RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Madera Irrigation District Transfer, Banking and Exchange of Friant Central Valley Project Water to Westlands Water District as facilitated by North Kern Water Storage District, Semitropic Water Storage District and Kern County Water Agency

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

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List of Figures and Tables

List of Acronyms, Abbreviations and Definition of Terms

AF – acre-foot (feet)
AF/Y – acre feet per year
CNDDB – California Natural Diversity Database
Contract Year/Water Year - Begins March 1st and ends February 28th of the following year.
CVP – Central Valley Project
Delta – Sacramento and San Joaquin River Delta
DWR – Department of Water Resources
EA – Environmental Assessment
EO – Executive Order
ESA – Endangered Species Act
FKC – Friant-Kern Canal
FWCA – Fish and Wildlife Coordination Act
FWS – U .S. Fish and Wildlife Service
FONSI – Finding of No Significant Impact
ID #4 – Kern County Water Agency Improvement District No. 4
ITAs – Indian Trust Assets
KCWA – Kern County Water Agency
M&I – Municipal and Industrial water
MID- Madera Irrigation District
MOU – Memorandum of Understanding
MSL – Mean Sea Level
NKWSD – North Kern Water Storage District
NEPA – National Environmental Policy Act
NRHP – National Register of Historic Places
OCAP – Operating Criteria and Plan
Reclamation – U.S. Bureau of Reclamation
Section 215 Surplus Water – Surplus water as defined under Section 215 of the Reclamation Reform Act
Semitropic- Semitropic Water Storage District
SLC – San Luis Canal
SLU – San Luis Unit
Subsidence - Sinking of the ground surface, because of pore collapse, over an aquifer that is slowly being drained by groundwater pumping.
SWP – State Water Project
SWRCB – State Water Resources Control Board
SWSD – Semitropic Water Storage District
WWD – Westlands Water District

SECTION 1 PURPOSE OF AND NEED FOR ACTION

1.1 PURPOSE AND NEED

The Bureau of Reclamation (Reclamation) proposes to approve a transfer of Friant Central Valley Project (CVP) water from Madera Irrigation District (MID) (Figure 1) to Westlands Water District (WWD) (Figure 2). Reclamation also proposes to approve the subsequent banking of this transfer water in North Kern Water Storage District (NKWSD) and in Semitropic Water Storage District (Semitropic). Approval of these actions would allow MID to maximize the beneficial use of the 2006 Friant allocations and provide WWD a more reliable source of water to help reduce the impacts of future water supply shortages. WWD anticipates future water supply shortages, and desires to obtain additional water supplies from MID for storage, exchange, and delivery back to WWD. Reclamation has a need to approve proposed water transfers and water banking outside a contractor's service area based on contractual requirements and in compliance with State and Federal law. These actions maximize the beneficial use of Friant Division Central Valley Project (CVP) supplies, improve the water supply reliability for WWD, and reduce WWD's dependence on local groundwater resources during water supply shortages.

1.2 SCOPE

In accordance with Section 102 (2) (c) of the National Environmental Policy Act of 1969 (NEPA), as amended, Reclamation has prepared this Environmental Assessment (EA) which analyzes the delivery, banking and exchange of up to 25,000AF of MID 2006 allocated Friant Unit CVP water supply to NKWSD (up to 10,000 AF) and Semitropic (up to 15,000 AF) on behalf of WWD. The future return to WWD would occur via exchanges of CVP and State Water Project (SWP) water facilitated by KCWA.

1.3 POTENTIAL ISSUES

The potentially affected resources in the project vicinity include:

- Surface Water Resources
- Groundwater Resources
- Biological Resources
- Land Use
- Cultural Resources
- Indian Trusts Assets
- Socioeconomic Resources
- Environmental Justice

Other Issues

Reclamation has become aware that certain parties have raised concerns regarding the question whether the United States' permits and licenses issued by the State Water Resources Control Board for the CVP are broad enough in scope and coverage to provide for temporary storage of CVP water in groundwater storage facilities, i.e. groundwater banks. Reclamation is currently considering this and other related issues and is working to develop groundwater banking guidelines and criteria which will address the various issues associated with the banking of CVP water outside a CVP contractor's service area.

FIGURE 1: MID GENERAL LOCATION MAP

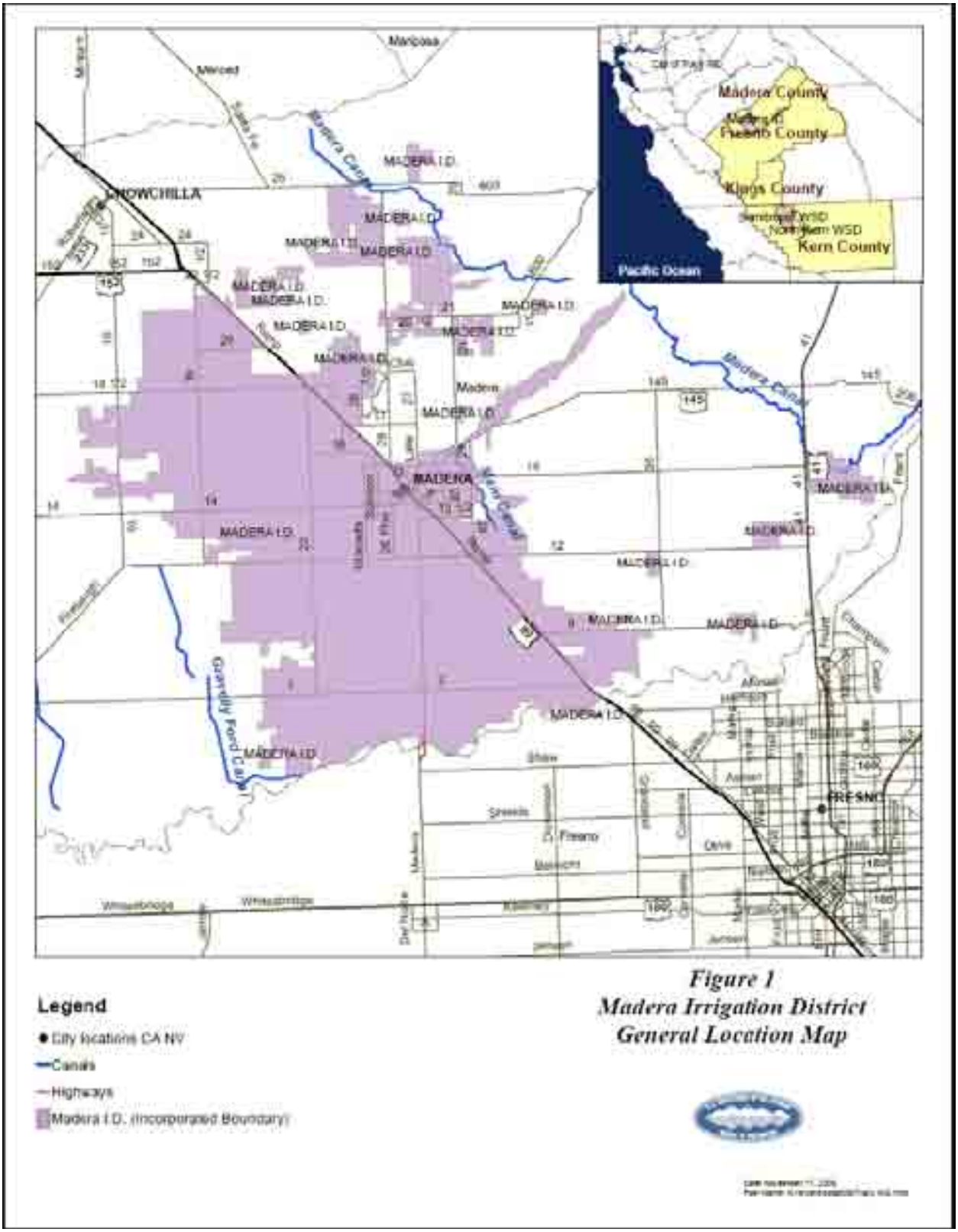
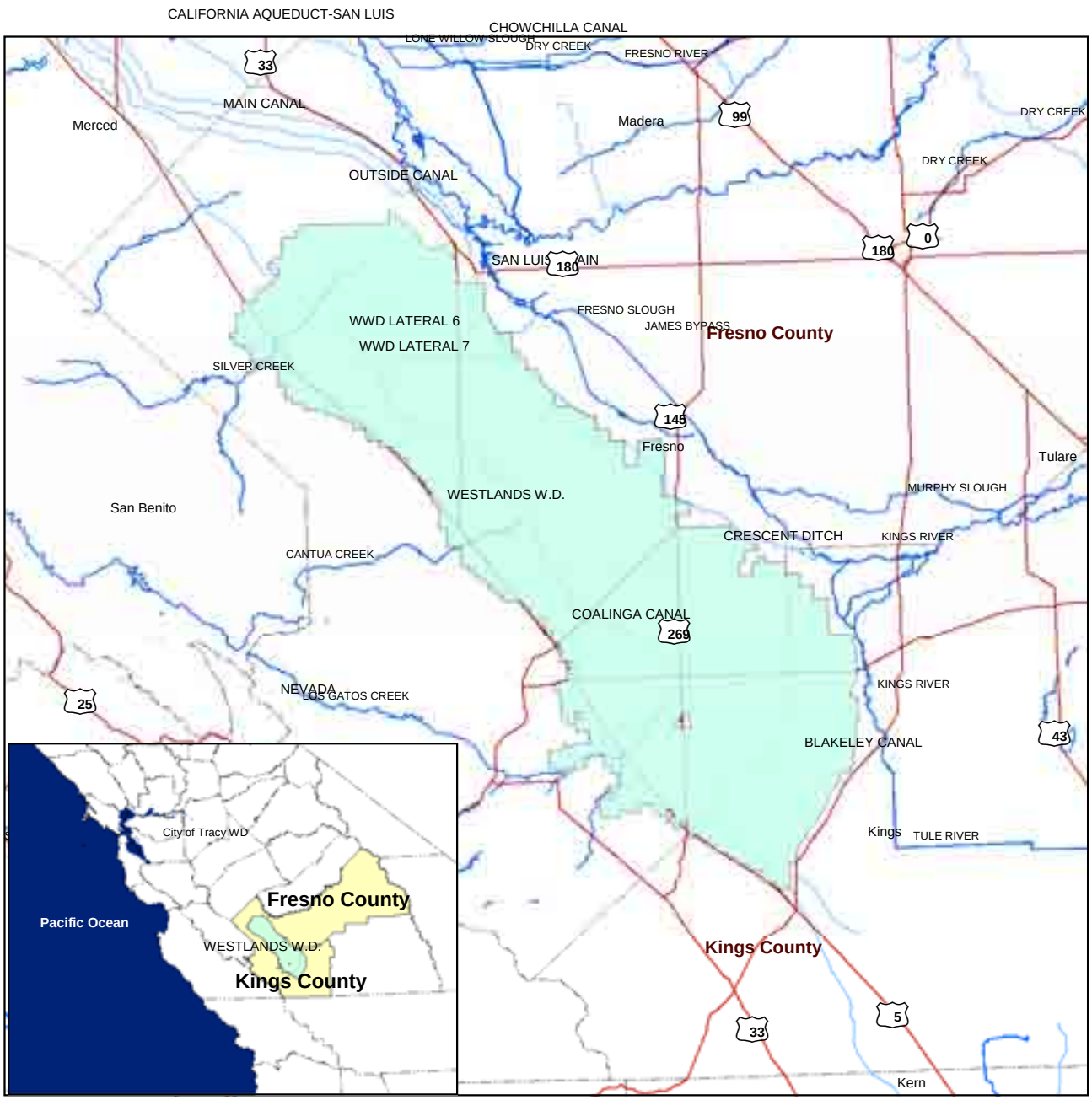


