

RECLAMATION

Managing Water in the West

Final Environmental Assessment

EA-09-121

Poso Creek Integrated Regional Water Management Plan: 25-Year Groundwater Banking, Transfer, and Exchange Program



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

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Mission Statements

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

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

Please note: A vertical line in the left column indicates a change from what was included in the Draft Environmental Assessment.

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List of Acronyms and Abbreviations

AEWSD	Arvin-Edison Water Storage District
AF	acre-foot one acre-foot equals 325,851 gallons (the volume of water one foot deep and an acre in area)
AFY	acre-foot per year
Ag	Agricultural, typically referring to the purpose of use of water
APE	Area of potential effect
Aqueduct	California Aqueduct
Aquifer	An Aquifer is a geologic formation (soil or rock), group of formations, or part of a formation capable of storing, receiving and transmitting water. An aquifer is capable of yielding enough water to support a well or spring
BA	Biological Assessment
Banking	Banking is storing surface water in a specific portion of a groundwater basin for later extraction and use outside of the groundwater banking project boundary – See Groundwater Banking
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
CAA	Clean Air Act
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
Class 1	Class 1 water is considered as the first 800,000 AF supply of CVP water stored in Millerton Lake, which would be available for delivery from the Friant-Kern Canal and/or Madera Canals as a dependable water supply during each Contract Year.
Class 2	Class 2 water is considered as the next 1,400,000 AF supply of non-storable CVP water which becomes available in addition to the Class 1 supply, and because of its uncertainty as to the availability and time occurrence, would not be dependable in character and would be furnished only if and when available as determined by Reclamation per Contract Year.
CNDDB	California Natural Diversity Database
CNLM	Center for Natural Land Management
CO	Contracting Officer
CO ₂	carbon dioxide
Conjunctive Use	Conjunctive use is storing surface water in a specific portion of a groundwater basin for later extraction and use within the district or groundwater banking project boundary; and conjunctive use is the planned and coordinated use of surface and groundwater supplies to increase water supply reliability.
Contractor	City, county, water or irrigation district contracted with Federal, State or Local Agencies to obtain water.

Contract Year	A Contract Year typically begins on March 1st and ends February 28/29th of the following year
Corps	U.S. Army Corps of Engineers
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVP Contractor	Friant Division or Cross Valley Division Long-Term Contractor
Cawelo	Cawelo Water District
DAC	Disadvantaged Community (a community with financial need)
DEID	Delano-Earlimart Irrigation District
Delta	Sacramento and San Joaquin River Delta
DOI	Department of the Interior
DWR	State of California Department of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
Exchange	Exchange is the movement of water between contractors within an 18 month period. Exchanges provide operational flexibility where sources of water are substituted instantaneously or within 18 months.
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
Friant	Friant Division
FWCA	Fish and Wildlife Coordination Act
GEI/B-E	GEI Consultants, Inc./Bookman-Edmonston Division
GHG	Greenhouse gases
Groundwater	Groundwater is the water stored underground in rock crevices or in the pores between geologic materials that make up the Earth's crust
Groundwater Banking	Groundwater Banking is the intentional storage of supplies in subsurface aquifers with the expectation of subsequent retrieval for beneficial use by the depositor for up to a 25-year period.
Groundwater Recharge	Groundwater Recharge is the natural or intentional infiltration of surface water into the zone of saturation
GW	Groundwater
HCP	Habitat Conservation Plan
ID	Irrigation District
In-Lieu Banking	In-lieu groundwater banking is the immediate use of surface water instead of percolating it into the ground resulting in the development of a groundwater account the provider of the surface water can obtain at a later date.
IRWMP	Integrated Regional Water Management Plan
ITA	Indian Trust Assets
JPA	Joint Powers Agreement or Authority
KCWA	Kern County Water Agency
KNWR	Kern National Wildlife Refuge
KTWD	Kern-Tulare Water District
KWB	Kern Water Bank

mg/L	milligram per liter
M&I	Municipal and Industrial, typically referring to the purpose of use of water
MUD	Municipal Utility District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
North Kern	North Kern Water Storage District
Non-CVP district	Non-Central Valley Project district of the Poso Creek RMG
NRHP	National Register of Historic Places
Percolation	Percolation is the downward movement of water through the openings in and between soil or rock
Poso Creek IRWM Plan	The area within the boundary of the Poso Creek IRWM Plan
POU	Place of Use defined within Reclamation's water rights permits
Recaptured Water	A water management component of the San Joaquin River Settlement, Water Management Goal, to re-circulate water
Reclamation	Bureau of Reclamation
RWA	Recovered Water Account
Recovered Water Account	Paragraph 16 provides for the creation of an account that tracks the water Friant Division long-term contractors provide toward Restoration Flows.
Region	Poso Creek IRWMP study area
RMG	Poso Creek IRWMP Regional Management Group
RRBWSD	Rosedale-Rio Bravo Water Storage District
RRA	Reclamation Reform Act of 1982
Section 215 Water	Section 215 refers to a section in the RRA, which defines temporary water supplies that are unusually large and not storable for project purposes and, among other measures, allows non-storable water to be applied to lands otherwise ineligible to receive federal water
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJV	San Joaquin Valley
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
Shafter-Wasco	Shafter Wasco Irrigation District
SWP	State Water Project
SWRCB	State Water Resources Control Board
Semitropic	Semitropic Water Storage District
SWRU	Stored Water Recovery Unit
T&E or T & E Species	Threatened and Endangered species, as defined by the Federal Endangered Species Act
TBD	To be determined.
U.S.	United States
WD	Water District
WSD	Water Storage District

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Section 1 Introduction

A Draft Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) for the Proposed Action and No Action Alternative was circulated for public review February 23, 2012 through March 23, 2012. Comments were received from Arvin-Edison Water Storage District in a letter dated March 23, 2012 and from Central Delta Water Agency in a letter also dated March 23, 2012. These comments and the Bureau of Reclamation's (Reclamation) responses to those comments are located in Appendix A of this Final EA.

1.1 Background

The Poso Creek Regional Water Management Group (RWMG) was formed in 2005 to focus on improving water supplies throughout the Poso Creek Region (Region). The RWMG includes six agricultural districts, one resource conservation district, and a representative for the 16 disadvantaged communities (DACs) within the Region. In July 2007, the RWMG adopted an Integrated Regional Water Management Plan (IRWMP) which was prepared to emphasize resolving the Region's short-term and long-term water supply challenges (Poso Creek IRWMP 2007).

The six agricultural districts have water delivery authority whereas the North West Kern Resource Conservation District (NWKLCD) does not have authority to deliver water. The NWKLCD does have responsibilities for maintenance of Poso Creek, which is used from time to time to convey water to some of the districts. The RWMG members include:

- Semitropic Water Storage District (Semitropic) – Lead Agency for the IRWMP
- Shafter-Wasco Irrigation District (Shafter-Wasco)
- Cawelo Water District (Cawelo)
- Delano-Earlimart Irrigation District (DEID)
- Kern-Tulare Water District (KTWD)
- North Kern Water Storage District (North Kern)
- North West Kern Resource Conservation District
- Representative for the 16 DACs

The Region lies at the crossroads of the California Aqueduct (Aqueduct) constructed by the State of California as part of the State Water Project (SWP), Friant-Kern Canal (FKC), and the Kern River, which is a strategic location for facilitating surface water exchanges, transfers, and groundwater banking. The agricultural water districts that lie within the Region that have Central Valley Project (CVP) contracts (DEID, KTWD, and Shafter-Wasco) are interested in having a streamlined approval process for exchange, transfer, and/or banking to deliver CVP water when they have water supplies surplus to their immediate in-district needs to neighboring water districts (Semitropic, North Kern, and Cawelo) that do not have CVP contracts. The water would be returned via exchange or direct conveyance at a later time.

Refer to Figure 1-1 for a map depicting the geographic locations of the Poso Creek RMWG and their relationship to important conveyance facilities, and varied sources of surface water.

1.2 Purpose and Need

Water supply reliability and sustainability within the Region are being impacted by changing dynamics of water supply timing and availability. The RWMG identified the need to offset the projected losses of their available surface water supplies resulting from court-ordered actions, environmental regulations, increased urbanization and changes in weather patterns associated with climate change. Based on studies done for the IRWMP, the projected decrease in average annual surface water supplies for the Region is estimated to be in excess of 100,000 acre-feet (AF) per year (AFY); projected over a 25-year period, the accumulated decrease in surface supplies is estimated to be in excess of 2.5 million AF (Poso Creek IRWMP 2007, Summary of Finding and Conclusions).

The Proposed Action would provide the RWMG members in the Friant Division of the CVP and RWMG members who are Cross Valley CVP contractors a streamlined process for obtaining Reclamation's approval for groundwater banking, transfers, and exchanges between themselves and non-CVP RWMG member districts within the Region. As a result, the RWMG members would be able to more effectively manage the Region's collective water supply. It is expected that a streamlined approval process for banking, transfers, and exchanges would provide greater flexibility in matching available supplies to water-deficient areas by helping to balance existing water supplies in the Region, thereby more effectively meeting the RWMG's water management objectives as outlined in their IRWMP.

1.3 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 National Environmental Policy Act (NEPA) analysis and decision-making process of this EA and include the following as amended, updated, and/or superseded (all of which are incorporated by reference):

- Title XXXIV Central Valley Project Improvement Act (CVPIA) October 30, 1992, Section 3405 (a)
- Reclamation Reform Act (RRA), October 12, 1982, as applicable
- 9(d) Repayment Contracts for Friant Division
- Interim Water Service Contracts for Cross Valley contractors
- 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 (Service) Region 1, Final Administrative Proposal on Water Transfers April 16, 1998

1.4 Scope

In accordance with section 102(2)(c) of the NEPA of 1969, as amended, this EA has been prepared to examine the potential direct, indirect, and cumulative impacts resulting from groundwater banking, transfers, and exchanges between the Poso Creek RWMG within the Region.

The CVP water available to be banked, transferred, and/or exchanged includes:

- Class 1 and Class 2 water from the Friant Division originating behind Friant Dam;
- Water from the Cross Valley Unit originating from the Sacramento-San Joaquin River Delta (Delta);
- Recovered Water Account (RWA) and Recaptured Friant Water made available from either Friant Dam and/or San Luis Reservoir/Delta;
- Section 215 water originating behind Friant Dam and/or from the Delta; and
- Floodwater from the San Joaquin River that could be conveyed down the FKC.

The non-CVP sources of water that could be used to effectuate exchanges and/or return of banked water includes:

- Floodwaters conveyed on behalf of Reclamation District 770 made available in the FKC via a Warren Act Contract;
- Previously banked water within the Region available from past banking and exchanges;
- SWP water conveyed down the California Aqueduct originating from the Delta and/or stored in San Luis Reservoir; and
- Other surface water supplies diverted based on water rights including rivers, creeks and streams (Kern River [also available from the FKC via a Warren Act contract], Poso Creek, Rag Gulch, or the White River).

The temporal scope of this EA analysis would cover a 25-year period, providing a streamlined, programmatic approval process for these water management actions. Any extension beyond 25 years, or actions that involve facilities and water sources not covered within the scope of this EA may require additional environmental review(s) and approval(s).

The scope of Reclamation's approval for the Proposed Action is limited to those actions where Reclamation has approval authority, which includes portions of the IRWMP involving CVP water and/or facilities. However, this EA also evaluates the potential impacts resulting from the No Action Alternative. The IRWMP also includes actions that do not involve CVP water or facilities, which do not require Reclamation approval. These actions would be addressed under the No Action Alternative and/or Cumulative Impacts section(s), respectively and as appropriate. The Poso Creek RWMG and Region associated with the IRWMP are located within Tulare and Kern counties (see Figure 1-1).

In response to the decreased reliability of water supplies, the Poso Creek RWMG's six agricultural district members have completed a parallel California Environmental Quality Act (CEQA) document, an Initial Study (IS) with subsequent approval of a Negative Declaration,

Groundwater Banking and Exchanges within the Poso Creek Integrated Regional Water Management Plan Area, on November 8, 2010 (Initial Study and Negative Declaration 2010), so that their applications for water banking and exchanges can be reviewed and approved based on these environmental documents. The IRWMP and IS are hereby incorporated by reference.

1.5 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment of the Proposed Action and No Action Alternative and has determined that there is no potential for direct, indirect, or cumulative effects to the following resources:

- **Cultural Resources:** The Proposed Action is not the type of activity that has potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1). There would be no modification of CVP conveyance facilities and no activities that would result in ground disturbance under the Proposed Action. Because there would be no potential to affect historic properties, no cultural resources would be impacted as a result of implementing the Proposed Action.
- **Air Quality:** The Proposed Action would involve gravity and/or electrical pumps to convey surface water for banking, transfers, and exchanges, which have no direct emissions to impact air quality. As compared to the No Action Alternative, there would be no adverse impacts to air quality since less groundwater would be pumped using gasoline or diesel engines. There would be no cumulative adverse impacts to air quality as a result of the Proposed Action when added to other past, present, and reasonably foreseeable future actions.
- **Global Climate:** Greenhouse gases generated are expected to be extremely small compared to sources contributing to potential climate change since the movement of water under the Proposed Action would be conveyed mostly via gravity and little, if any, additional pumping from electric motors would be required. There would be no adverse impacts as a result of the Proposed Action when added to other past, present, and reasonably foreseeable future actions.

