and domestic water supply uses, and fish and wildlife enhancement as having equal priority with power generation. The Proposed Action is consistent with CVPIA.

4.9 Central Valley Project Long-Term Water Service Contracts

In accordance with CVPIA Section 3404c, Reclamation is renegotiating long-term water service contracts. As many as 113 CVP water service contracts locations within the Central Valley of California may be renewed during this process. The Proposed Action is consistent with CVP long-term water service contracts.

4.10 State Water Resources Control Board Temporary Water Transfer Approval

Pursuant to Section 1725 et seq. of the California State Water Code, a permittee or licensee who proposes a temporary transfer of water (less than 1 year) shall submit to the SWRCB a petition to change the terms of the permit or license, as required, to accomplish the proposed temporary change. Such a petition will be filed, with a petition pursuant to Section 1707, to add a purpose of use, to add points of re-diversion, and to add the San Joaquin River for the place of use for in-stream flows. SWRCB requires approval of a petition for the purposes of use due to a transfer or exchange of water, and will approve a petition under section 1725 – if the transfer would only involve the amount of water that would have been consumptively used or stored by the permittee or licensee in the absence of the proposed temporary change; would not injure any legal user of the water; and would not unreasonably affect fish, wildlife, or other in-stream beneficial uses. A Water Rights Order has been obtained, which will allow recapture and recirculation of the Friant water.

Section 5 List of Preparers and Reviewers

Mario Manzo, Project Manager, San Joaquin River Restoration Program

Michelle Banonis, Natural Resources Specialist, San Joaquin River Restoration Program

Jessica Fontaine, Office Clerk, San Joaquin River Restoration Program

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Appendix A
USFWS Species Listing for Project Area

U.S. Fish & Wildlife Service Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 130213040301

Database Last Updated: September 18, 2011

No quad species lists requested.

County Lists

Listed Species

Invertebrates

Apodemia mormo langei

Lange's metalmark butterfly (E)

S

Branchinecta conservatio

Conservancy fairy shrimp (E)

Critical habitat, Conservancy fairy shrimp (X)

S

Branchinecta longiantenna

Critical habitat, longhorn fairy shrimp (X)

longhorn fairy shrimp (E)

S

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

S

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

S

Elaphrus viridis

delta green ground beetle (T)

S

Euproserpinus euterpe

Kern primrose sphinx moth (T)

S

Lepidurus packardii

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

S

Syncaris pacifica

California freshwater shrimp (E)

S

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

S

Hypomesus transpacificus

Critical habitat, delta smelt (X)

delta smelt (T)

S

Oncorhynchus (=Salmo) clarki henshawi

Lahontan cutthroat trout (T)

S

Oncorhynchus (=Salmo) clarki seleniris

Paiute cutthroat trout (T)

S

Oncorhynchus kisutch

coho salmon, So OR/No CA (T) (NMFS)

S

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Critical habitat, Northern California steelhead (X) (NMFS)

Northern California steelhead (T) (NMFS)

South Central California steelhead (T) (NMFS)

S

Oncorhynchus tshawytscha

California coastal chinook salmon (T) (NMFS)

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

S

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Critical habitat, CA tiger salamander, central population (X)

S

Rana draytonii

California red-legged frog (T)

Critical habitat, California red-legged frog (X)

S

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)
S

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)
S

Thamnophis gigas
giant garter snake (T)
S

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)
S

Empidonax traillii extimus
Critical habitat, southwestern willow flycatcher (X)
southwestern willow flycatcher (E)
S

Gymnogyps californianus
California condor (E)
Critical habitat, California condor (X)
S

Rallus longirostris obsoletus
California clapper rail (E)
S

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)
S

Strix occidentalis caurina
Critical habitat, northern spotted owl (X)
northern spotted owl (T)
S

Vireo bellii pusillus
Least Bell's vireo (E)
S

Mammals

Dipodomys ingens
giant kangaroo rat (E)
S

Dipodomys nitratooides exilis

Fresno kangaroo rat (E)

S

Dipodomys nitratoides nitratoides

Tipton kangaroo rat (E)

S

Neotoma fuscipes riparia

riparian (San Joaquin Valley) woodrat (E)

S

Ovis canadensis californiana

Sierra Nevada (=California) bighorn sheep (E)

S

Reithrodontomys raviventris

salt marsh harvest mouse (E)

S

Sorex ornatus relictus

Buena Vista Lake shrew (E)

Critical habitat, Buena Vista Lake shrew (X)

S

Sylvilagus bachmani riparius

riparian brush rabbit (E)

S

Vulpes macrotis mutica

San Joaquin kit fox (E)

S

Plants

Amsinckia grandiflora

Critical habitat, large-flowered fiddleneck (X)

large-flowered fiddleneck (E)

S

Arctostaphylos myrtifolia

Ione manzanita (T)

S

Brodiaea pallida

Chinese Camp brodiaea (T)