FIGURE 2: WWD GENERAL LOCATION MAP



Legend

- Westlands W.D. (Incorporated Boundary)
- Highways
- Rivers
- Canals

Westlands Water District
General Location Map

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SECTION 2 ALTERNATIVES INCLUDING PROPOSED ACTION

2.1 ALTERNATIVE A: NO ACTION

Under the No Action Alternative, Reclamation does not approve the transfer, banking and exchange of Friant Unit CVP water. The Friant Unit CVP water would be delivered to MID and applied to agricultural lands within the MID service area (Figure 1) to meet existing crop demands, or may be rescheduled into the 2007 Water Year within Millerton Reservoir. The water would remain for the benefit of MID, and would not be delivered, banked and exchanged for the benefit of WWD. NKWSD would continue to engage in exchange opportunities to maximize management of its water supply. WWD would continue to find ways of increasing supply reliability to help reduce the impacts of water shortages.

2.2 ALTERNATIVE B: PROPOSED ACTION

2.2.1 Transfer, Banking, and Exchange of Friant Unit CVP Water

Reclamation proposes to approve a water transfer, banking and exchange project in which WWD would acquire and bank up to 25,000 AF of MID's 2006 allocated Friant Unit CVP contract supply in NKWSD's and Semitropic's facilities for use by WWD at a later date. The Friant Unit CVP water to be transferred for banking would be in excess of MID's immediate needs. WWD would recover the banked water during water supply shortages when WWD's CVP water supply allocation is insufficient to meet water user demands. The project area is defined as the area encompassed by MID, WWD, NKWSD, Semitropic, and KCWA as well as the state, and federal facilities that would be used in order to implement the Proposed Action. The location of Alternative B including all of the project features is shown in Figures 1 through 6.

All Friant CVP water delivered under the Proposed Action would be delivered to NKWSD. After taking delivery of the CVP water, NKWSD would either provide the water into the NKWSD groundwater bank for credit up to 10,000 AF or facilitate the delivery into the Semitropic groundwater bank for credit up to 15,000 AF. The various methods that may be utilized for delivery are explained in detail in Section 2.2.2.

The facilities to convey the Friant water from MID to WWD do not exist; therefore an exchange of water is needed to provide delivery to WWD. Since WWD also has received 100% allocation of 2006 CVP water, this water would not be returned immediately. The exchange for the return of the water stored and credited within NKWSD (up to 10,000 AF) would be completed within five (5) years. The return of the water stored and credited within Semitropic (up to 15,000 AF) would be returned to WWD via exchange within the next ten (10) years, subject to applicable CVP contractual requirements. The return periods for both the water banked at NKWSD and the water banked at Semitropic could be extended by mutually agreeable terms among NKWSD, Semitropic, and WWD. Should either return period need to be extended, supplemental environmental documentation may be required prior to Reclamation approval of an extension.

The Proposed Action is subject to the following conditions:

a. The water to be transferred and exchanged would only be used to maintain

existing conditions, within the boundaries of WWD as described;

b. The water would only be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines;
c. The water would not be used to place untilled or new lands into production, nor to convert undeveloped land to other uses;
d. The Proposed Action would not affect CVP or State Water Project (SWP) operations; all supplies would be previously scheduled for delivery points south of the delta, and do not require additional delta exports;
e. The conveyance, deposit and storage of the transfer water into the NKWSD bank and into the Semitropic bank would not require the construction of any new water diversion, spreading or conveyance facilities.

2.2.2 Required Conveyance Systems

Conveyance of MID Friant Unit CVP water on behalf of WWD to NKWSD and Semitropic and the return, via exchange, is described below.

2.2.2.1 Delivery of Friant Unit CVP Water to NKWSD

Up to 25,000AF of MID Friant Unit CVP water would be released from Millerton Reservoir from the period between January 2007 and February 28, 2007, conveyed via the Friant-Kern Canal (FKC), and ultimately delivered to the NKWSD utilizing one or more approved delivery points. Demand and delivery capacity will determine which delivery points are utilized. Of the total CVP water delivered under the Proposed Action, up to 10,000 AF would become credited on behalf of WWD within NKWSD's groundwater bank. NKWSD would take control of water delivered, credit WWD's return obligation for the balance and directly spread the water within district spreading ponds to provide groundwater recharge within NKWSD. To account for conveyance and other losses (including aquifer losses), a 10 percent loss shall be recognized.

2.2.2.2 Delivery of Friant Unit CVP water to Semitropic

Of the total CVP water delivered to NKWSD under the Proposed Action, up to 15,000 AF would ultimately be delivered to Semitropic and would require either use of existing NKWSD (Figures 3 and 4) spreading facilities for "groundwater delivery" to Semitropic, or the Poso Creek channel for conveyance by NKWSD to Semitropic. A determination would be made based on demand and delivery capacity at NKWSD as to which method would be utilized. Semitropic's share of the CVP water delivered (up to 15,000 AF) could be delivered to NKWSD for recharge whereby, through an agreement between NKWSD and Semitropic, Semitropic would credit WWD's account in the Semitropic bank. If this delivery method is unavailable, NKWSD could also take delivery of the transfer water and convey it to Semitropic through the Poso Creek channel. Semitropic would use this water for groundwater recharge for in-district use and credit WWD's account in the Semitropic bank. Under either delivery option to Semitropic, Semitropic would take control of the water, subtract 10 percent for aquifer losses, and credit WWD account in Semitropic for the balance in storage. NKWSD and Semitropic have signed an agreement on this joint spreading and storage action.

2.2.2.3 Delivery Alternatives for Alternative B

Under Alternative B, four delivery alternatives are available for delivering MID's CVP water to NKWSD and Semitropic. These delivery alternatives are described below and shown in Figures 3, 4, and 6.

Delivery Alternative 1: Up to 25,000AF of MID Friant Unit CVP water would be released from Millerton Reservoir from the period between January 2007 and February 28, 2007, conveyed via the Friant-Kern Canal (FKC), and ultimately delivered to turnouts into NKWSD at mileposts 130.0 and/or 144.9. No other delivery points would be allowed under Delivery Alternative 1.

Delivery Alternative 2: Delivery Alternative 2 includes Delivery Alternative 1 and also allows for delivery to the terminus of the FKC for direct input into the Arvin-Edison Water Storage canal. Under this alternative, NKWSD would have the flexibility of taking delivery of the Friant CVP water at either turnout listed in Delivery Alternative 1 and/or at the terminus of the FKC. The Friant CVP water delivered to the terminus of FKC would only enter the Arvin-Edison Water storage canal and would not enter the Kern River or any other water delivery facilities. The Friant CVP water entering the Arvin Edison canal would be delivered to meet Kern-Delta Water District's Kern Island demand. The Kern-Delta WD Kern River water supplies that would have been delivered to Kern Island would then be delivered to NKWSD's Beardsley-Lerdo Canal for ultimate delivery to existing NKWSD spreading facilities.