As there would be no impact to the resources listed above as a result of the Proposed Action or the No Action alternative, they will not be considered further.

1.6 Resources Requiring Further Analysis

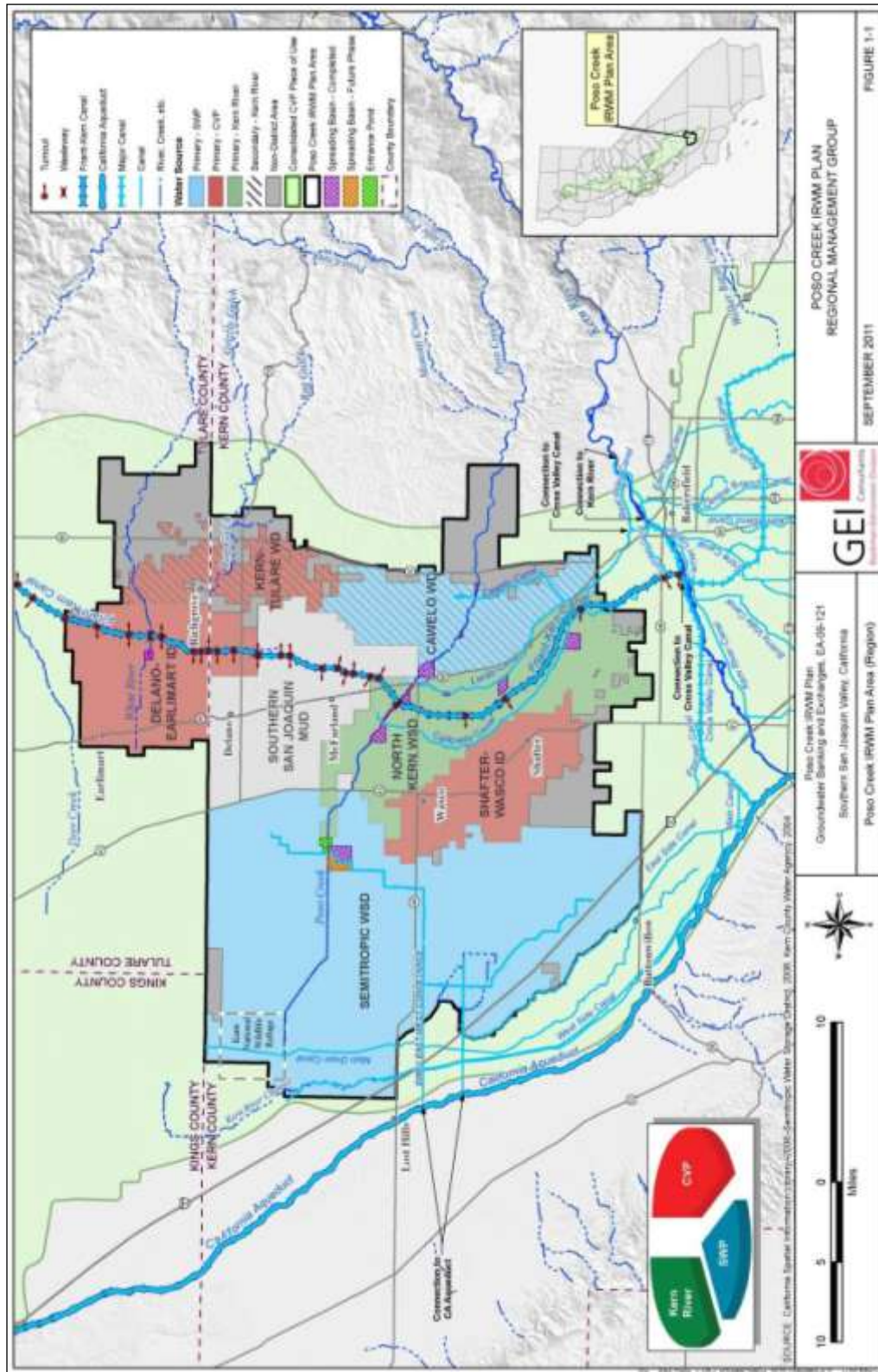
This EA will analyze the affected environment of the Proposed Action and No Action Alternative in order to determine the potential direct, indirect, and cumulative effects to the following resources:

- Water Resources
- Land Use
- Biological Resources

- Indian Trust Assets
- Socioeconomic Resources
- Environmental Justice

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Figure 1-1 The Poso Creek RWMG are located in Kern and Tulare Counties



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Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve a streamlined approval process for long-term (25-years) groundwater banking, exchanges, and/or transfers involving CVP water and/or facilities as part of the Poso Creek IRWMP. The RWMG would not be able to respond as quickly and effectively to groundwater banking, transfer, and exchange opportunities during wet-periods and would not be able to increase flexibility in delivery to adapt to the changing timing of deliveries. The RWMG would need to request separate approval from Reclamation as each water management action opportunity becomes available; however, each approval would require individual environmental review and approval, which could potentially render the water management action moot given the short window of opportunity to take advantage of wet-period excess supplies.

Approval of the IS and adoption of a Negative Declaration, which analyzed potential environmental impacts as a result of implementing the Poso Creek IRWMP under CEQA, has allowed some of the RWMG member agencies to proceed with making improvements to their internal distribution system and infrastructure, as well as engage in groundwater banking, transfers, and exchanges that do not involve CVP water and/or facilities. Under the No Action Alternative, the RWMG could still implement actions within the IRWMP that do not require Reclamation approval. Additional information regarding actions not requiring Reclamation approval within the IRWMP can be found in Section 3.

In addition, both KTWD and DEID already have Reclamation-approved long-term banking projects with North Kern (Reclamation 2006 and 2009) which they could continue to implement under the No Action Alternative.

2.2 Proposed Action

Reclamation's approval authority, in regards to the Poso Creek IRWMP, is limited to those actions which involve CVP water and/or facilities. Under the Proposed Action, Reclamation proposes to approve a 25-year groundwater banking, transfer, and exchange program as part of the Poso Creek IRWMP which would allow the RWMG to take advantage of water management opportunities during wet periods and the availability of surface water surplus to their immediate in-district needs supplies. All CVP water that is banked, exchanged, or transferred would be kept within the Region and within the CVP authorized place-of-use. Annual approvals would be

provided as each water management action is proposed and determined to be consistent with the scope of this EA. The water management actions can be summarized into four groups:

- Groundwater banking, transfers, and exchanges among RWMG districts who receive or purchase CVP water delivered from the FKC (DEID, Shafter-Wasco, and KTWD) with RWMG districts that have non-CVP water (Semitropic, North Kern, and Cawelo), and CVP Delta water (KTWD);
- Groundwater banking, transfers, and exchanges among RWMG districts who receive re-captured water that is made available in San Luis Reservoir or the Delta for the Friant Division contractors (i.e. DEID, Shafter-Wasco, and KTWD) with RWMG districts that have non-CVP water (Semitropic, North Kern, and Cawelo), and CVP water from the Delta (KTWD);
- Groundwater banking, transfers, and exchanges between KTWD, who receives CVP Delta water, with RWMG districts that have regulated state, local, or CVP water supplies; and
- Groundwater banking, transfers, and exchanges among RWMG districts that have wet year supplies (e.g. uncontrolled season Class 2 water, RWA water, Section 215 water, and wet year non-CVP supplies) and limited available absorptive capacity, with RWMG districts that have direct recharge and/or in-lieu recharge facilities with the capacity to absorb the wet year supply at the time the water is available.

The water banking program for the three CVP contractors, DEID, Shafter-Wasco and KTWD, would allow them to bank CVP water outside of their respective service area boundaries in years when they have CVP water surplus to their current demand and recover their banked water for use within their service area boundaries during times of inadequate supply (Table 2-1). The water banking program would be accomplished through Reclamation approving the banking of CVP water outside of the districts' service area boundaries but still within the CVP place-of-use and approving the return of the previously banked water. Water banking would occur on an up to 2:1 ratio, whereby CVP and/or non-CVP water could be used as the "left behind" portion of the arrangement. Water used for banking could be used for direct irrigation ("in-lieu" banking) and/or for direct groundwater recharge. The district(s) receiving the water to be banked would credit the delivering district(s) for the amount of water banked, minus 10% for aquifer recharge/losses, for all CVP water delivered. Similarly, exchanges could also occur on an up to 2:1 ratio, minus 10% conveyance losses.

Table 2-1 Maximum amounts that could put into the bank, transferred, or exchanged

District	Amount of water put into bank, transferred, or exchanged per year (AF)*	Amount of previously banked/exchange water returned per year (AF)	Total quantity of CVP** water in storage at any given time (AF)
DEID	90,000	30,000	180,000
Shafter-Wasco	45,000	15,000	90,000
KTWD	60,000	20,000	120,000
Total	195,000	65,000	390,000

* The quantity of CVP water per district listed for this action is separate from and would recognize the priority of other banking programs previously approved by Reclamation.

** Does not include water left behind

The banked, transferred or exchange water would be used for existing agricultural purposes and/or groundwater recharge. The cumulative total of banked, transferred, or exchanged water would be limited to the quantities referred to in Table 2-1.

Table 2-2 Environmental Protection Measures

- The water would be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines, as applicable;
- Use of the water would comply with all federal, state, local, and tribal law, and requirements imposed for protection of the environment and Indian Trust Assets;
- No water would be used outside of the currently authorized place of use;
- No land conversions would occur as a result of the Proposed Action;
- No water would be used to place untilled or new lands into production or cause current agricultural lands to be fallowed.
- The Proposed Action shall not interfere with deliveries, operations or cause adverse changes to the rivers, creeks or conveyance facilities associated with the SWP or CVP. Proponents are required to obtain the facility's operating entity approval prior to the conveyance of water through the conveyance facilities.
- Depending on the facility and groundwater quality, decreases in concentrations of certain constituents may occur as well as increases in others. To the extent that direct delivery of groundwater to the Aqueduct or FKC is needed, the water quality of constituents known to be of concern would be measured and compared against the background water quality in the surface water conveyance system in accordance with the Reclamation's existing policy for accepting waters in the Friant-Kern and Madera canals (see Appendix B if EA 09-121). All waters introduced into the FKC as a result of banking programs under this project would be in accordance with this policy. Calculations of the blended water quality would be made, taking into consideration the groundwater quality and the historic surface water quality. Each agreement between districts would indicate if previously banked CVP water was to be returned to the FKC and if a comparison of the water quality is necessary.
- Under the IRWMP, it is assumed that additional planned construction projects would occur and may impact federally listed species. If a federal agency is not the lead on these particular projects, the project proponents would be expected to obtain incidental take permits from the Service through the Endangered Species Act (ESA) section 10 process, in cases where incidental take would occur. In the case where other special-status species may be impacted, such as the Swainson's hawk and western burrowing owl, the project proponents would also need to comply with the California Endangered Species Act and other relevant Fish and Game Code.

Table 2-3 depict turnouts for the main conveyance facilities that could be used as part of the Proposed Action.

Table 2-3 Points of Diversion

Turnout		Size	Capacity	District	Flow Direction
Milepost	Name or Direction				
State Water Project					
California Aqueduct					
206.99	SWRU East-West Conveyance	120-inch	1000 cfs	Semitropic	E/W
209.78	Intake Canal		580 cfs	Semitropic	E/W
238.04	Cross Valley Canal		1300 cfs	Kern County Water Agency (KCWA) et. al.	E/W
Central Valley Project					
Friant-Kern Canal					S (future N/S)
107.35	Right	2 - 3.5' x 3.5'		Saucelito Irrigation District	W
109.46	Right	2 - 4.5' x 4.5'		DEID	W
109.46	Left	2 - 4.5' x 4.5'		DEID	E
111.56	Right	2 - 4.5' x 4.5'		DEID	W
111.56	Left	4' x 4'		DEID (KTWD-Ave. 40)	E
111.96	Left	4' x 4'		DEID (KTWD-Ave. 36 PP)	E
112.58	Right	Abandoned		DEID	W
113.60	Left	5 - 16" Siphons		KTWD (Ave. 24 PP)	E
113.62	Right	2 - 4.5' x 4.5'		DEID	W
113.62	Left	2 - 4.5' x 4.5'		DEID	E
115.95	Right	2 - 4' x 4'		DEID	W
116.40	Right	2 - 4' x 4'		Styro -Tec, Inc.	W
116.92	Left	2 - 4.5' x 4.5'		DEID (KTWD-Ave. 4)	E
117.96	Left	7 - 12" Siphons		KTWD (Cecil Ave. PP)	E
118.45	Right	3' x 3'		DEID	W
120.06	Left	4' x 4'		into equalizing reservoir	E
121.49	Left	2.5' x 6'		out of equalizing reservoir/KTWD	E
129.92	Right Inlet	3 - 36" Pipes		North Kern	E
130.13	Right	2 - 15' x 6.5'	250 cfs	Poso Creek Wasteway	W
133.41	Right Inlet	2 - 15" Pipes		North Kern	E
134.42	Right	3 - 4.5' x 4.5'	200 cfs	Shafter-Wasco	W
136.64	Right Inlet	2 - 15" Pipes		North Kern	E

Turnout		Size	Capacity	District	Flow Direction
Milepost	Name or Direction				
137.17	Right	3 - 4' x 4'	200 cfs	Shafter-Wasco	W
144.86	Right	1 - 72"	200 cfs	North Kern	W
144.87	Right	2 - 72"	400 cfs	North Kern	W
150.83	Right	3' x 3'		PG&E	W
151.29	Right Inlet/Outlet	2 - 72"	500 cfs	KCWA et. al. New CVC turnout/in	E/W
151.80	Right		1000 cfs	AEWD	W
151.81	Right Inlet	3 - 24" siphons	39 cfs	KTWD	E
151.81	Left Inlet	4 - 24" siphons	60 cfs	KTWD/Cawelo	W
151.81	NA	2- 2' x 12'	2000 cfs	Terminus into Kern River	S
Kern River					
Beardsley Canal			800 cfs	North Kern/Cawelo	N
Calloway Canal			1000 cfs	North Kern	N (future N/S)
Notes: 1. Flow directions are unidirectional unless indicated. For example "N/S" indicates a canal that canal flow both north and south.					