S

Calyptridium pulchellum

Mariposa pussy-paws (T)

S

Calystegia stebbinsii

Stebbins's morning-glory (E)

S

Castilleja campestris ssp. succulenta

Critical habitat, succulent (=fleshy) owl's-clover (X)

succulent (=fleshy) owl's-clover (T)

S

Caulanthus californicus

California jewelflower (E)

S

Ceanothus roderickii

Pine Hill ceanothus (E)

S

Chamaesyce hooveri

Critical habitat, Hoover's spurge (X)

Hoover's spurge (T)

S

Cordylanthus mollis ssp. mollis

soft bird's-beak (E)

S

Cordylanthus palmatus

palmate-bracted bird's-beak (E)

S

Dudleya setchellii

Santa Clara Valley dudleya (E)

S

Eremalche kernensis

Kern mallow (E)

S

Eriogonum apricum var. apricum

Ione buckwheat (E)

S

Eriogonum apricum var. prostratum

Irish Hill buckwheat (E)

S

Erysimum capitatum ssp. angustatum

Contra Costa wallflower (E)

Critical Habitat, Contra Costa wallflower (X)

S

Fremontodendron californicum ssp. decumbens

Pine Hill flannelbush (E)

S

Galium californicum ssp. sierrae

El Dorado bedstraw (E)

S

Lasthenia conjugens

Contra Costa goldfields (E)

Critical habitat, Contra Costa goldfields (X)

S

Limnanthus floccosa ssp. californica

Butte County (Shippee) meadowfoam (E)

S

Monolopia congdonii (= *Lembertia congdonii*)

San Joaquin woolly-threads (E)

S

Neostapfia colusana

Colusa grass (T)

Critical habitat, Colusa grass (X)

S

Oenothera deltooides ssp. howellii

Antioch Dunes evening-primrose (E)

Critical habitat, Antioch Dunes evening-primrose (X)

S

Opuntia treleasei

Bakersfield cactus (E)

S

Orcuttia inaequalis

Critical habitat, San Joaquin Valley Orcutt grass (X)

San Joaquin Valley Orcutt grass (T)

S

Orcuttia pilosa

Critical habitat, hairy Orcutt grass (X)

hairy Orcutt grass (E)

S

Orcuttia tenuis

Critical habitat, slender Orcutt grass (X)

slender Orcutt grass (T)

S

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

Sacramento Orcutt grass (E)

S

Pseudobahia bahiifolia

Hartweg's golden sunburst (E)

S

Pseudobahia peirsonii

San Joaquin adobe sunburst (T)

S

Senecio layneae

Layne's butterweed (=ragwort) (T)

S

Sidalcea keckii

Critical habitat, Keck's checker-mallow (X)

Keck's checker-mallow (=checkerbloom) (E)

S

Tuctoria greenei

Critical habitat, Greene's tuctoria (=Orcutt grass) (X)

Greene's tuctoria (=Orcutt grass) (E)

S

Verbena californica

Red Hills (=California) vervain (T)

S

Candidate Species

Amphibians

Bufo canorus

Yosemite toad (C)

S

Rana muscosa

mountain yellow-legged frog (C)

S

Birds

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (C)

S

Mammals

Martes pennanti

fisher (C)

S

Key:

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Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

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U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 130213040608

Database Last Updated: September 18, 2011

No quad species lists requested.

County Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Critical habitat, Conservancy fairy shrimp (X)

S

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

S

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

S

Euphydryas editha bayensis

bay checkerspot butterfly (T)

S

Fish

Hypomesus transpacificus

delta smelt (T)

S

Oncorhynchus mykiss

South Central California steelhead (T) (NMFS)

S

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Critical habitat, CA tiger salamander, central population (X)

S

Rana draytonii

California red-legged frog (T)

Critical habitat, California red-legged frog (X)

S

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

S

Thamnophis gigas
giant garter snake (T)

S

Birds

Brachyramphus marmoratus
marbled murrelet (T)

S

Charadrius alexandrinus nivosus
Critical habitat, western snowy plover (X)
western snowy plover (T)

S

Gymnogyps californianus
California condor (E)

S

Rallus longirostris obsoletus
California clapper rail (E)

S

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

S

Vireo bellii pusillus
Least Bell's vireo (E)

S

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Dipodomys ingens
giant kangaroo rat (E)

S

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)

S

Sorex ornatus relictus
Buena Vista Lake shrew (E)

S

Vulpes macrotis mutica
San Joaquin kit fox (E)

S

Plants

Camissonia benitensis

San Benito evening-primrose (T)

S

Caulanthus californicus

California jewelflower (E)

S

Holocarpha macradenia

Critical habitat, Santa Cruz tarplant (X)

Santa Cruz tarplant (T)

S

Monolopia congdonii (= *Lembertia congdonii*)

San Joaquin woolly-threads (E)

S

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