Delivery Alternative 3: Delivery Alternative 3 includes Delivery Alternative 1 and also allows for delivery to the terminus of the Friant Kern canal for direct input into the Kern River. Under this alternative, NKWSD would have the flexibility of taking delivery of the Friant CVP water at either turnout listed in the Delivery Alternative 1 and/or at the terminus of the FKC. The Friant CVP water delivered to the terminus of FKC would only enter the Kern River and would not enter the Arvin-Edison Water Storage District canal or any other water delivery facilities. The Kern River Watermaster would take control of the Friant Unit CVP water entering the Kern River to allow for an operational exchange for Kern River water. North Kern Water Storage District has two Kern River exchange partners; Kern Delta Water District and the City of Bakersfield. These two exchange partners would divert the water downstream of the delivery point, off of the Kern River channel, and into their districts for Ag usage within the CVP place of use. By taking delivery of the CVP water, the exchange partners would then allow their Kern River water to be delivered, via this exchange, to North Kern Water Storage District's diversion at the Beardsley-Lerdo canal upstream on the Kern River. This Kern River water would flow through the Beardsley-Lerdo canal and into NKWSD's existing eastern recharge facilities. Ultimately, Reclamation will account for the deliveries based upon records from NKWSD for the spreading within NKWSD (up to 10,000AF for WWD), and the spreading to be credited to the Semitropic Bank (up to 15,000AF for WWD). Authorization of Delivery Alternative 3 will depend upon the water rights permits and licenses of the United States being broad enough in coverage to allow the use of the Kern River to convey CVP water.

Delivery Alternative 4: Delivery Alternative 4 includes Delivery Alternative 1 and also allows for delivery to the terminus of the FKC for direct input into both the Arvin-Edison Water Storage Canal and the Kern River. Under this alternative, the CVP water delivered could be delivered to the FKC turnouts at mileposts 130.0 and/or 144.9 and also could be delivered to the terminus of

FKC for ultimate delivery into either Arvin-Edison Water Storage Canal or into the Kern River. Under this alternative, the exchanges described in Alternatives 2 and 3 would be required.

2.2.2.4 Recovery of Banked Friant Unit CVP Water from NKWSD to WWD

It is anticipated that NKWSD will provide the return water, via exchange to WWD within the next 5 years. Delivery of the return water would be at the discretion of mutually agreeable terms between NKWSD and WWD, and will be subject to concurrence from KCWA, approval by the California Department of Water Resources (DWR) and subject to scheduling approval by Reclamation. WWD and NKWSD would rely on an exchange mechanism to return the water to WWD. It is anticipated that this exchange would be facilitated by KCWA as follows:

NKWSD will utilize its wells to extract the quantity of water to be exchanged; such supplies will be delivered to lands within NKWSD in lieu of delivering Kern River water supplies to such lands; a like quantity of NKWSD'S Kern River supplies will be delivered to KCWA and KCWA will provide for a like quantity of its SWP water available in the California Aqueduct. The SWP water would be delivered via the San Luis Canal toWestlands turnouts. None of the CVP water involved would be used or stored in KCWA. The exchange component involving KCWA is merely a swap of water and no changes in KCWA would occur. This transfer and exchange would occur through existing facilities.

2.2.2.5 Recovery of Banked Friant CVP Water from Semitropic to WWD

It is anticipated that WWD would recover CVP water supplies banked on its behalf at Semitropic during water supply shortages over the next 10 years, when CVP south of delta agricultural allocations are insufficient to meet crop demands. The recovery (return) of water supply from Semitropic would occur by exchange as there are no existing facilities that could physically convey water back to WWD. The exchange may be limited by a number of factors including: SWP priorities (i.e. pumping capacity, fish actions, allocated water deliveries etc.), Semitropic priorities, including demand and delivery capacity and CVP priorities. Therefore, delivery of the return water would be at the discretion of mutually agreeable terms between Semitropic and WWD, and will be subject to concurrence from KCWA, approval by the California Department of Water Resources (DWR) and subject to scheduling approval by Reclamation. This exchange may be accomplished under three (3) possible scenarios:

- WWD would exchange the requested amount of banked water for an equal amount of Semitropic's allocation of SWP Table-A water. Semitropic's SWP Table-A water would be released from the San Luis Reservoir and delivered to WWD via its turnouts at Reaches 4-7 of the joint-use SLC portion of the California Aqueduct. An equal amount would be deducted from WWD's water bank account at Semitropic.

- WWD would exchange the requested amount of banked water for an equal amount of CVP water. Semitropic's SWP Table-A water would be made available at the San Luis Reservoir where it would be exchanged with a CVP contractor for a like amount of their CVP water and delivered to lands within WWD as they would normally receive their CVP supply. An equal amount of water would be deducted from WWD's water bank account at Semitropic. Or, if the CVP contractor involved in the exchange is also a Semitropic Banking Partner, such as Santa Clara Valley Water District (SCVWD), then the requested amount of the banked asset could be transferred to the SCVWD account in

exchange for SCVWD delivering a like amount of their CVP water supply to lands within WWD. CVP water would be delivered to lands within WWD as they would normally receive their CVP supply. An equal amount of water would be deducted from WWD's water bank account and credited to SCVWD's water bank account.

- Semitropic would pump groundwater stored on behalf of WWD into the California Aqueduct. DWR would use that water to meet Table-A deliveries to SWP contractors downstream, thereby freeing up SWP Table-A Water for delivery to lands within WWD. Water would be delivered to WWD via its turnouts at Reaches 4-7 of the joint-use San Luis Canal portion of the California Aqueduct. An equal amount would be deducted from WWD's water bank account at Semitropic.