Figure 2-1 illustrates how the CVP contractors within the RWMG would deliver CVP water for banking, transfer, or exchange to the other RWMG's facilities and Figure 2-2 depicts the return mechanism of previously banked CVP water.

Figure 2-1 CVP contractors who would deliver CVP water for banking

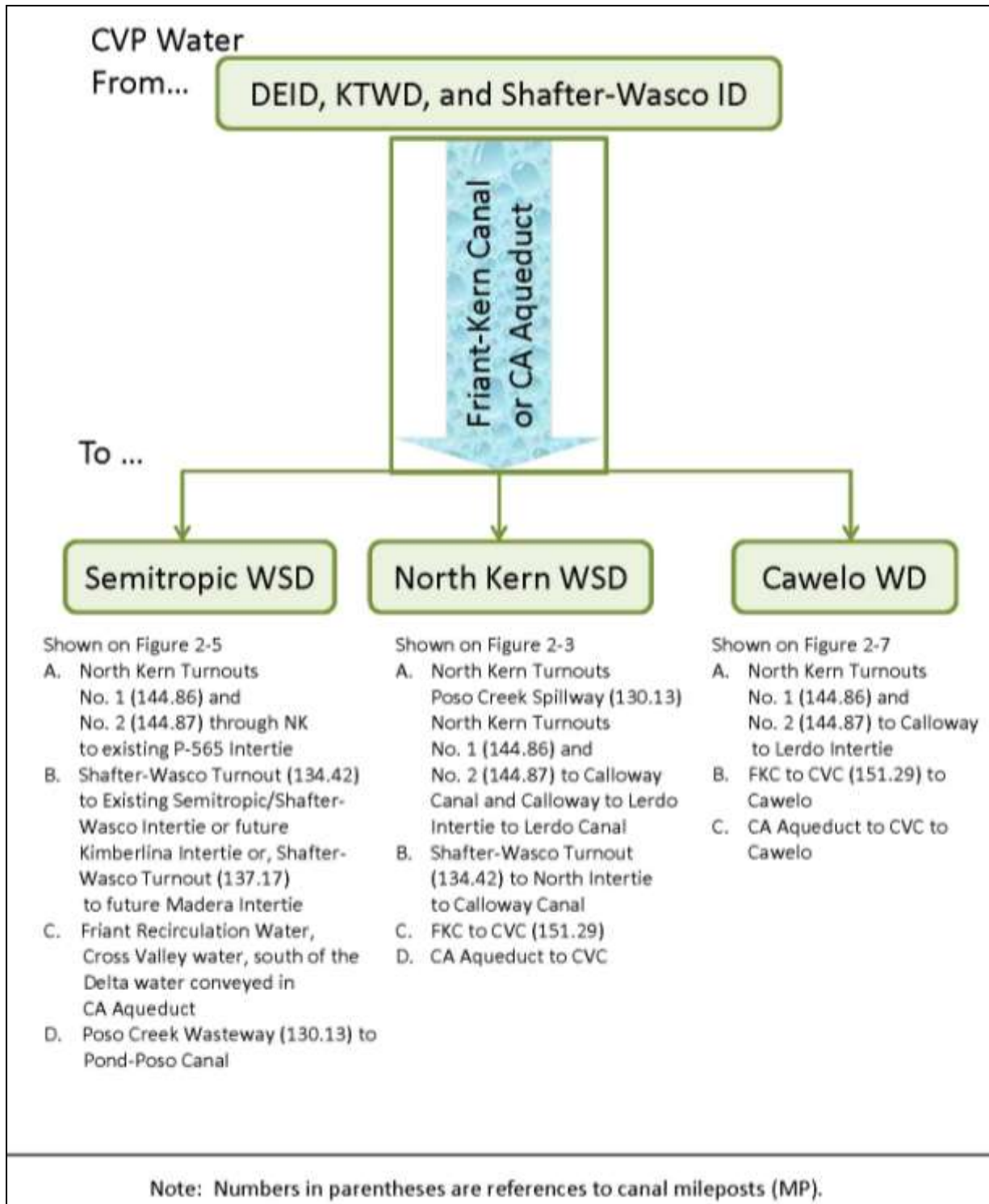
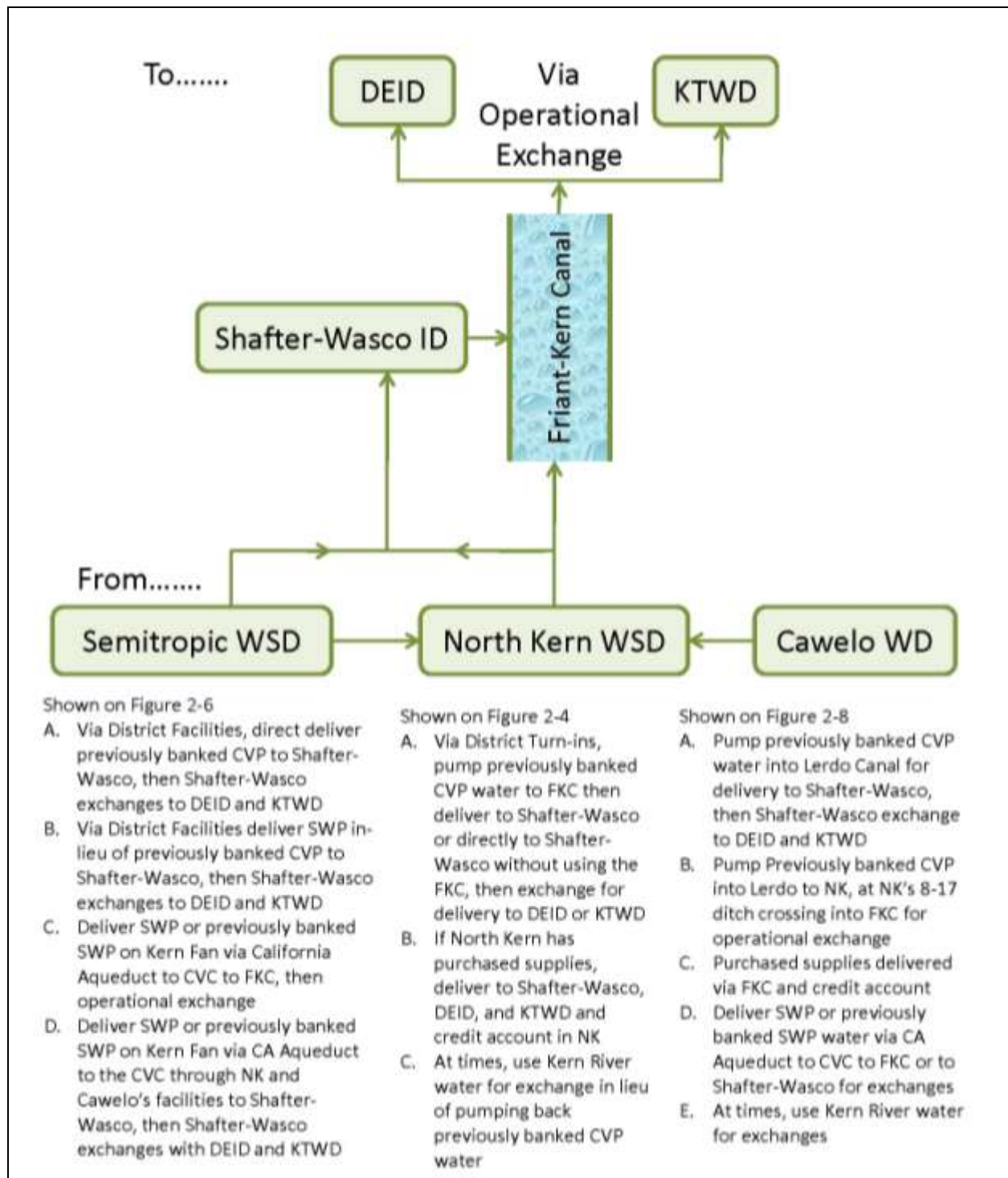


Figure 2-2 Return of Previously Banked CVP Water

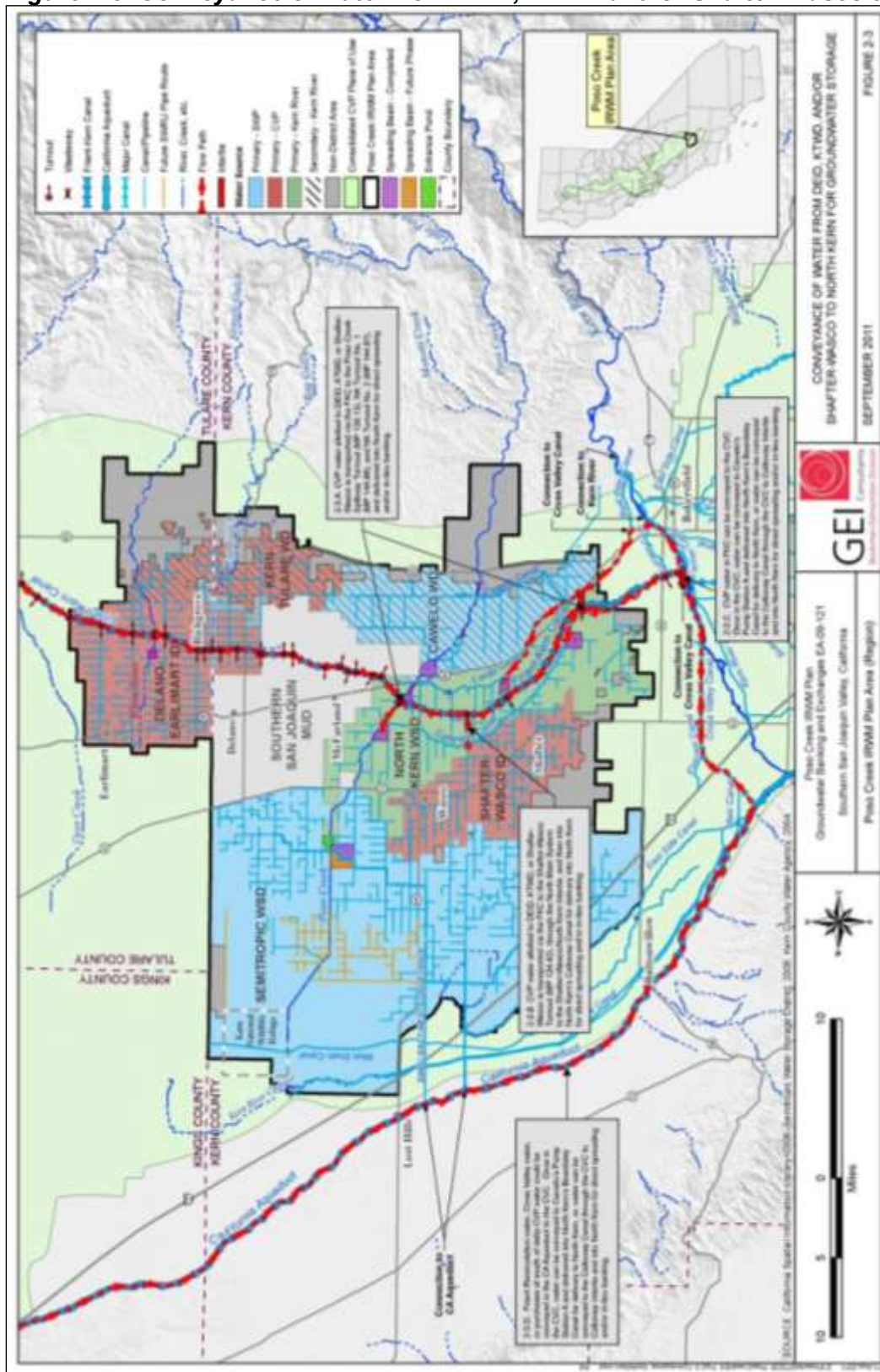
The various potential delivery and recovery routes between the Poso Creek RWMG are described in more detail in the following texts and reflected in the related figures.