FIGURE 3: NKWSD LOCATION MAP + TURNOUT & SPREADING FACILITIES

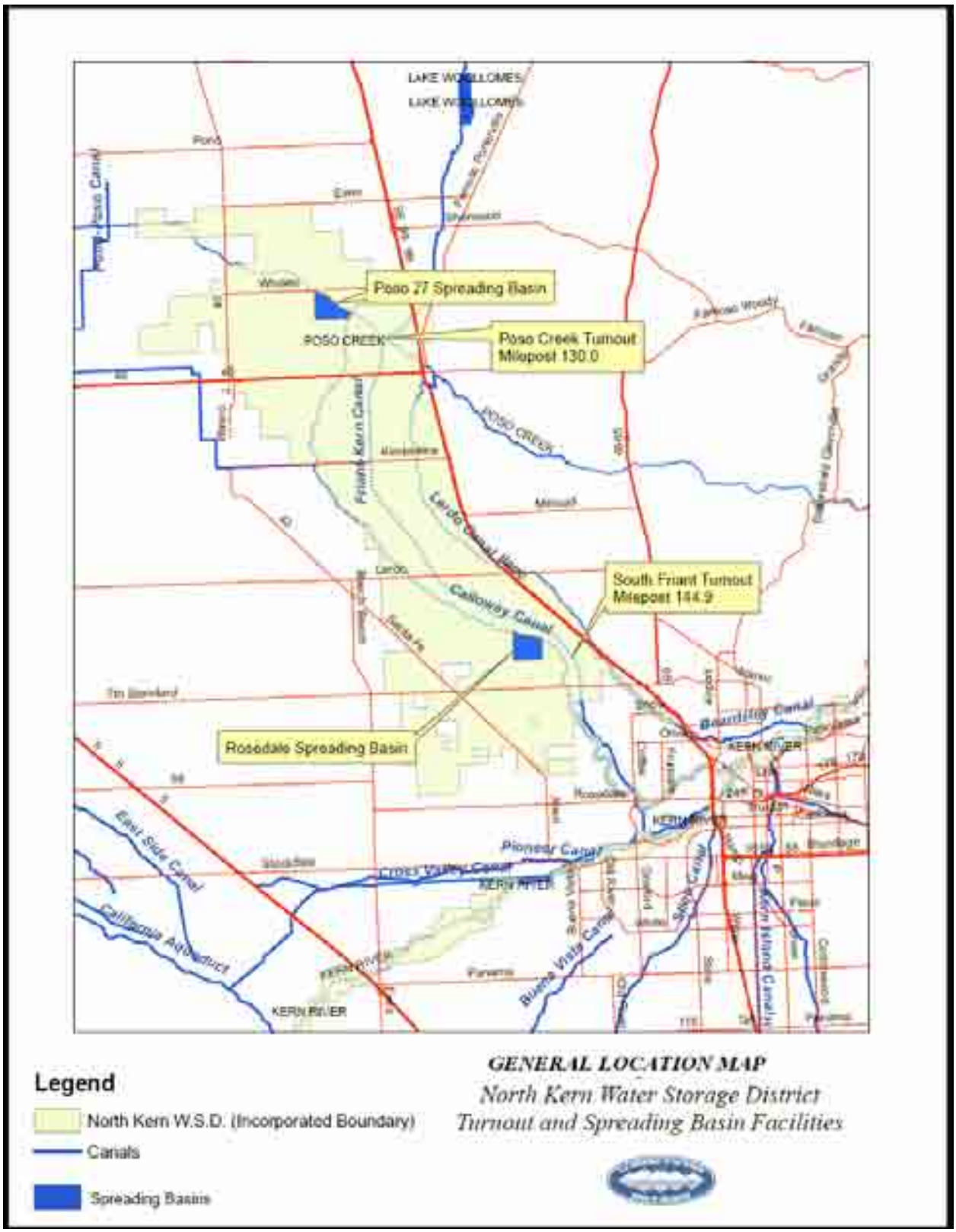


FIGURE 4: NKWSD SPREADING AREAS UPHILL FROM FKC

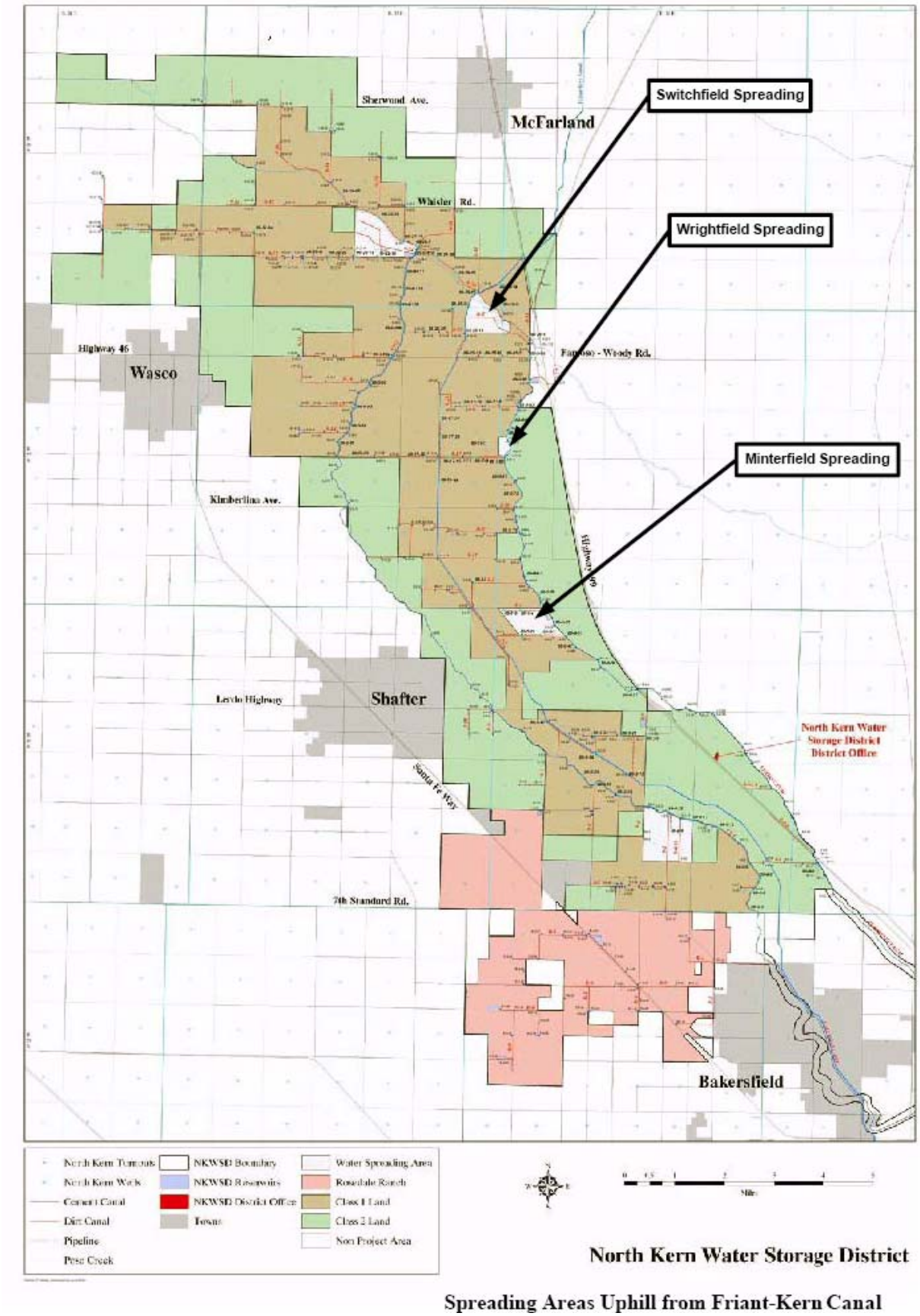


FIGURE 5: SEMITROPIC GENERAL VICINITY MAP

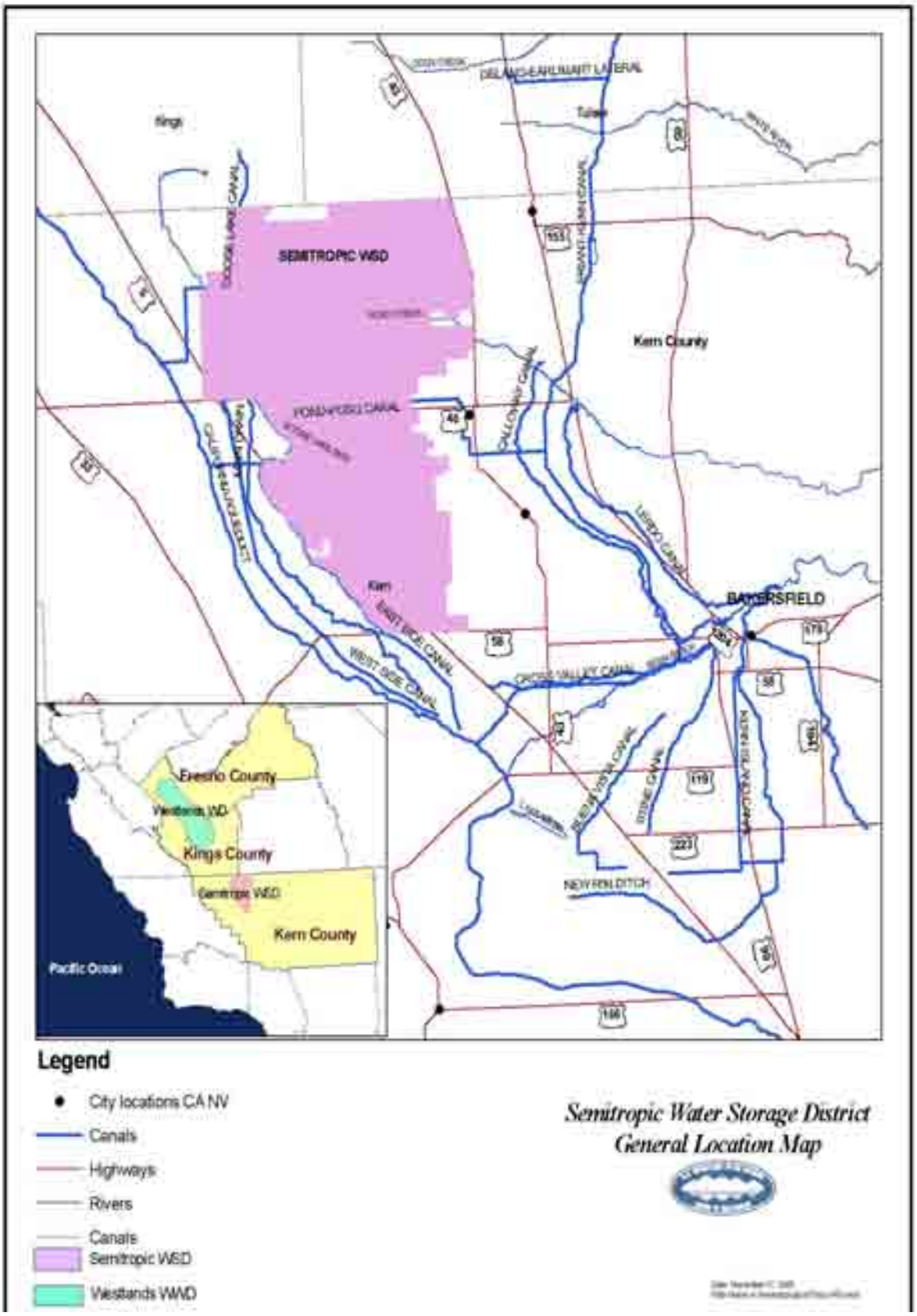
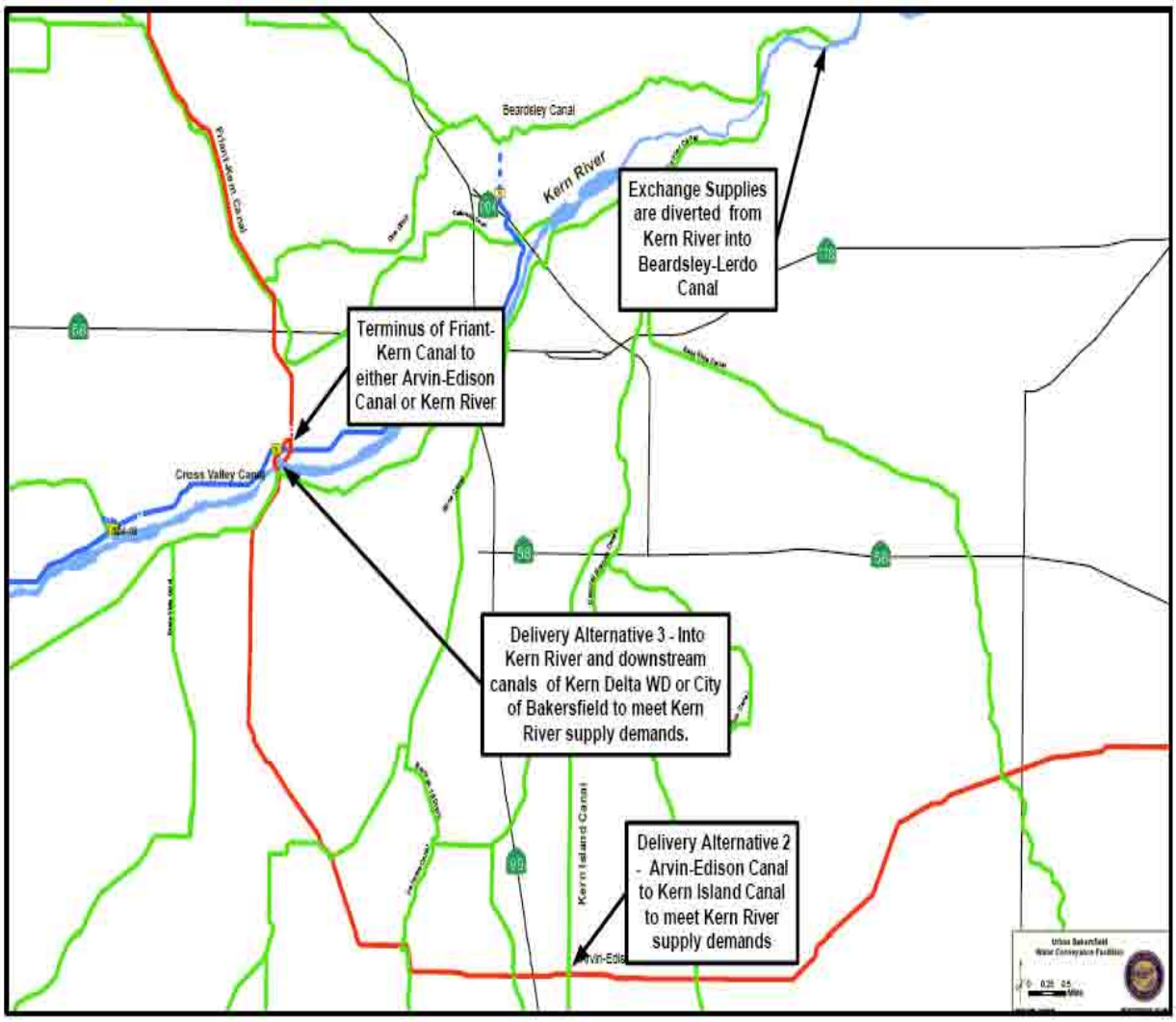


FIGURE 6: NKWSD DELIVERY ALTERNATIVES AND EXCHANGES TO MOVE SUPPLIES TO B-L CANAL



North Kern WSD Exchanges to move Friant-Kern Supplies into Beardsley-Lerdo Canal

SECTION 3 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

3.1 SURFACE WATER RESOURCES

3.1.1 Affected Environment

Friant-Kern Canal

The FKC is operated by the Friant Water Users Authority and carries water over 151.8 miles in a southerly direction from Millerton Reservoir to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties. Construction of the canal began in 1945 and was completed in 1951. The canal has an initial capacity of 5,000 cubic feet per second (CFS) that gradually decreases to 2,000 CFS at its terminus in the Kern River (Reclamation, 2006a).

Madera Irrigation District

MID (Figure 1) has a contract with Reclamation for 85,000 acre-feet per year (AF/Y) of Class 1 and 186,000 AF per year of Class 2 water from the Friant Division of the CVP. In an average year, MID receives 100% of their Class 1 water and approximately 48% of their Class 2 water, totaling approximately 174,000 AF/Y. In 1975 Hidden Dam was completed on the Fresno River providing a more regulated flow. MID entered into a long-term Contract with Reclamation for water from Hensley Lake behind Hidden Dam for 24,000 AF/Y. MID has pre-1914 water rights, as well, for approximately 20,000 AF/Y from the Soquel-Big Creek (MID, 2001). Table 1 below describes the source of water and actual amounts received from 2004 to August 2006.

TABLE 1: MID Water Amounts Received (AF) by Source for 2004 – August 2006.

Year	Class I	Class II	215/Surplus	Carryover from previous year	Transferred In	Hidden Dam	Soquel-Big Creek	Free Water	Total
2004	84477	15108	0	7294	10531	24000	7942	0	149352
2005	48588	24846	40513	0	0	24000	15880	0	153827
2006 (thru Aug)	19667	19181	45421	0	0	24000	6982	51946	147530

North Kern Water Storage District Facilities

NKWSD, a non-CVP Contractor within the CVP Place of Use, is located south-southwest and downstream from MID and is bisected by the FKC. The approximately 60,000 acres of land within NKWSD are fully developed for irrigated agriculture with water supplies principally from the Kern River and pumped groundwater. NKWSD has a contract for Kern River water with the City of Bakersfield that is administered by Kern County Water Agency. Historical surface water supplies from the Kern River delivered to NKWSD have ranged from less than 10,000 AF/Y to nearly 400,000 AF/Y. As a result of this highly variable water supply, NKWSD has developed an extensive groundwater recharge, banking and extraction program utilizing the groundwater basin to regulate its water supplies. (NKWSD, 2001).

The FKC turnouts that would be used for the conveyance of MID Friant CVP water to NKWSD are located at mileposts 130.0 and 144.9. The turnout at milepost 130.0 delivers water directly into the Poso Creek channel. The turnout at milepost 144.9 delivers water to NKWSD's 8-1

lateral which ties into NKWSD's Callaway Canal. The Callaway Canal can serve the recharge facilities. Figure 3 shows the location of the turnouts and spreading facilities.

KCWA

KCWA, a non-CVP Contractor, is located in the southern portion of the San Joaquin Valley in Kern County. KCWA was created by a special act of the State Legislature in 1961. It holds the master contract with the State of California for delivery of a maximum yearly entitlement of 1,000,949 AF of SWP water supplies to 21 subcontracting water agencies ("Member Units") within Kern County. KCWA has access to SWP water and Kern River water.

Westlands Water District

WWD is located in western Fresno and Kings Counties and serves approximately 600 family-owned farms that average 900 acres in size (Figure 2). The total area of WWD is 613,100 acres. WWD is a Long Term CVP contractor with a contract for 1,150,000 AF (Reclamation, 2004). The first deliveries of CVP water from the SLC to WWD began in 1968. WWD's 1963 water service contract will terminate in 2007.

CVP water that is delivered to WWD is pumped from the Sacramento-San Joaquin Delta during the winter months when there is an abundance of water in the system. It is delivered 70 miles through the Delta-Mendota Canal to San Luis Reservoir. During the spring and summer, the water is released from San Luis Reservoir and delivered to WWD farmers through the SLC and the Coalinga Canal. Once it leaves the federal project canals, water is delivered to farmers through 1,034 miles of underground pipe and over 3,300 metered delivery outlets (Reclamation, 2004).

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative, surface water supplies would be the same as the existing conditions described above. This water could remain in Millerton Reservoir if MID opted to carry-over this water in Contract Year 2007. The storage of this water in Millerton Reservoir would be temporary and would not lead to long-term benefits for water quantity, quality or temperature.

Proposed Action

Under the Proposed Action, up to 25,000 AF of MID Friant CVP water supply would be delivered to NKWSD prior to February 28, 2007 for storage and banking within NKWSD and Semitropic. Due to the wet conditions in 2006, water demands in MID have been met for the 2006 Water Year and the 25,000 AF is in excess of MID's immediate irrigation water needs. As can be seen in Table 1, MID received surplus water (Section 215) earlier in the year and has excess Friant Class 1 allocated water available. MID would not overburden other water resources to make this water available. MID's excess water would be delivered and used within NKWSD and Semitropic. During a dry season, NKWSD's Kern River water would be delivered and used in KCWA. KCWA's SWP water would be delivered and used in WWD.

The Proposed Action improves WWD's water supply reliability and operational efficiency. The proposed delivery of MID Friant Unit CVP water to NKWSD and Semitropic and the subsequent return via exchange to WWD would occur through existing CVP, NKWSD, Semitropic, Kern

River, SWP, and WWD facilities. No new facilities would be needed as a result of the Proposed Action. The Proposed Action would not interfere with the normal operations of the SWP or CVP facilities, nor would it impede any SWP or CVP obligations to deliver water to other contractors or to local fish and wildlife habitat. Furthermore, the proposed project would not alter the quantity or timing of diversions from the Sacramento-San Joaquin Bay Delta. Neither MID, NKWSD, KWCA nor WWD would be changing historic land and water management practices as a result of the Proposed Action. Project operations and facilities would not vary significantly under either alternative.