Conveyance to and from North Kern (Figure 2-3 corresponds to this description)

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to North Kern for banking, transferring, or exchanging could occur using the FKC or CVC as follows:

- (2-3.A.) CVP water in the FKC could be directly delivered to North Kern from their existing turnouts on the FKC.
- (2-3.B.) CVP water in the FKC could be delivered from Shafter-Wasco turnouts on the FKC, then through interconnections between Shafter-Wasco and North Kern.
- (2-3.C.) CVP water in the FKC could be delivered to the Cross Valley Canal (CVC). Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to North Kern.
- (2-3.C.) CVP water in the FKC could be delivered to the CVC. Once in the CVC, water can be conveyed through the Calloway Canal and delivered to North Kern.
- (2-3.D.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to North Kern.

Figure 2-3 Conveyance of water from DEID, KTWD and/or Shafter-Wasco to North Kern



***Return of CVP water to DEID, KTWD and/or Shafter-Wasco from North Kern
(Figure 2-4 corresponds to this description.)***

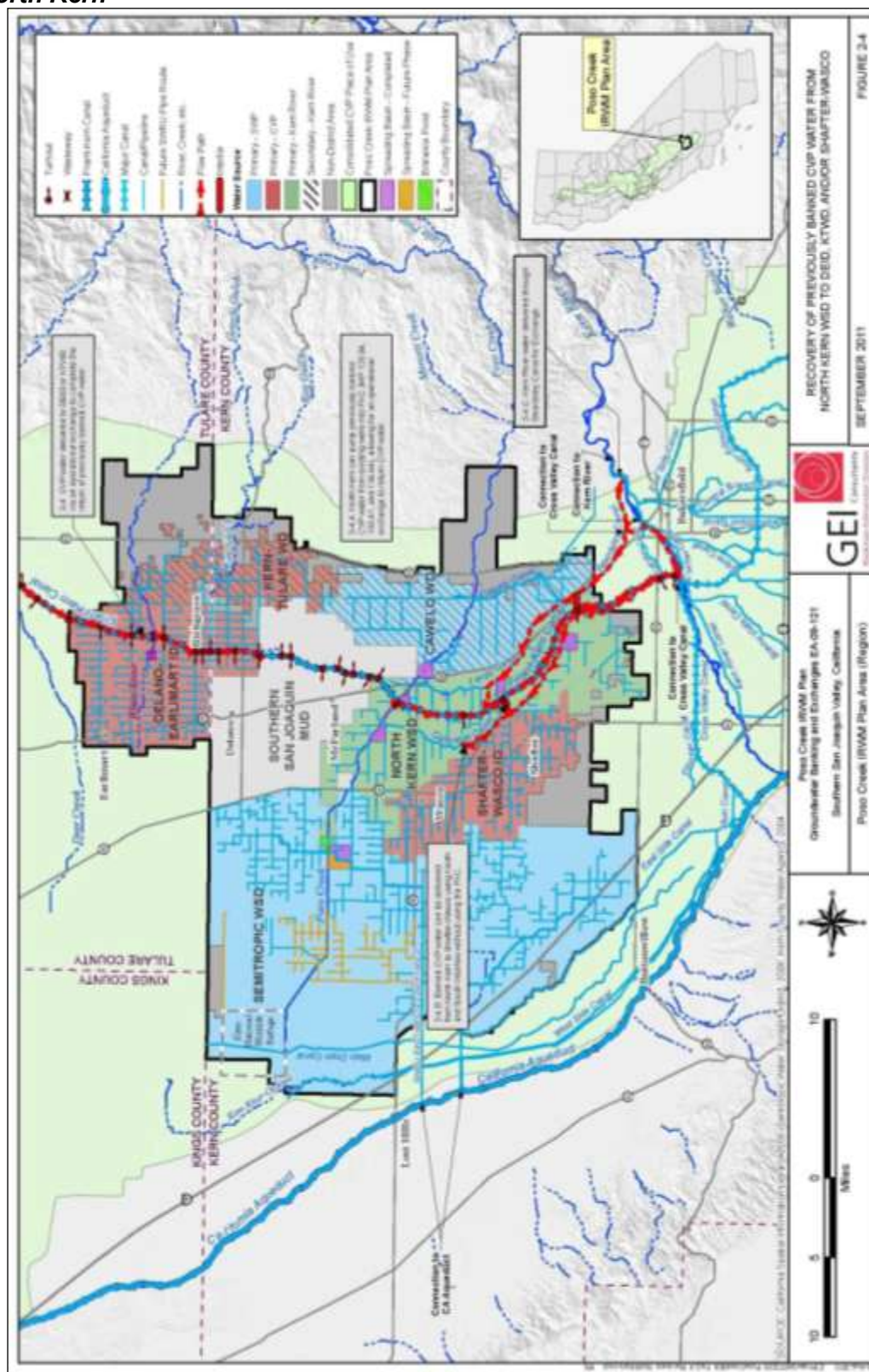
- (2-4.A.) North Kern could pump the previously banked CVP water from existing groundwater wells into three separate pipelines which would convey the water into the FKC. These pipelines are located at mileposts (MP) 129.94, 133.41 and 136.64 on the FKC. In addition, North Kern could pump water into the FKC at other locations approved by Reclamation which may require additional environmental analysis. If the previously banked CVP water is going to DEID or KTWD, water would be delivered in the FKC via an operational exchange through the Friant Water Authority to DEID or KTWD.
- (2-4.A.) North Kern could also pump the previously banked CVP water from existing wells directly to Shafter-Wasco from North Kern without using the FKC. If the previously banked CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.
- (2-4.B.) If North Kern has purchased other supplies of CVP or non-CVP water available from the FKC, DEID, KTWD and/or Shafter-Wasco would take possession of North Kern's CVP or non-CVP water from the FKC and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco.

There may be times when North Kern has surface water from the Kern River available for exchange for previously banked water with KTWD, DEID and/or Shafter-Wasco in-lieu of pumping the previously banked CVP water. In this event, the previously banked CVP water would be pumped and delivered to growers in North Kern and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco. The operational exchange could take place in several ways:

- (2-4.C.) North Kern's Kern River water could be delivered through the Beardsley Canal conveyed through the Lerdo Canal to the Calloway Canal and delivered through existing interties to Shafter-Wasco. If the returned CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.

North Kern's Kern River water could be delivered to a CVP (DEID, KTWD, and Shafter-Wasco) or non-CVP contractor (Semitropic and Cawelo), and these CVP or non-CVP contractors would make water available in the FKC for KTWD, DEID and/or Shafter-Wasco.

Figure 2-4 Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from North Kern

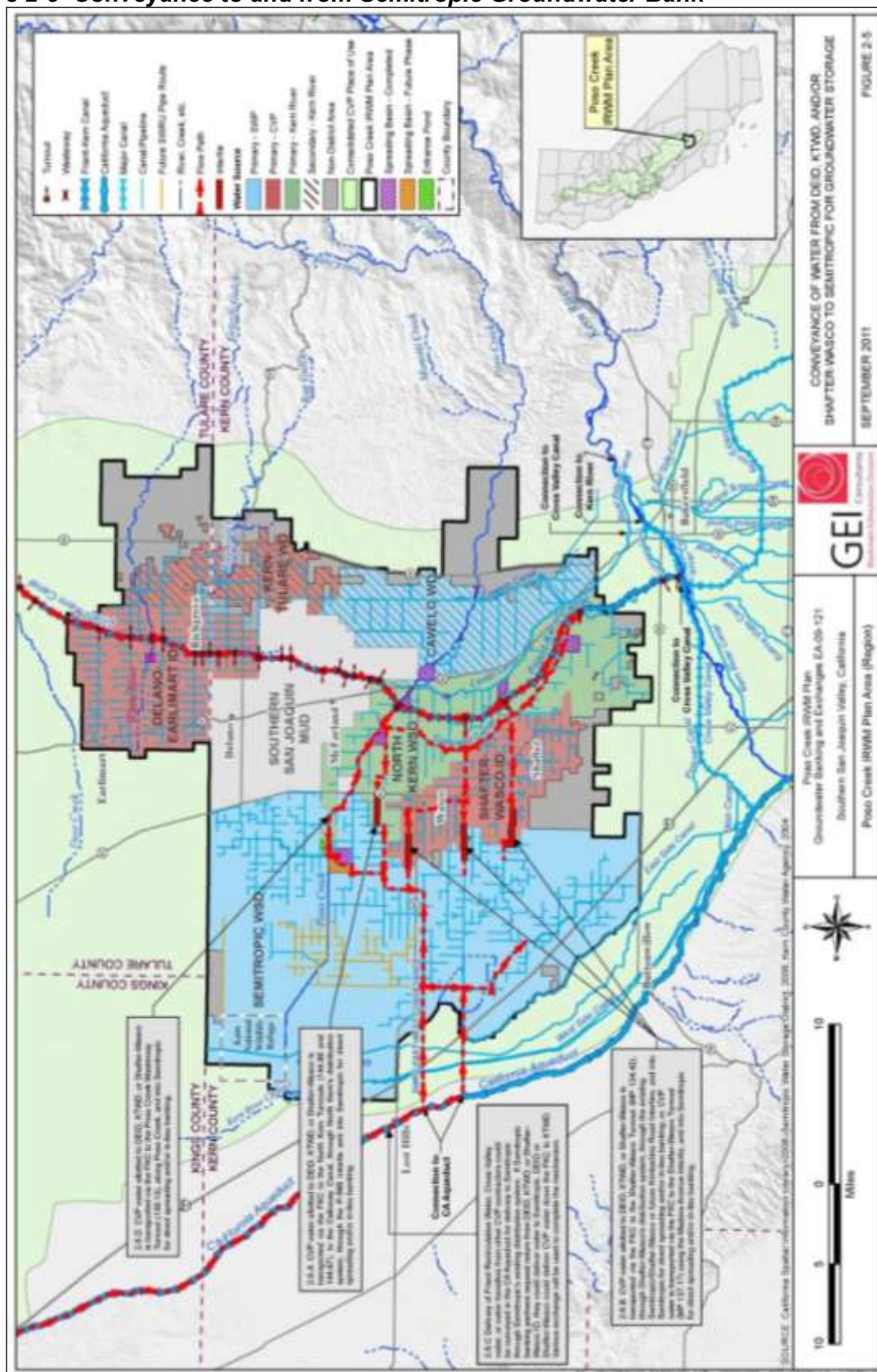


Conveyance to and from Semitropic (Figure 2-5 corresponds to this description)

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to Semitropic for banking, transferring, or exchange could occur using the FKC or CVC as follows.

- (2-5. A.) CVP water would be delivered down the FKC to North Kern's existing turnouts at MP 144.86 and MP 144.87 to the Calloway Canal, through North Kern's distribution system to interties with Semitropic.
- (2-5.B.) CVP water would be delivered down the FKC to Shafter-Wasco. Shafter-Wasco would deliver the CVP water from their turnout at MP 134.42 on the FKC through their north distribution system to Semitropic via the Semitropic/Shafter-Wasco original intertie or the Kimberlina Road intertie. Additionally, Shafter-Wasco would deliver the CVP water from their turnout at MP 137.17 through their south system to the Madera Avenue intertie.
- (2-5.C.) If other Semitropic banking partners are requesting return from Semitropic and DEID, KTWD, and/or Shafter-Wasco have CVP water available, the banking partner can take delivery of the CVP water and DEID, KTWD, and/or Shafter-Wasco would receive a deposit to their account in Semitropic for a like amount of water.
- (2-5.C.) DEID and/or Shafter-Wasco's CVP water would be delivered down the FKC to KTWD turnouts. A like amount of KTWD Cross Valley water supplies would be delivered to Semitropic from the Aqueduct.
- (2-5.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct for delivery to Semitropic through Semitropic's distribution system.
- (2-5.D.) CVP water would be delivered down the FKC to Poso Creek Wasteway at MP 130.13 and conveyed in Poso Creek to the Pond-Poso Canal. From the Pond-Poso Canal, CVP water would enter the spreading grounds for direct recharge or be delivered for irrigation ("in-lieu" banking).