The Proposed Action is a one-time transfer involving a small amount of water when compared to the overall water supplies for MID, NKWSD, Semitropic, KCWA, and WWD. All of the sources of water involved would be diverted with or without the proposed action. Overall water supplies would not increase or decrease. Overall surface water quality and quantities would not change. The Proposed Action would result in no major changes to SWP and CVP facilities operations and would not affect surface water resources.

Cumulative Effects

MID has other Water Year (WY) 2006 CVP water transfer and water banking proposals which have been addressed or are currently being addressed in separate environmental documents. One of these other proposals involves a MID transfer of up to 15,000 AF of Friant Unit CVP water to Semitropic. This transfer was approved by Reclamation on December 7, 2006. Additional WY 2006 projects include MID's proposed waterbanking pilot project at Madera Ranch. The pilot project involves the banking and return of MID's Friant Unit CVP water, which would increase the net amount of surface water supply that is being transferred, banked, and exchanged.

All of MID's water transfer actions are the result of excess water. Demands have been met including groundwater management within MID for Water Year 2006. The proposed action, when added to other past, present, and future actions does not result in additional amounts of water being diverted than would normally occur.

The Proposed Action will allow WWD to utilize the additional delivered water for meeting crop demands within WWD during future water supply shortages. There are no other impacts to canals, facilities, or operations for delivering surface water supplies, since the Proposed Action would utilize existing facilities. The Proposed Action, when added to other past, present, and future actions does not result in additional diversions of water. Water quality would not be degraded as a result of water service actions. Water service actions are typically requested to manage and move available water supplies through existing facilities to meet existing demands within fluctuating hydrological conditions. Valley wide water supply quantities would not change.

3.2 GROUND WATER RESOURCES

3.2.1 Affected Environment

NKWSD

The historical surface water supplies of NKWSD have ranged from 6,000 AF in a dry year to nearly 394,000 AF in a wet year. Owing to the highly variable Kern River supply, NKWSD has

been forced to regulate available surface water supplies from times of surplus (wet years) to times of need (dry years) through conjunctive use of the underlying groundwater reservoir. During wet years on the Kern River, significant deliveries of surface water are made for irrigation and groundwater recharge. NKWSD makes use of about 1,500 acres of recharge basins (water spreading areas); the dry channel of Poso Creek and several other controlled-flow facilities. In wet years, more than 200,000 AF of water have been directed into recharge basins for replenishment of the groundwater aquifer. During dry years, deliveries of surface water for irrigation are greatly reduced and groundwater pumping is significant. Extraction of groundwater by means of district wells has ranged from zero to more than 80,000 AF in one year. NKWSD has successfully operated its conjunctive use project for 50 years and recently began providing banking services to other agencies. In 2001, NKWSD completed an Initial Study of the environmental affects of their groundwater banking program (NKWSD, 2001). Briefly, the program includes:

1. The banking partner would deliver water to NKWSD via the FKC to their turnout. The water would be used by NKWSD in lieu of banking or the water would be used to directly recharge the underlying groundwater.

2. NKWSD would recover the water for the banking partner from their wells and discharge it into the FKC for ultimate delivery, either directly or indirectly to the banking partner.

Kern Tulare and Rag Gulch Water Districts (collectively, KTRG) were the first districts to become a banking partner at NKWSD. Delano-Earlimart Irrigation District has recently decided to bank water at NKWSD as well. Both the NKWSD and Semitropic monitoring committees monitor the impacts of water banks in the area and ensure the reliability and accountability of the groundwater bank (NKWSD, 2001).

The groundwater underlying NKWSD and Semitropic is part of the larger groundwater basin which underlies the southern San Joaquin Valley. While the districts are in balance with respect to water supplies and uses within their boundaries, groundwater levels are tied to the larger basin, which is in a condition of overdraft. NKWSD resides within the Kern County groundwater sub-basin within the San Joaquin Valley Basin encompassed by the Tulare Lake Hydrologic Region. The Kern County groundwater basin includes the Kern River and the Poso Creek drainage areas, as well as the drainage areas of west side streams in Kern County (DWR, 2005). The Kern County Basin has been identified by DWR as being critically over-drafted. By definition, “a basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts” (DWR, 2003)

Semitropic

In 1995, Semitropic began implementation of the Semitropic Groundwater Banking and Exchange Program. The Program is a long-term water storage program designed to recharge groundwater and reduce overdraft, increase operational reliability and flexibility, and optimize the distribution and use of available water resources between Semitropic and potential banking partners (Semitropic, 1997).

Semitropic's Banking Program capacity is 1,000,000 AF. Total program annual withdrawal amounts are restricted by the size of the pump-back facility, contemporaneous scheduled SWP deliveries to the Groundwater Bank, and the proportion of the total program capacity that has been contracted to other banking partners. The annual withdrawal capacity includes up to 133,000 AF of SWP water that could be exchanged within the California Aqueduct, and/or an additional 90,000 AF per year of groundwater extraction to the California Aqueduct. Thus, the return capacity of the original program is a minimum of 90,000 AF per year, and a maximum of 223,000 AF per year (Semitropic, 1997).

Semitropic established a groundwater monitoring program in 1994 so that any adverse groundwater impacts of the Semitropic water banking project could be mitigated. The monitoring program is overseen by a committee made up of Semitropic, adjoining districts (including Buena Vista Water Storage District, Rosedale-Rio Bravo Water Storage District, Shafter-Wasco Irrigation District, North Kern Water Storage District, and Southern San Joaquin Municipal Utility District), and banking participants. Kern County Water Agency and DWR are interested parties and participate in committee activities and water scheduling. Monitoring has included water level measurement in monitoring wells and groundwater quality (including salinity and nitrate) evaluations (Semitropic, 1994). In addition, activities of Semitropic and the adjoining activities that affect groundwater conditions are compiled by the committee. Included are diversions of surface water into each district, crop surveys and estimates of crop consumptive use, and, where available, groundwater pumping data. A report on the committee's activity and groundwater conditions is published every two years. The following information was obtained from the January 2005 Groundwater Monitoring Report.

Subsurface Geologic Conditions

In the Semitropic area north of Seventh Standard Road, at least one confining bed is present at about 300 feet in depth, separating the strata into two aquifers. The upper zone is above the confining bed and the lower zone is below the confining bed. Because of this, two different water elevation maps were prepared for the Groundwater Monitoring Report (Figure 4 & 5) (Semitropic, 2005).

Groundwater Flow

Generally, groundwater in the area east and south of Semitropic flows into Semitropic below a 300-foot deep confining bed. This occurs because of a cone of depression beneath Semitropic.

Figures 7 and 8 show water level elevations and the direction of groundwater flow in the monitoring area for spring 2003 for both the upper and lower zones (Semitropic, 2005). According to the 2005 Groundwater monitoring report, in spring 2003, for the lower zone there was an elongated, northwest trending cone of depression in which water-level elevations were less than 40 feet above mean sea level. There were two areas in this depression where water-level elevations were ten feet or more below sea level. One was northwest of Wasco, and the other was near the north boundary of Semitropic. To the east near the Central Valley Highway and north of Shafter, water elevations ranged from about 80 to 120 feet. Beneath the northeastern most and southeastern most part of the monitoring area, water-level elevations exceeded 140 feet above mean sea level. The direction of groundwater flow was into Semitropic, except along the eastern part of the north boundary of the district (Figure 7) (Semitropic, 2005).

In spring 2003, there were two areas of the upper zone where water-level elevations exceeded 200 feet above mean sea level. The largest was beneath the west and southwest parts of the monitoring area, where groundwater was moving into Semitropic. The second was northwest and west of Pond, where a westerly trending water-level ridge was present. Groundwater above the 300-foot clay was moving to the north and south away from this mound. South of Lerdo Road, shallow groundwater was moving toward the southeast toward the Rosedale-Rio Bravo Water Storage District (Figure 8) (Semitropic, 2005).