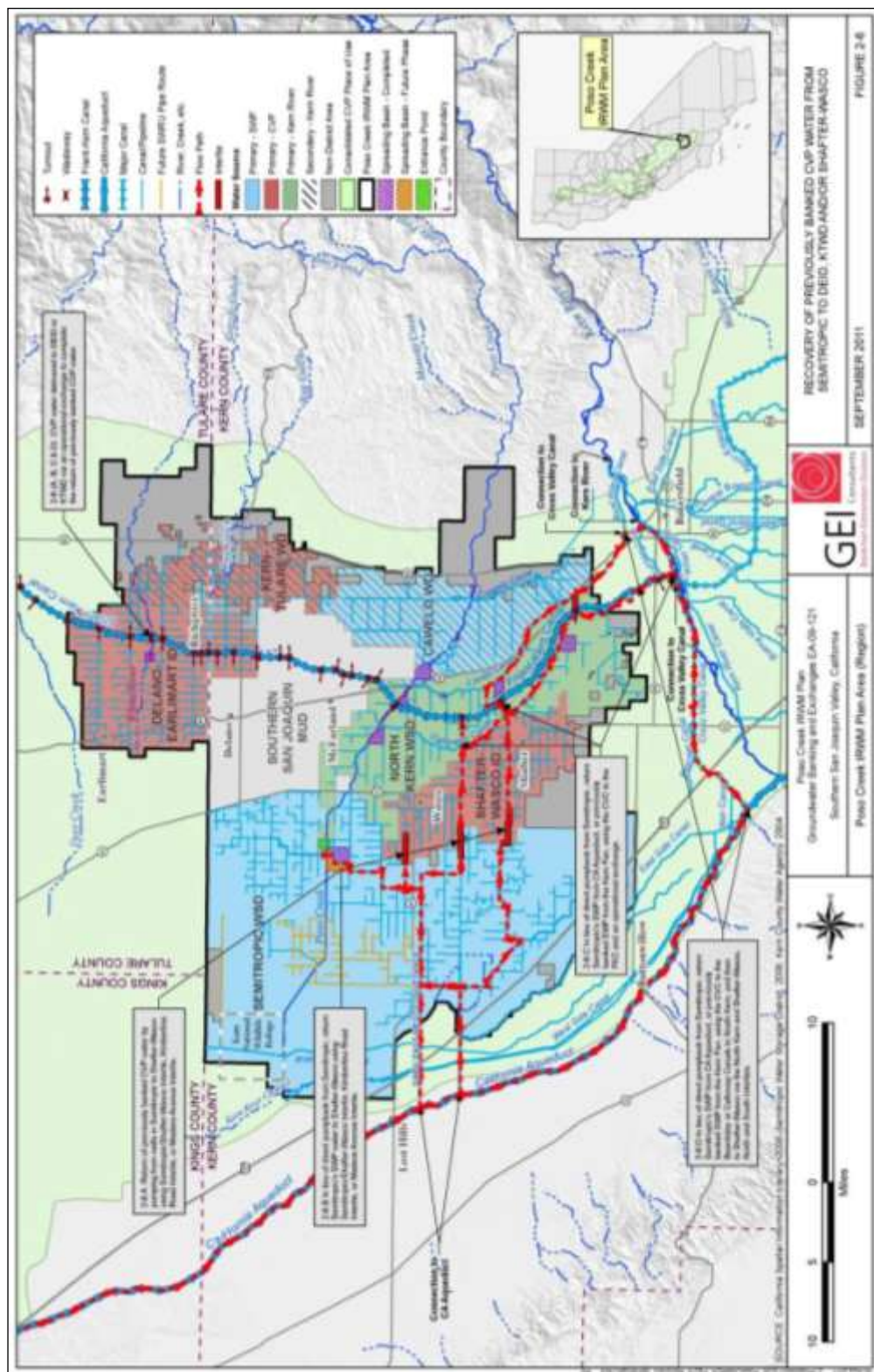
Figure 2-5 Conveyance to and from Semitropic Groundwater Bank



Return of previously banked CVP water from within Semitropic to DEID, KTWD and/or Shafter-Wasco (Figure 2-6 corresponds to this description)

- (2-6.A.) Previously banked CVP water could be pumped from groundwater wells within the district facilities into the Pond-Poso Canal. From the Pond-Poso Canal, the previously banked CVP water could be returned directly to Shafter-Wasco via the Kimberlina Road intertie, Madera Avenue intertie or the original Shafter-Wasco/Semitropic Intertie. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-6.B.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using their SWP water for delivery to Shafter-Wasco via the Kimberlina Road intertie, Madera Avenue intertie or the original Shafter-Wasco/Semitropic Intertie. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-6.C.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using Semitropic's SWP water from the California Aqueduct, or from previously banked SWP water on the Kern Fan Water Bank and Pioneer Projects. SWP water would be delivered through the CVC to the FKC and delivered via an operational exchange with the Friant Water Authority.
- (2-6.D.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using Semitropic's SWP water from the California Aqueduct, or from previously banked SWP water on the Kern Fan Water Bank and Pioneer Projects. SWP water could be returned via the CVC by delivering water from the CVC to the Beardsley or Calloway Canals to North Kern, and then to Shafter-Wasco via the North Kern and Shafter-Wasco, North and South interties. If the return water is going to DEID or KTWD, a like amount of CVP water would be exchanged with Shafter-Wasco for CVP supplies to be delivered to DEID and/or KTWD.

Figure 2-6 Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from Semitropic via exchange for SWP Water

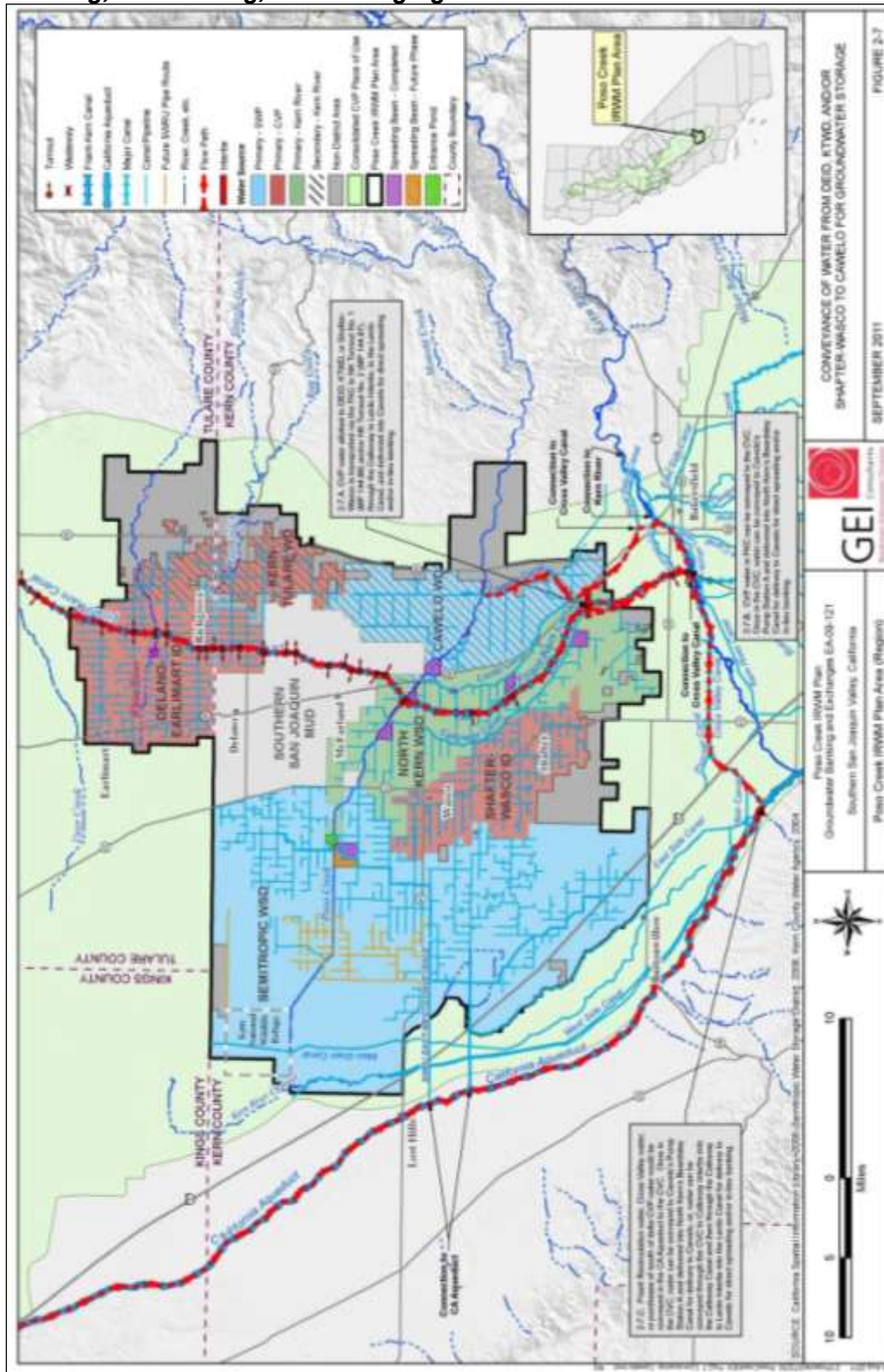


Conveyance to and from Cawelo Water District (Figure 2-7 corresponds to this description)

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to Cawelo for banking, transferring, or exchanging could occur using the FKC or CVC as follows.

- (2-7.A.) CVP water in the FKC could be delivered to North Kern from turnouts on the FKC, then to Cawelo.
- (2-7.B.) CVP water in the FKC could be delivered to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to Cawelo.
- (2-7.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to Cawelo.
- (2-7.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed through the Calloway Canal to the Lerdo Canal and delivered to Cawelo.

Figure 2-7 - Delivering CVP water from DEID, KTWD and/or Shafter-Wasco to Cawelo for banking, transferring, or exchanging.



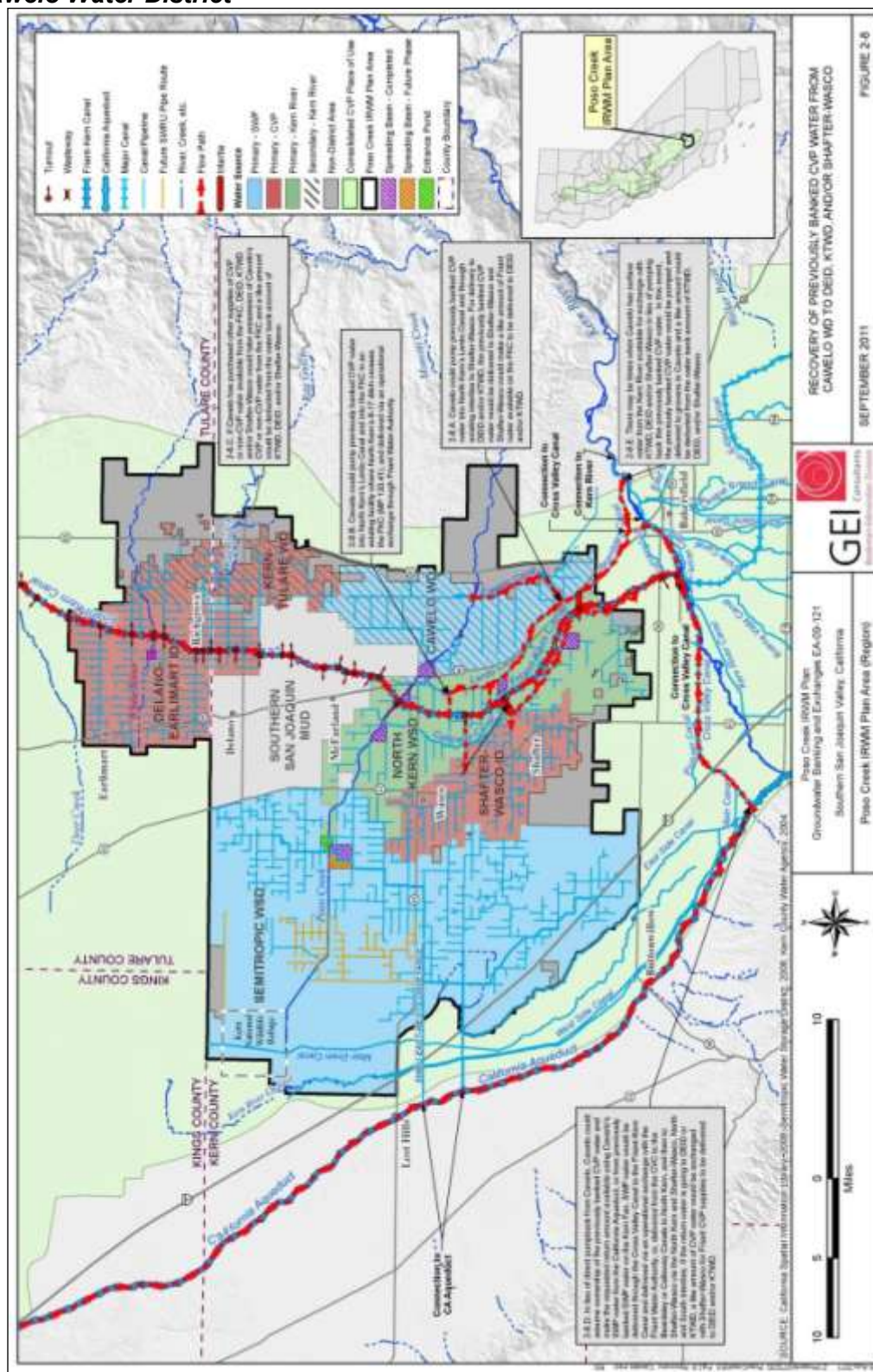
Return of previously banked CVP water from within Cawelo to DEID, KTWD and/or Shafter-Wasco (Figure 2-8 corresponds to this description)

- (2-8.A.) Cawelo could pump previously banked CVP water into North Kern's Lerdo Canal and through existing interties to Shafter-Wasco. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-8.B.) Cawelo could pump previously banked CVP water into North Kern's Lerdo Canal and into the FKC in an existing facility where North Kern's 8-17 ditch crosses the FKC at MP 133.41, and delivered via an operational exchange with Friant Water Authority.
- (2-8.C.) If Cawelo has purchased other supplies of CVP or non-CVP water available from the FKC, DEID, KTWD and/or Shafter-Wasco would take possession of Cawelo's CVP or non-CVP water from the FKC and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco.
- (2-8.D.) In lieu of direct pumpback from the Cawelo, Cawelo could assume ownership of the previously banked CVP water and make the requested return amount available using Cawelo's SWP water from the Aqueduct, or from previously banked SWP water in the Kern Water Bank. SWP water could be returned via the CVC by delivering water from the CVC to the Beardsley or Calloway Canals to North Kern, and then to Shafter-Wasco via the North Kern and Shafter-Wasco, North and South interties. If the return water is going to DEID or KTWD, a like amount of CVP water would be exchanged with Shafter-Wasco for CVP supplies to be delivered to DEID and/or KTWD.

There may be times when Cawelo has surface water from the Kern River available for exchange with KTWD, DEID and/or Shafter-Wasco in-lieu of pumping back the previously banked CVP water. In this event, the previously banked CVP water would be pumped and delivered to growers in Cawelo and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco. The operational exchange could take place in several ways:

- (2-8.E.) Cawelo's Kern River water could be delivered through the Beardsley Canal conveyed through the Lerdo Canal to the Calloway Canal and delivered through existing interties to Shafter-Wasco. If the returned CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.
- (2-8.E.) Cawelo's Kern River water could be delivered to a CVP (DEID, KTWD, and Shafter-Wasco) or non-CVP contractor (Semitropic or North Kern) and the CVP or non-CVP contractor would make water available in the FKC for KTWD, DEID and/or Shafter-Wasco.

Figure 2-8 - Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from Cawelo Water District



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Section 3 Affected Environment and Environmental Consequences

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

3.1 Cumulative Effects

The scope of Reclamation's approval for the Proposed Action is limited to those actions where Reclamation has approval authority, which includes portions of the IRWMP involving CVP water and/or facilities. However, the IRWMP also includes actions that do not involve CVP water or facilities, which do not require Reclamation approval. The Poso Creek RWMG approved an IS and adopted a subsequent Negative Declaration under CEQA, thereby allowing some of the members to proceed with making facility improvements as well as engage in groundwater banking, transfers, and exchanges that do not involve CVP water and/or facilities.

In addition, both KTWD and DEID already have Reclamation-approved long-term banking projects with North Kern, which they could continue to implement under the No Action Alternative. New Reclamation approval is not required to utilize the existing banking projects between KTWD and DEID and North Kern as part of the IRWMP, if the Proposed Action were to be approved.

The Poso Creek RWMG can bank, transfer, and exchange water utilizing existing facilities, but also plan to continue improving operations by removing bottlenecks in their respective distribution systems as they react to the changing timing of water supplies. As part of that planning process, a list of future facilities that could become part of this program is found in Table 3-1. These future facilities, once fully permitted/approved and constructed, could become available for use by the RWMG under the IRWMP.

The future facilities listed in Table 3-1 that require Reclamation approval because they involve the FKC, would also require appropriate environmental review. However, these facilities are not needed to approve the Proposed Action.

Since these future facilities are not required to approve the Proposed Action, and most can occur under the No Action Alternative, the scope of the cumulative effects would focus on the IRWMP itself since it is a 25-year program and each banking, transfer, and exchange project could contribute to cumulative effects to the Poso Creek Region.

Table 3-1 Planned Conveyance, Recharge, and Recovery Facilities

EXPAND IN-LIEU SERVICES AREAS	
Planning/Preliminary Design	Ready for Construction
Connect FKC Turnout to Cawelo's North System	Semitropic Stored Water Recovery Unit
EXPAND DIRECT RECHARGE	
Planning/Preliminary Design	Ready for Construction
Groundwater Banking Conveyance Improvements to North Kern Recharge and Recovery Facilities, and Groundwater Recovery Wells	
Pond-Poso Entrance (Retention) Ponds	Pond-Poso Spreading and Recovery Facility (constructed and operational in 2011)
In-district groundwater banking programs	Turnipseed Groundwater Banking Project Enhancement along White River in DEID (constructed and operational in 2011)
MODIFY CONVEYANCE SYSTEMS	
Planning/Preliminary Design	Ready for Construction
California Aqueduct to the FKC Intertie (multi-district conveyance facility)	Calloway Canal Improvements
Pilot Arsenic Treatment Plant	CVC to Calloway Canal Intertie (Under Construction in 2012)
Reverse Flow in the FKC	Calloway Canal to Lerdo Canal Intertie (Constructed and operational in 2011)
Shafter-Wasco/Semitropic Intertie on Kimberlina Road	North Kern/Shafter-Wasco North Intertie (Under Construction, would be operational in early 2012)
Shafter-Wasco/Semitropic Intertie on Madera Avenue	North Kern/Shafter-Wasco South Intertie (Constructed and operational in 2011)

*Would not be used until all environmental compliance has been complete.

3.2 Water Resources

3.2.1 Water Quality: Affected Environment

The Region encompasses nearly 500,000 acres in the Southern San Joaquin Valley. Approximately 70 percent of that area is irrigated lands. The average annual surface water diversion into the Proposed Action Region is 775,000 AF from the SWP, the CVP and the Kern River. Average precipitation ranges from 5 inches per year at the subbasin interior to 9 to 13 inches per year at the eastern, southern and western extents. The principal surface water bodies are the Kern River and Poso Creek (DWR 2006).

The Poso Creek Region is located within the Tulare Lake Hydrologic Region of California. It is largely within the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. The Kern County Subbasin is bounded by the Tule Groundwater Subbasin to the north, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. The average water level in the subbasin has been generally stable from 1970 through

2000. The estimated total water storage is 40,000,000 AF with 10,000,000 AF of dewatered aquifer storage (DWR 2006).

The shallow zones of the eastern portion of the basin contain calcium bicarbonate waters with sodium concentrations increasing with depth below the ground surface. From the eastern side of the basin to the western side, bicarbonate levels decrease and sulfate concentrations and, to a lesser extent, chloride concentrations increase. The total dissolved solids (TDS) range from 150 to 5,000 milligrams per liter (mg/L) with an average range of 400-450 mg/L. The TDS values also vary vertically due to the interbedded layers and the presence of regional clays. Water below about 1,300 feet in the vicinity of the Semitropic Stored Water Recovery Unit (SWRU) well field is considered saline, with TDS values exceeding 2,000 mg/L. Water in the producing zones of water wells used by growers typically range from 150 to 450 mg/L, and the proposed SWRU wells have been projected to range from 150 to 250 mg/L (DEIR-SWRU 1999). However, the SWRU would not be used until all required compliance has been completed.

As with TDS, the arsenic levels vary both vertically and horizontally throughout the Semitropic district. Values from “non-detect” (below 2 parts per billion [ppb], or micro grams per liter) up to 42 ppb have been measured in production and monitoring wells throughout the district. Arsenic concentrations generally increase from southeast to northwest, and increase with depth. Arsenic concentrations have been correlated to the “reducing” zones --- lake bed deposits associated with thicker clay lenses in the aquifer (Ken Schmidt and Associates 2009).

Groundwater quality within the Poso Creek Region is generally suitable for the overlying agricultural uses and, except for arsenic in some parts of the Region, meets drinking water standards. However, as surface water supplies become scarce, groundwater levels could deepen over time due to groundwater pumping to a point where water quality could degrade.

The water conveyed in the FKC is from the San Joaquin River and is considered to be of good quality because it originates from snow melt from the Sierra Nevada. The water is used for municipal and industrial (M&I), and agricultural purposes in Fresno, Tulare, and Kern counties.

3.2.2 Water Quality: Environmental Consequences

No Action

Under the No Action Alternative, less water may be conveyed into the Region as compared to the Proposed Action, resulting in a decline in groundwater levels and related potential degradation of water quality in certain portions of the Region.

Proposed Action

The Proposed Action would allow existing sources of water including the SWP, the CVP Friant and Delta Divisions, and the Kern River to be applied to the land or recharged within the Region.

Storage of water in certain groundwater projects may result in changing the water quality characteristic of the delivered water. When water is recovered it would retain the water quality characteristic of the water in that portion of the groundwater basin from which it is being recovered. Pumped groundwater can be exchanged with surface water originally destined to the district owing the water or with nearby agricultural districts through existing interconnections.

Depending on the facility and groundwater quality, decreases in concentrations of certain constituents may occur as well as increases in others. To the extent that direct delivery of groundwater to the Aqueduct or FKC is needed, the water quality of constituents known to be of concern would be measured and compared against the background water quality in the surface water conveyance system in accordance with the Reclamation's existing policy for accepting waters in the Friant-Kern and Madera canals. All waters introduced into the FKC as a result of banking programs under this project would be in accordance with this policy. Calculations of the blended water quality would be made, taking into consideration the groundwater quality and the historic surface water quality. Each agreement between districts would indicate if previously banked CVP water was to be returned to the FKC and if a comparison of the water quality is necessary.

Due to the benefits of storing better quality CVP water from the FKC, the groundwater basin water quality impacts associated with declining water levels would decrease, resulting in a positive impact to the basin below the district storing the water. In addition, conserving the water for later delivery and use into the district originally owning or acquiring the supply would result in less groundwater pumping in that district. This would help preserve water quality in those districts by preserving shallower groundwater levels. Therefore, there would be no adverse impacts to water quality due to the Proposed Action.

3.2.3 Water Quality: Cumulative Impacts

Projects involving members of the RWMG over the past five years consisted of banking, transfers and exchanges, Warren Act contracts, and Article 5 Exchanges. The environmental impacts of these actions were analyzed under NEPA by Reclamation and did not contribute to adverse cumulative impacts since they are limited to water movements (no ground disturbance) and did not involve direct adverse impacts. The future facilities listed in Table 3-1 can occur under the No Action Alternative and are therefore considered baseline conditions. As such, the Proposed Action when added to other past, present, and future similar actions would not result in cumulative adverse impacts to water quality.

3.2.4 Surface Water Resources: Affected Environment

In the San Joaquin Valley portion of Kern and Tulare counties, large quantities of water are utilized for agriculture as well as for M&I use. Agriculture is the primary land use, for which the soils and climate are well suited. Numerous public agencies, formed under the laws of the State of California, were established to develop, regulate, and distribute local water supplies and supplies imported from outside the Region by the SWP and the CVP. Naturally occurring water supplies are supplemented with:

- SWP water via the Aqueduct (SWP Contract, Article 21, and other purchased water);
- CVP water via the Aqueduct (Cross Valley, Section 215, Recaptured water);
- CVP via the FKC (Class 1 and 2, Cross Valley, Section 215, RWA, Recaptured water).

The RWMG districts are uniquely positioned with natural and man-made assets that allow for regional solutions to its challenges of balancing surface water and groundwater supplies. Among these assets are:

- The Region is served by the Aqueduct and the FKC. These two canals are linked near Bakersfield by the locally-operated CVC, which allows water to be operationally exchanged between the aqueducts of the SWP and the CVP.
- U.S. Army Corps of Engineer's Isabella Dam and Reservoir provides storage capacity for Kern River water. While used primarily as a flood control reservoir, Isabella Reservoir provides significant conservation benefits through the regulation of stream flows for delivery to irrigation and groundwater recharge basins in North Kern.
- A vast groundwater basin with significant dewatered storage capacity.
- An extensive network of pipelines and canals which deliver water to irrigated lands and to dedicated water spreading areas, thereby providing recharge to the underlying groundwater reservoir.
- An existing institutional structure, consisting of numerous public water entities, the area-wide KCWA, and RWMG districts, which collectively have governance, local water rights, and established contractual relationships necessary for the management of agricultural water.

The volume of Friant Division CVP water delivered to CVP contractors under existing water service contracts available for banking, transferring, or exchanging varies from year to year and is dependent upon hydrological conditions. This water is categorized as either "Class 1" or "Class 2" water. "Class 1" water is a supplemental supply of water for certain contractors. "Class 2" water is undependable supply. The Class 2 supply of water is that which can be made available subject to the contingencies for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to the supply of Class 1 Water. The total "Class 1" water under contract is about 800,000 AF. Class 2 water totals about 1,401,475 AF. In addition to Class 1 and Class 2 supplies, other sources available for delivery for banking, transferring, and exchanging include Section 215 water, floodwater, RWA water from the San Joaquin River Settlement and recaptured Friant water, Pre-1914 water, and Refuge water.

Water for the Cross Valley contractors typically originates from northern California through the Aqueduct and the CVC. However, under special circumstances, CVC can obtain water from Millerton Reservoir either by direct delivery in wet years after the needs of the Friant Division contractors (and other environmental requirements) have been met or by exchange arrangements with Arvin-Edison Water Storage District. The amount of water surplus to a CVP contractor's irrigation demand each year is unpredictable and varies depending upon hydrologic events.

While several of the RWMG member agencies do not have long-term CVP contracts (non-CVP districts), they have historically entered into temporary contracts for Section 215 Water and have accepted delivery of Friant surplus flows. Contracts executed with non-CVP districts for Section 215 Water supplies are dependent upon water becoming available as defined in Section 215 of the Reclamation Reform Act. Additionally, the non-CVP districts have a lower priority to take delivery of these unstorable surplus flows. The non-CVP districts are offered 215 Water only after the needs of the Friant Division and CVC have been met. The primary surface water

supplies for each non-CVP district are listed in Table 3-2 below. These surface water supplies are potential supplies for exchanges. The primary uses of the supplies are for agriculture, but may also be used for other purposes consistent with the contracts or water rights and regulatory constraints.