FIGURE 7 SEMITROPIC WATER-LEVEL ELEVATIONS UPPER ZONES

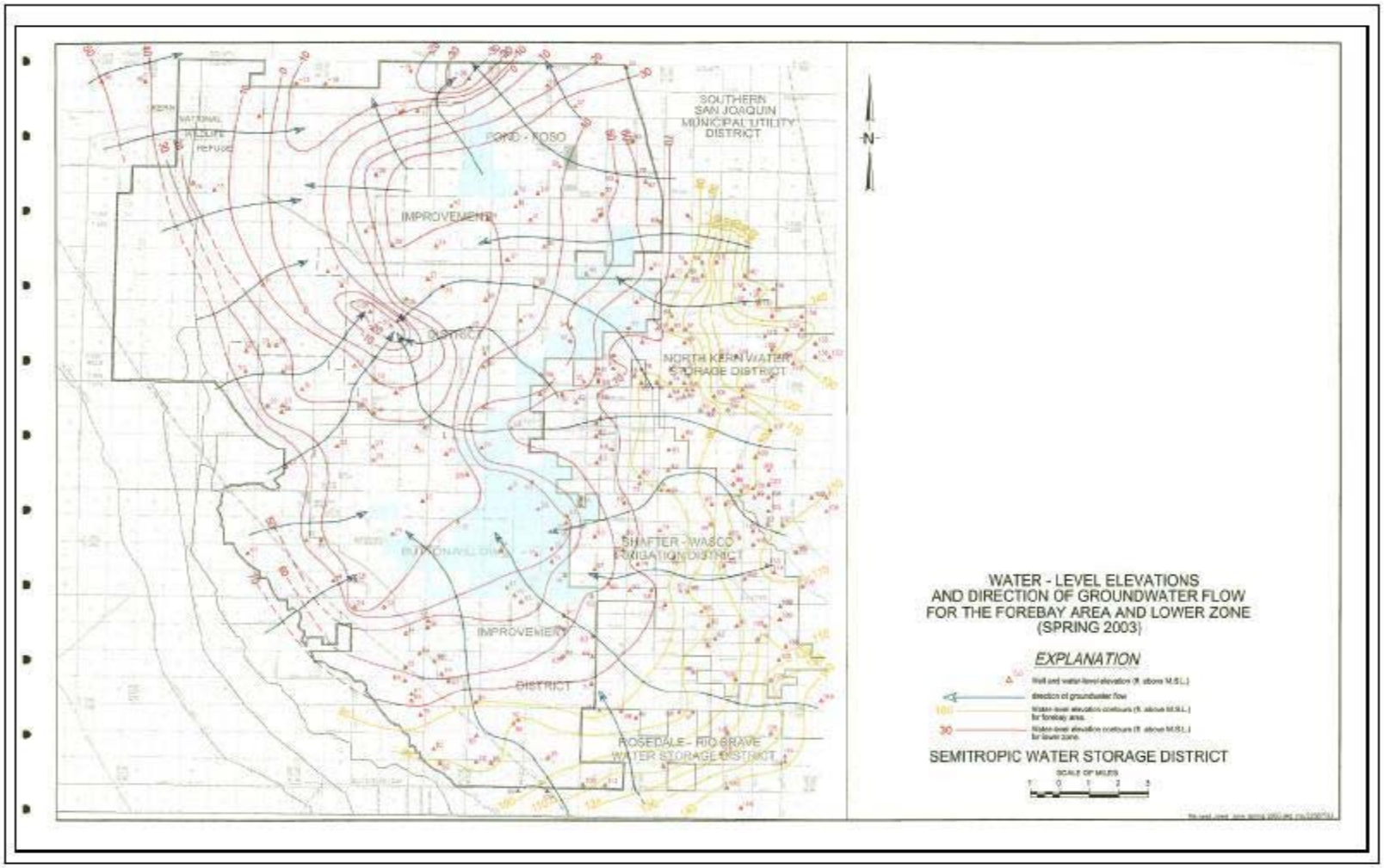
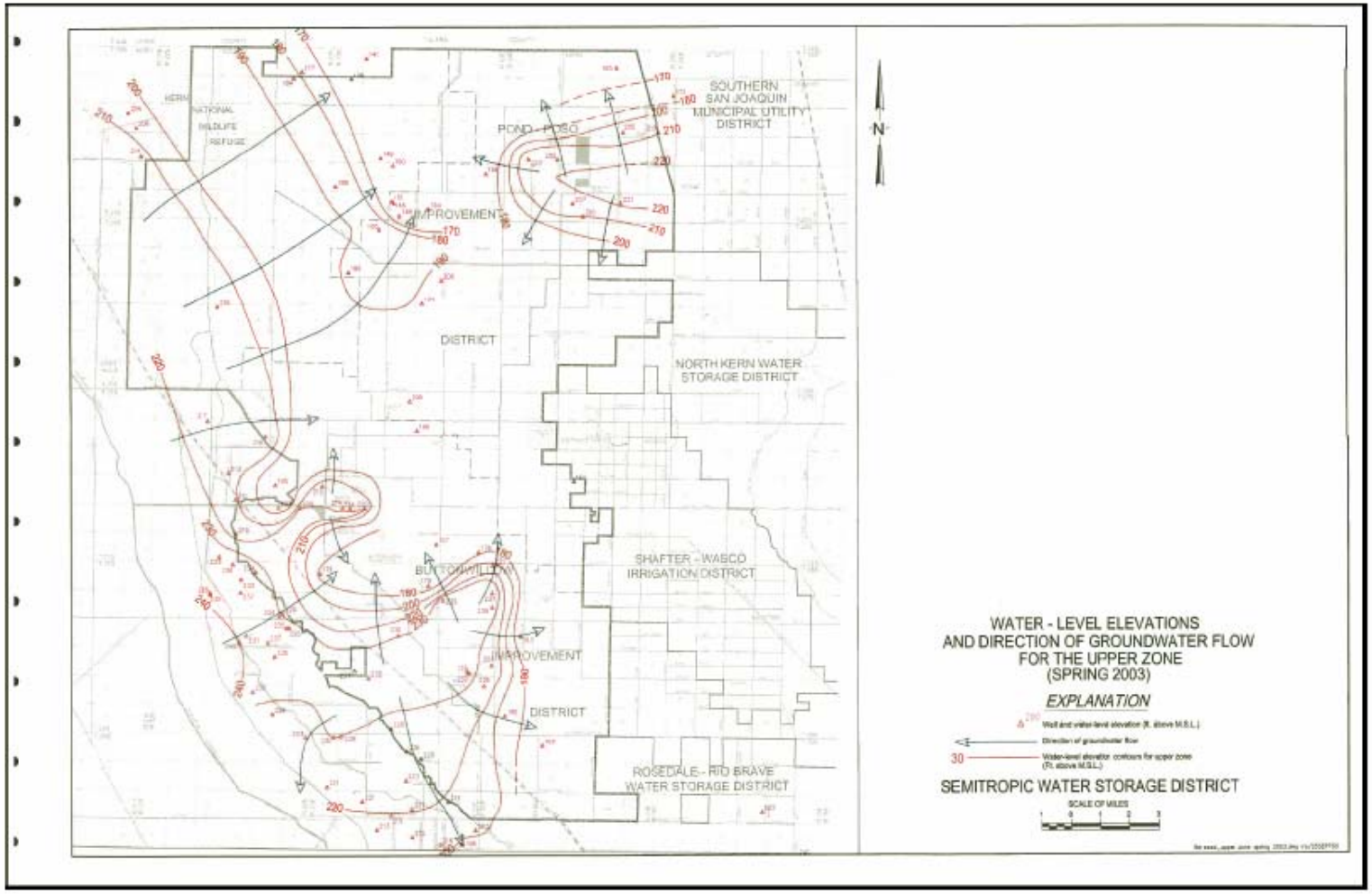


FIGURE 8 SEMITROPIC WATER-LEVEL ELEVATIONS FOREBAY and LOWER ZONES



KCWA

KCWA encompasses all of Kern County. Groundwater levels vary throughout Kern County. The area is in groundwater overdraft conditions. KCWA provides surface water to discourage groundwater pumping. Surface water supplies include Kern River and SWP water from the Delta.

WWD

WWD is located above the alluvial fan deposits between the eastward dipping marine deposits of the Coast Range and the alluvium filled San Joaquin Valley. The groundwater basin underlying WWD is comprised generally of two water-bearing zones: (1) an upper zone above a nearly impervious Corcoran Clay layer containing the Coastal and Sierra aquifers and (2) a lower zone below the Corcoran Clay containing the sub-Corcoran aquifer. These water-bearing zones are recharged by subsurface inflow primarily from the west and northeast, percolation of groundwater, and imported and local surface water. The Corcoran Clay separates the upper and lower water-bearing zones in the majority of WWD. The Corcoran Clay is not continuous in the western portion of WWD.

Groundwater pumping started in this portion of the San Joaquin Valley in the early 1900's. Prior to delivery of CVP water, the annual groundwater pumpage in WWD ranged from 800,000 to 1,000,000 AF/Y during the period of 1950-1968. The majority of this pumping was from the aquifer below the Corcoran Clay, causing the sub-Corcoran piezometric ground water surface to reach the lowest record average elevation of more than 150 feet below mean sea level by 1968. The large quantity of groundwater pumped prior to delivery of CVP water caused a significant amount of land subsidence in some areas. Subsidence permanently reduces the aquifer capacity because of the compaction of the water-bearing sediments. WWD has implemented a groundwater management program to reduce the potential for future extreme subsidence. After implementation of the CVP operations in WWD, groundwater pumping declined to about 200,000 AF/Y, or less, in the 1970's. The reduction in groundwater pumping stabilized groundwater depths and in most portions of WWD, groundwater levels significantly recovered.

During the early 1990's, groundwater pumping increased tremendously because of the reduced CVP water supplies caused by an extended drought, and regulatory actions related to the CVPIA, ESA, and Bay/Delta water quality actions. Groundwater pumping quantities are estimated to have reached 600,000 AF per year during 1991 and 1992 when WWD received only 25 percent of its contractual entitlement of CVP water. The increase in pumping caused a decline in groundwater levels, but has since recovered. Normal or near normal CVP water supplies from 1995 – 1999 have reduced the estimated annual quantity of groundwater pumped to approximately 60,000 AF/Y, resulting in an increase in water surface elevations. However, since 2000, WWD's water supply has been significantly reduced resulting in groundwater pumping increasing to over 200,000 AF/Y.