Table 3-2 Non-CVP districts' Surface Water Supply

Districts	Surface Water Supply	Primary Use
Cawelo	SWP, Poso Creek, and Kern River	Agricultural
North Kern	Kern River, Poso Creek	Agricultural
Semitropic	SWP and Poso Creek	Agricultural

The FKC is a prominent feature in the southern San Joaquin Valley (SJV) and provides for the transport of water through the southeastern portion of the SJV for delivery to CVP Contractors. The FKC extends 152 miles south from Friant Dam in Fresno County to the Kern River in Kern County four miles west of downtown Bakersfield. The FKC conveys water to areas in the Region through existing turnouts.

The CVC begins at the Aqueduct near Tupman and conveys water across the valley to the FKC near Bakersfield and beyond. Water in the CVC flows in either direction, conveying water to the east or to the west. The sources of CVC water are from the Delta via SWP or CVP facilities, the FKC, groundwater or Kern River water. In addition to the CVC, recent interties between Shafter-Wasco and Semitropic, Shafter-Wasco and North Kern, and North Kern and Semitropic have created opportunities to expand the capability of the CVC at locations more proximate to the RWMG.

Water contractors in the SJV have constructed extensive water conveyance systems to provide water throughout their districts. Water is distributed through an intricate network of canals and aqueducts to provide water where needed.

3.2.5 Surface Water Resources: Environmental Consequences

No Action

Under the No Action Alternative, water banking, transfer, and exchange opportunities would be limited. There would be no impacts to the conveyance facilities. Overall, beneficial uses of water supplies would not improve, and wet period supplies would not be conserved to supplement supplies during dry periods to extent it would under the Proposed Action.

Proposed Action

Under the Proposed Action, increased water banking, transfers, and exchanges during wet periods would occur to off-set decreases in the surface water supplies within the Region. The additional water banking, transfers, and exchanges could add to beneficial uses of water supplies and reduce the amount of water that contributes to flooding and to saline sinks. In any given year, water would be conveyed from areas with excess water to groundwater banks or exchanged or transferred with areas with demand, recharge capacity, and available storage. In the case of exchanges, the agreed portion of the water would be returned to the same contractor or service area that supplied the water. The return would be made at a time when the original district has a demand and insufficient supplies are available from its basic contract supplies. No increases or decreases in allowable diversions from reservoirs or waterways would occur, although the timing

of delivery would change. Therefore, there would be no adverse impacts from the Proposed Action to surface water resources.

3.2.6 Surface Water Resources Cumulative Impacts

The reservoirs, rivers and creeks within the Region associated with the Proposed Action are managed for flood control, M&I purposes, and agricultural supplies. Diversions of water occur based on the hydrological and environmental conditions. During wet seasons and high water flows, surplus water supplies are released and, if possible, marketed to quickly disperse this water to avoid flooding and damage downstream in the rivers. The Proposed Action would not contribute to or interfere with flood control management and operations. The Proposed Action would not interfere with deliveries, operations or cause adverse changes to the rivers, creeks or conveyance facilities associated with the SWP or CVP. The conveyance facilities and river systems in and around the Region are interconnected and allow for a myriad of transfers, exchanges, contract assignments, banking projects, and conveyances of water via Warren Act contracts, Operational Contracts or Article 55 of the SWP. The conveyance of water under these water service options are subject to available capacity, meeting primary requirements, and environmental reviews. Therefore, the Proposed Action would not result in cumulative adverse impacts to surface water resources.

3.2.7 Groundwater Resources: Affected Environment

The Region overlies the groundwater basin in the Tulare Lake Basin Hydrologic area, located in the northern portion of Kern County and the southern portion of Tulare County. The Kern County Subbasin is bounded by the Tule Groundwater subbasin to the north, by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains on the east and southeast, and by the marine sediments of the San Emigdio Mountains and Coast Ranges on the southwest and west. In 1998, the California Water Plan Update (Bulletin 160-98) estimated a groundwater overdraft for California of 1.5 million acre-feet per year, with most of the overdraft being in the Tulare Lake, San Joaquin River and Central Coast Hydrologic Regions. With existing facilities and programs, predicted overdraft for the Tulare Lake Hydrologic Region for the year 2020 (both average and drought year) is 670,000 AF (DWR 1998a). Usable storage capacity for the Tulare Lake Hydrologic Region is estimated to be 28 million AF, and the perennial yield is 4.6 million AFY.

Most of the lands in the Poso Creek Region are underlain by useable groundwater and, as a result, most of the irrigated agriculture was developed with reliance on pumped groundwater. Some lands continue to rely exclusively on pumped groundwater. Accordingly, to the extent that surface water supplies are inadequate to meet irrigation water requirements, groundwater is used to make up the shortfall, provided groundwater levels and quality are adequate to economically sustain crop yields. In 2009, groundwater pumping lifts in the Region averaged 244 feet and varied from 260 to 400 feet.

The groundwater system under the Region consists of interbedded layers of sand, silt, and clay to a depth of about 3,000 feet below ground surface. Water quality samples from agricultural water wells and monitoring wells perforated in specific layers within the aquifer, along with

stratigraphic mapping, show that the primary producing zones lay between 300 and 1,300 feet below ground surface (DEIR-SWRU 1999).

Under water supply conditions over the last 25 years, groundwater levels within the Region have not evidenced an obvious long-term rise or decline; rather, they have gone up during wet periods and down during dry periods as groundwater was used to make up for shortfalls in irrigation water supplies (Poso Creek IRWMP 2007).

It is reasonable to expect that groundwater use in the future would follow the conjunctive management pattern of the past, and be used to satisfy any additional shortages in surface water supplies. Accordingly, any reduction in surface water supplies can be expected to result in a corresponding increase in the use of groundwater, assuming similar conditions of demand. The use of groundwater supplies has shifted to some extent from agriculture to urban use due to urban growth. In addition, a shift to more profitable permanent crop acreage (with a corresponding drop in annual crop acreage) has created a need for reliable water supplies. Lands used for annual crops can be fallowed during times of water supply shortage whereas permanent crops cannot and must be watered every year.

Groundwater quality in the Region is generally suitable for irrigation. However, as groundwater levels drop, water quality is expected to degrade as discussed under Section 3.1. The districts within this Region are adding direct recharge capacity to increase their absorptive capacity and to add flexibility to the absorptive capacity at times during the year when irrigation demands are low; several direct recharge facilities have recently been added or are under construction as described previously in Table 3-1.

3.2.8 Groundwater Resources: Environmental Consequences

No Action

The No Action Alternative would likely result in increases in groundwater pumping as surface water supplies decline, and a resulting decline of the groundwater table and degradation of water quality and increasing the chance for land subsidence. Under the No Action Alternative, less flexibility in the timing of delivery of surface supplies translates to less opportunity for banking, transfer, or exchange of surface water in the Region for groundwater. In essence, limiting or delaying CVP surface water deliveries to neighboring non-CVP districts would effectively decrease opportunities to deliver surface water supply, and in turn affects the groundwater level and supply beneath all district service areas in the Region.

Table 3-3 Recharge, Storage and Return Facilities Capacity

Districts	Recharge Capacity				Return Capacity	
	Spreading Basin(s)	Recharge Rate (AF/day)	Fill Rate (cfs)	Spreading Ground Capacity (AFY)	Instantaneous (cfs)	Annual (AFY)
Semitropic	Pond-Poso (existing and proposed; partially constructed)	250	370	65,000	105 (district wells) 705 (landowner wells)	66,000
Shafter-Wasco	none					
North Kern	5 sites (existing)	720	363	300,000	200 - 300 (estimated)	80,000 (historical) 200,000 (theoretical)
DEID	Turnipseed (existing)	50 - 60	25 – 30	To be determined (TBD)	TBD	TBD
KTWD	none					
Cawelo	1 site (existing)	160	80	65,000	40	29,000

Notes:

1. Data includes capacity for existing and proposed spreading grounds.
2. All spreading grounds were constructed under separate environmental documents, except for North Kern whose spreading grounds predate NEPA and CEQA.
3. Listing of these banking capacities is not intended to imply that the capacity will be solely utilized for the Proposed Action. Each district retains the right to adopt banking and/or exchange agreements with third parties and this document is not intended to include such agreements and contracts. Participants are responsible for coordinating their own storage space for the Proposed Action and any other such approved projects.

Proposed Action

Under the Proposed Action, the banking, transferring, and exchanging of water to areas with insufficient surface water supplies would result in less pumping of groundwater during times of inadequate surface water supply. Groundwater overdraft caused by pumping is considered a threat to the water quality and quantity in the San Joaquin Valley; therefore, less groundwater pumping could constitute a beneficial effect.

Recharging surplus water into groundwater stores surface water during wet periods (seasons or years) as groundwater, which would result in shallower groundwater levels and increased reliability. Return of the agreed upon portion of the previously banked water would result in increased supply reliability and higher groundwater elevations in the district returning the water and the recipient district in comparison to the No Action Alternative. Because of the banking agreement and action, a higher groundwater level would be maintained than occurs without the banking agreement. The possibility of land subsidence would be less for the Proposed Action as compared to the No Action alternative. Therefore, subsidence that could occur as a result of an increased reliance on groundwater due to shortages in surface water supplies may be preventable by the Proposed Action. There would be no adverse impacts to groundwater resources due to the Proposed Action.

3.2.9 Groundwater Resources: Cumulative Impacts

Over the long-term, groundwater levels could benefit from the groundwater banking actions and the decrease in the need to pump groundwater. Land subsidence is less likely to get worse as a result of the Proposed Action. Therefore, no adverse cumulative impacts to groundwater resources would occur.

3.3 Land Use

3.3.1 Affected Environment

The Region contains some of the most productive agricultural land in the southern San Joaquin Valley, with about 346,540 acres of irrigated cropland in the Region out of a gross area of about 499,770 acres. During the past 25 years, cropping patterns on agricultural land have steadily migrated towards high-value permanent crops with a corresponding reduction in annual crop types. Irrigation methods have also changed, with an increase in the use of low-volume systems for water application. Table 3-4 shows the irrigated land for each district, based on each district's 2005 crop surveys (Semitropic 2005). For the Region, about 67 percent of the irrigated land is planted to permanent crops, with some individual districts having 80 to nearly 100 percent of their irrigated land in permanent crops. By comparison, about 40 percent of the irrigated land in the Region was planted to permanent crops 25 years ago.

Table 3-4 Irrigated Area in the Poso Creek Region for 2005

District	Total Area (acres)	Irrigated Area (acres)	Permanent Crops (acres)
Cawelo	44,970	33,700	32,900
DEID	56,500	47,950	44,820
KTWD	23,050	17,200	17,200
North Kern	61,050	51,280	35,520
Semitropic	222,120	121,390	47,110
Shafter-Wasco	34,140	30,290	16,830
Subtotal*	441,830	301,810	194,380

*Irrigated land acreages are from the 2005 land use crop acreages for each agency, excluding idle acreages and are rounded to the nearest 10 acres.

It is noted that all of the districts in the Region were organized to serve irrigation water; accordingly, most do not directly provide domestic or residential water within their boundaries. However, by virtue of delivering surface water to areas previously reliant on groundwater and limited surface water supplies, all of the districts have provided groundwater pumping and quality benefits to the Region and communities that lie within their boundaries. Several districts have management agreements with economically-disadvantaged communities in their vicinity.

3.3.2 Environmental Consequences

No Action

Under the No Action alternative, the loss of surface water supplies for irrigation would be made up through an increased use of groundwater. Therefore, there would be no change in land use in the short-term.

Proposed Action

The Proposed Action would allow better water management of the Region's varied water resources, which in turn would help maintain the existing agricultural practices and land use within the Region. Current land use would remain the same from implementing the Proposed Action.

3.3.3 Cumulative Impacts

Development and urbanization is occurring in the Region. This type of land use causes an increase in water demand. The No Action Alternative would have the potential to result in land use changes over the long-term. Over the long-term, increased reliability on surface water supplies would allow farmers to maintain their existing crops. Therefore, the Proposed Action, when added to other past, present, and future actions, would not contribute to adverse cumulative impacts to land use.

3.4 Biological Resources

3.4.1 Affected Environment

Reclamation requested an official species list from Service on December 14, 2011 via the Sacramento Field Office's website:

http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-overview.htm.

The list is for Kern (San Joaquin Valley portion) and Tulare Counties (document number: 111214014439). See Table 3-5 for species information. Reclamation further queried the California Natural Diversity Database (CNDDB) for additional data (CNDDB 2010).

Table 3-5 Threatened and Endangered Species and Critical Habitat

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	CRITICAL HABITAT
Bakersfield cactus	<i>Opuntia treleasei</i>	Endangered	No
blunt-nosed leopard lizard	<i>Gambelia silus</i>	Endangered	No
Buena Vista Lake shrew	<i>Sorex ornatus relictus</i>	Endangered	Designated
California condor	<i>Gymnogyps californianus</i>	Endangered	Designated
California jewelflower	<i>Caulanthus californicus</i>	Endangered	No
California red-legged frog	<i>Rana draytonii</i>	Threatened	Designated
California tiger salamander	<i>Ambystoma californiense</i>	Threatened	Designated
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered	Designated
fisher	<i>Martes pennanti</i>	Candidate	N/A
Fresno kangaroo rat	<i>Dipodomys nitratoide exilis</i>	Endangered	Designated
giant garter snake	<i>Thamnophis gigas</i>	Threatened	No
giant kangaroo rat	<i>Dipodomys ingens</i>	Endangered	No
Hoover's spurge	<i>Chamaesyce hooveri</i>	Threatened	Designated
Keck's checker-mallow	<i>Sidalcea keckii</i>	Endangered	Designated
Kern mallow	<i>Eremalche kernessis</i>	Endangered	No
Kern primrose sphinx moth	<i>Euproserpinus euterpe</i>	Threatened	No
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Designated
Little Kern golden trout	<i>Oncorhynchus aquabonita whitei</i>	Threatened	Designated
longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	Endangered	Designated
mountain yellow-legged frog	<i>Rana muscosa</i>	Candidate	N/A
palmate-bracted bird's-beak	<i>Cordylanthus palmatus</i>	Endangered	No
Ramshaw sand-verbena	<i>Abronia alpina</i>	Candidate	N/A
San Joaquin adobe sunburst	<i>Psuedobahia peirsonii</i>	Threatened	No
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	Endangered	No
San Joaquin Valley Orcutt grass	<i>Orcuttia inaequalis</i>	Endangered	Designated
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	Endangered	No
Sierra Nevada bighorn sheep	<i>Ovis canadensis californiana</i>	Endangered	Designated
southwestern willow flycatcher	<i>Expidonax traillii extimus</i>	Endangered	No
Springville clarkia	<i>Clarkia springvillensis</i>	Threatened	No
Tipton kangaroo rat	<i>Dipodomys nitratoide nitratoide</i>	Endangered	No
valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	Designated
vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	Designated
vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	Designated
western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	N/A

Beginning in 1991, Service Biological Opinions (BOs) addressed delivery of CVP water to most of the Friant Division water service contractors, and committed Reclamation to developing and implementing a long-term program to address the needs of listed endangered species in the San Joaquin Valley. The “Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contractors”, dated January 19, 2001, is the more recent BO issued by the Service for the Friant Division water service contractors.

The SJV has a higher density of federally listed species than any other location within the continental United States, as well as species of concern and state listed species. Non-listed

species are also abundant throughout the project area. Threats to wildlife primarily come from loss of habitat related to agricultural and urban development throughout the San Joaquin Valley.

The Region contains suitable habitat for federally listed species, including higher-quality native lands. Other non federally-listed but special-status species such as the Swainson's hawk and western burrowing owl occur in the Proposed Action area as well. It is assumed that this EA covers banking and exchange operations of existing facilities only. Construction of additional projects would require separate environmental review analysis prior to the construction of those facilities.

3.4.2 Environmental Consequences

No Action

Under the No Action alternative, it is assumed that the additional planned construction projects would occur and may impact federally listed species. If a federal agency is not the lead on these particular projects, the project proponents would be expected to obtain incidental take permits from the Service through the section 10 process, in cases where incidental take would occur. In the case where other special-status species may be impacted, such as the Swainson's hawk and western burrowing owl, the project proponents would also need to comply with the California Endangered Species Act and other relevant Fish and Game Code.

Proposed Action

No impacts to biological resources would occur as a result of the Proposed Action Alternative. The contractors would sign binding letters of agreement restricting the use of this water and including the requirements to avoid environmental impacts. The requirement that no native lands be converted without consultation with the Service, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife.

Farming practices would not change. Reclamation determines annual allocations to CVP contractors based on hydrological conditions and after meeting water quality and fish and wildlife requirements. The amount of water diverted from reservoirs or waterways would not change although the timing may differ. Habitat types would not change from past conditions. Lands that have been fallowed three consecutive years would require biological surveys prior to disking. Approval of the banking and exchange of water would not interfere with the requirements or ability of Reclamation to make water available for fish and wildlife uses mandated by CVPIA.

As discussed under the No Action alternative, it is assumed that the construction projects that were disclosed earlier in this document would occur regardless of the Proposed Action; however, the construction project may occur later in time with the Proposed Action. They would not depend on the Proposed Action for their justification. Therefore, their impacts would have to be addressed separately and would occur as explained above.

3.4.3 Cumulative Impacts

The Proposed Action Alternative would have no impact on biological resources, and therefore would have no cumulative impact on biological resources. The No Action Alternative would

have the potential to result in land use changes over the long term. Land use changes, if they occur, could be either beneficial or detrimental to wildlife, depending on whether agricultural land is fallowed or converted to urban land uses.

3.5 Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

Executive Order 13007 requires federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites.

3.5.1 Environmental Consequences

Under both the No Action and Proposed Action alternatives, neither restriction of access to nor adverse effects to the physical integrity of any sacred sites would occur. As such, there would be no direct, indirect, or cumulative impacts to Indian sacred sites as a result of either the No Action or Proposed Action alternatives.

3.6 Indian Trust Assets

Indian trust assets (ITA) are legal interests in assets that are held in trust by the United States 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. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something. ITA cannot be sold, leased or otherwise alienated without United States' approval. Trust assets may include lands, minerals, and natural resources, as well as 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

The nearest ITA is the Tule River Reservation, which is approximately 16 miles northeast of the Proposed Action location.

3.6.2 Environmental Consequences

No Action

There is no ITA in the Proposed Action area; therefore, there would be no impacts to ITA resulting from the No Action Alternative.

Proposed Action

The Proposed Action involves existing facilities to convey water and would not include modifications or new construction of facilities. Therefore, the Proposed Action does not have the potential to affect ITA.

3.6.3 Cumulative Impacts

The Proposed Action, when added to other past, present, and future actions, would not contribute to cumulative impacts to ITA as there are none in the Proposed Action area.

3.7 Environmental Justice

Executive Order 12898 (February 11, 1994) mandates Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

3.7.1 Affected Environment

The cities of Delano, McFarland, Shafter, and Wasco, along with the unincorporated communities of Earlimart, Lost Hills, and Richgrove, are located within the Region. Each of these communities is considered economically disadvantaged based on a comparison of the statewide median household income (MHI) with household incomes within these urban areas. In particular, the MHI for each is less than 80 percent of the statewide MHI. On a regional basis, the population-weighted average MHI is \$27,500 for the Region, or about 58 percent of the statewide MHI, which is significantly lower than the above-stated threshold of 80 percent (Hillshade, California Spatial Information Library 2002; U.S. Census Bureau 2010).

3.7.2 Environmental Consequences

No Action

Under the No Action Alternative, groundwater levels could decline, with a corresponding increase in the use of power and energy resources, creating both an environmental and economic burden. This could have an adverse economic effect on the economically-disadvantaged communities that rely on groundwater in whole or in part. In addition, if farm land goes out of production due to the decreased water supply reliability and availability, jobs could decrease thereby resulting in more poverty in these communities.

Under the No Action Alternative, less flexibility occurs in delivery of SWP, CVP, Kern River, and local creek water to neighboring districts.

Proposed Action

Most of the disadvantaged communities within the Region rely on groundwater and agriculture-related work. The Proposed Action could benefit economically disadvantaged communities and minority populations within the Region by helping to reduce the declines in groundwater levels and maintaining farm job opportunities.

3.7.3 Cumulative Impacts

The Proposed Action, when added to other past, present, and future actions, would not contribute to cumulative adverse impacts to minority and low-income populations. Neither of the alternatives results in changes to total water supplies; however, timing of supply availability would more closely correspond to demands. The Proposed Action would allow available water supplies to be redistributed within the same geographic area. The Proposed Action may maintain some jobs for farm laborers, reduce flow to saline sinks, and improve economic conditions within the Region. SWP, CVP, and Kern River waters are delivered into the Region and if they have flood related flows, they usually come at slightly different peak times, and thus, flexibility helps reduce the flooding by having more area to deliver the water.

3.8 Socioeconomic Resources

3.8.1 Affected Environment

Kern County ranks among the leading five counties in the United States in the value of its agricultural products. The gross value of all agricultural products from the County in 2009 exceeded \$3.6 billion according to the Kern County Crop Report. Since the permanent crop irrigated area of the portion of the Region in Kern County is over 45 percent of the permanent crop irrigated area of Kern County, and because the Region contains at least 67 percent of high-value permanent crops, it is estimated that the Region annually produces at least \$2 billion in agricultural commodities (Kern County Crop Report 2009). A small portion of the Region (DEID) is in Tulare County.

The largest population center in the southern San Joaquin Valley is the City of Bakersfield, which is located just to the south of and immediately adjacent to the Region. Several smaller population centers in outlying areas support the two primary industries: agriculture and oil. The communities within the Region principally provide support to agriculture, and the RWMG activities provide support to the local communities (including DACs). The small businesses that support agriculture rely on the efficient and cost effective use of water in the surrounding agricultural lands to sustain the agriculturally based economy. The cost, reliability, sustainability and availability of water have historically had an economic impact on the communities of the area. Surface water reliability and its effect on agricultural jobs are directly linked to the Region's economy.

3.8.2 Environmental Consequences

No Action

The No Action Alternative could result in increased use of groundwater to make up for the lost surface water availability in the event of drought or other limiting factors. This would result in increased pumping lifts with a commensurate increase in production costs to all users, and ultimately, the economic loss, both direct and indirect, associated with the loss of agricultural production. The No Action Alternative would not allow increased flexibility in timing of deliveries and a slight increase in flood water could occur at times. This may result in decreased agriculture in the Region over the long-term and lead to loss of jobs.

Proposed Action

The Proposed Action would allow water users to optimize the use of surface water through banking, transfers, and exchanges during wet periods, which may reduce the amount of groundwater used during dry periods. Maintenance of groundwater levels would reduce energy use and pumping costs for local communities and individual homeowners as well as farmers. The Proposed Action would allow increased flexibility in timing of deliveries, which would help maintain existing farming practices and small businesses that depend upon agriculture. As a result, the Proposed Action would not result in adverse affects to socioeconomic resources.

3.8.3 Cumulative Impacts

The Proposed Action Alternative is a water management tool that adds flexibility in the timing for delivery of the available water supply that could maintain some crops and jobs for farm laborers and workers in supporting businesses. The cumulative effect of helping to maintain farm jobs and agriculture-dependent small businesses will be within historical conditions. The Proposed Action, when added to other past, present, and future actions, would not contribute to adverse cumulative impacts to socioeconomic resources.

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Section 4 Consultation and Coordination

4.1 Public Review Period

A Draft EA/ FONSI for the Proposed Action and No Action Alternative was circulated for public review February 23, 2012 through March 23, 2012. Comments were received from Arvin-Edison Water Storage District in a letter dated March 23, 2012 and from Central Delta Water Agency in a letter also dated March 23, 2012. These comments and the Bureau of Reclamation's (Reclamation) responses to those comments are located in Appendix A of this Final EA.

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

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (Federal and State) on all water development projects that could affect biological resources. The amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing the loss of and damage to wildlife resources."

The Proposed Action is the approval of water management actions rather than water development projects as such, FWCA does not apply.

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

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

The Proposed Action would support existing uses and conditions. No construction or new facilities would be required to convey this water. Banking and exchanges are typical methods for delivering water to areas with the highest beneficial use, i.e. permanent crops when water supplies are insufficient to meet demands. Reclamation has concluded that the Proposed Action would not affect any listed or proposed for listing threatened or endangered species or any proposed or designated critical habitat. No native lands would be converted or cultivated with CVP water. The water would not be used for land conversion. Lands that have been fallowed for three consecutive years would require biological surveys prior to disking. The construction projects noted in Section 3.1 do not require the Proposed Action for their justification and the project proponent(s) of those various actions must address any incidental take of federally listed species via either section 7 or section 10 of the ESA at such time as those projects are proposed.

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

Section 106 of the National Historic Preservation Act requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources. Due to the nature of the Proposed Action (no ground disturbance), there would be no effect on any historical, archaeological, or cultural resources and no further compliance actions are required.

4.5 Indian Trust Assets

ITA are legal interests in property held in trust by the United States for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITA can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the United States is the trustee. By definition, ITA cannot be sold, leased, or otherwise encumbered without approval of the United States. The characterization and application of the United States trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

The Proposed Action would not affect ITA because there are none located in the Proposed Project Region. The nearest ITA is the Tule River Reservation, which is approximately 16 miles northeast of the Proposed Action location.

4.6 Executive Order 13007 – Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites.

The Proposed Action involves approving use of existing water banking and exchange facilities. The Proposed Action would not impact any known Indian sacred sites and/or prohibit access to and ceremonial use of this resource.

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

The Migratory Bird Treaty Act (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 Act 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 Act, the Secretary of the Interior (Secretary) 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 conflict with any of the aforementioned unlawful activities and would be in compliance with the MBTA.

4.8 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. The Proposed Action would not alter floodplains or affect wetlands.

4.9 Clean Air Act (42 USC § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 USC § 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the 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. The Proposed Action involves groundwater banking, transfer, and exchange of CVP water with non-CVP agencies. Movement of water would be done via gravity or electrical pumps. There are no new emissions associated with the movement of this water; therefore, a conformity analysis is not required and there are no adverse impacts to air quality associated with the Proposed Action.

4.10 Clean Water Act (16 USC § 703 et seq.)

Section 401

Section 401 of the Clean Water Act (CWA) (33 USC § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404

of the CWA (33 USC § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

No pollutants would be discharged into any navigable waters under the Proposed Action so no permits under Section 401 of the CWA are required.

Section 404

Regulates the discharge of “dredged or fill materials into waters of the United States” (33 USC § 1344). No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action therefore no CWA section 404 permits are required.

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