WWD estimates the current safe yield of groundwater to be approximately 175,000-200,000 AF per year. However, this quantity of groundwater is generally only pumped when other supplemental supplies are not available. This is due to the poorer quality of the groundwater compared to surface water (Reclamation, 2004).

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, groundwater resources would be the same as the existing conditions described above.

Proposed Action

The delivery of up to 25,000AF of Friant Unit CVP water to NKWSD for groundwater recharge and future exchange will help protect the local aquifer from overdraft in the interim period. NKWSD would have the benefit of the use of this water temporarily. Groundwater resources in NKWSD would improve slightly in the short-term.

Surface and groundwater quantities in KCWA would not change since the Kern River water provided by NKWSD would be used to support M&I users in KCWA and a like amount of SWP water would be delivered to WWD during the same period.

The Proposed Action would provide water to WWD, and therefore reduce the need to pump groundwater in order to supplement potential shortages during the time the return water is delivered. WWD would not be pumping groundwater to make the Friant Unit CVP water available for exchange. The project would not adversely affect the groundwater under WWD. With the availability of 25,000AF of additional irrigation water, the Proposed Action would likely decrease reliance on groundwater pumping by landowners in WWD when the water is returned. This decrease would result in a benefit to groundwater under WWD.

MID would not pump groundwater to make water available for this transfer. The 25,000 AF of CVP water transferred to WWD would be in excess of MID's 2006 irrigation demands. The excess water resulted from extremely wet conditions and high local runoff during the 2006-07 water year which met part of MID's irrigation demand, as well as the purchase of 215-water and the delivery of over 50,000 AF of abandoned water to MID.

Cumulative Effects

Semitropic is in the process of obtaining the necessary permits and is ready to construct the second phase of its groundwater banking program. This new unit, the Stored Water Recovery Unit (SWRU), would increase storage by 650,000 AF to a maximum of 1.65 million AF and increase recovery capacity by 200,000 AF per year for a total guaranteed or pumpback capacity of 290,000 AF per year. This means that the Semitropic Groundwater Storage Bank, including its entitlement exchange capability of up to 133,000 AF per year, would be able to deliver up to 423,000 AF per year of dry year yield to the California Aqueduct. (Semitropic, 2006b). The SWRU is proposed to move forward toward construction and implementation irrespective of the Proposed Action.

To the extent that the CVP has delivered surface water supplies into NKWSD and Semitropic with this and previous projects, groundwater management has improved the aquifers in the region. This improvement is small and does not lead to major cumulative changes in groundwater quality and quantity. MID has several other on-going projects to transfer surplus water out of the district and make available for sale in Water Year 2006. These additional projects will be environmentally reviewed in subsequent EA's. These water transfers are the result of excess water. Demands have been met including groundwater management within MID for Water Year 2006

3.3 LAND USE

3.3.1 Affected Environment

MID

Madera Irrigation District lies within Madera County in a very productive agricultural community within the San Joaquin Valley. The City of Madera lies within a portion of MID boundaries and is represented below as the urban land use. As shown in Table 2, the primary land use is for agriculture and the main crops are Grapes and Almonds/Pistachios, based on 2003 crop report (MID, 2001).

TABLE 2: LAND USE IN MADERA IRRIGATION DISTRICT

Crop	Acres	Percentage
Grapes	35,748	29%
Almonds and Other Nuts	33,284	27%
Grains (Wheat, Oat Corn)	20,956	17%
Alfalfa	17,258	14%
Cotton	7,369	6%
Fruits	7,396	6%
Vegetables	1,233	1%
Total Irrigated Acres	**123,271**	**100%**
Undeveloped Native Vegetation	**210**	
Urban Development	**8,066**	
Total District Acres	**131,547**	

Kern County

Kern County is the fourth most productive agricultural county in the nation. As a semiarid region, it must rely on adequate imported water supply for its farming, and demand is expected to increase in the future for Kern County's agricultural products. NKWSD and Semitropic are situated within Kern County.

NKWSD

Land use in NKWSD is primarily agricultural, with alfalfa, cotton, nuts and vegetables comprising the largest acreage under cultivation, based on 2003 crop report (Semitropic, 2006a). (Table 3).

TABLE 3: LAND USE IN NORTH KERN WATER STORAGE DISTRICT

Crop	Acres	Percentage
Alfalfa	11,050	17%
Cotton	10,400	16%
Vegetables	10,400	16%

Almonds and Pistachios	9,750	15%
Grains	9,750	15%
Grapes and Other Fruits	1,950	3%
*Other Land Uses	11,700	18%
Total Irrigated Acres	**65,000.00**	**100%**
Undeveloped Native Vegetation	**5,000.00**	
Total District Acres	**70,000.00**	

**Other land uses includes fallowed, waste and miscellaneous lands.*

Semitropic

Semitropic is also situated within Kern County. Land use in Semitropic is primarily agricultural, with alfalfa, cotton, and vegetable comprising the largest acreage under cultivation (Table 4). Semitropic provides water to customers for agricultural use only. Throughout Semitropic, water is used for the following crops (based on a 2003 crop survey). (Semitropic, 2006a).

TABLE 4: LAND USE IN SEMITROPIC WATER STORAGE DISTRICT

Crop	Acres	Percentage
Alfalfa	27,088.42	16.95%
Cotton	25,323.80	15.85%
Nut crops	23,533.49	14.73%
Fallowed (temporary crops)	13,152.84	8.23%
Vegetables	25,185.79	15.76%
Grain/pasture	23,582.11	14.76%
Duck ponds	8,838.15	5.53%
Grapes	5,248.17	3.28%
Waste & miscellaneous land	6,563.01	4.11%
Fruits	680.35	0.43%
Nursery	577.48	0.36%
Total Irrigated Acres	**159,773.61**	**100%**
Undeveloped Native Vegetation	**60,785.86**	
Total District Acres	**220,559.47**	

KCWA

Kern County Water Agency (KCWA) comprises all of Kern County in the Southern San Joaquin Valley. KCWA currently has approximately 861,000 irrigated acres. This is in contrast to the district's peak irrigated acres, 973,000 acres in 1984 and its lowest recent level of irrigated acres, 729,400 acres in 1991 due to a severe drought. There are about 110,000 to 120,000 acres per year that are idled for various reasons. In an extreme case, if all of this land was cropped in a single year, irrigated acreage could return to its peak without the conversion of any native lands. In 1991, there were about 266,200 acres of permanent crops and in 1998 permanent crops amounted to about 316,500 acres.

WWD

Agricultural production is the predominant land use in WWD. More than 60 different crops are grown commercially in WWD with the potential for more. The primary crops grown include cotton, tomatoes, garlic, almonds, melons, lettuce, grains, and safflower. However, an improving long-term water supply outlook has resulted in a significant shift in cropping patterns in WWD, with more land being planted in permanent crops. There is a trend toward an increase in the number of acres in Westlands Water District (Fresno and Kings Counties) planted in permanent crops (orchards and vineyards) (Phillips 2006; Westlands Water District 2004-2005), particularly on the western, non-drainage-impaired portion of the district (Phillips 2006). The number of acres planted in permanent crops in Westlands Water District has doubled from 1993 to the 2004-2005 water year (Westlands Water District 2004-2005). In the last three years, the number of acres planted in permanent crops rose by over 15%, with an almost 8% decrease in the number of acres planted with field crops (Westlands Water District 2004-2005).

3.3.2 Environmental Consequences

No Action

Land use conditions under the No Action Alternative would remain the same as the existing land use conditions described above; therefore, no additional effects to land use are associated with this alternative.

Proposed Action

The proposed action would not change land use conditions from existing conditions. All water would move through existing facilities and be placed on established agricultural lands. None of the Friant CVP water would be used to place any untilled or new lands into production, or to convert undeveloped land to other uses. WWD would not promote additional land to be farmed. Any water that is delivered to lands to WWD as a result of this project would be used on established agricultural lands to help offset the dry year water supply shortages faced by Semitropic and hence, reduce the annual amount of groundwater pumped or reduce annual transfers from other sources. The Proposed Action is a one-time transfer and groundwater banking project involving a small amount of water and would not provide incentive for long-term land use changes. Therefore, no impacts to land use are expected from the Proposed Action.

Cumulative Effects

The Proposed Action when taken into consideration with WWD's other water transfer, exchange and banking activities has no potential to induce growth in NKWSD or WWD, nor would it result in the cultivation of native untilled land. NKWSD and Semitropic would deliver and exchange water for WWD using existing facilities. WWD would be able to receive the return water from NKWSD within the next 5 years and receive the return water from Semitropic within the next 10 years.

3.4 BIOLOGICAL RESOURCES

3.4.1 Affected Environment

Kern County

The irrigated lands in NKWSD are similar to biological resources found in other agricultural areas of the San Joaquin Valley. The project area is dominated by agricultural habitat that includes field crops, orchards, and pasture. The vegetation is primarily crops and frequently includes weedy non-native annual and biennial plants. The non-irrigated lands in NKWSD include 282.69 acres of grassland and unknown rangeland, 130.36 acres of shrub and mixed rangeland, 71.48 acres of wetlands and 275.67 acres of riparian habitat. The limited marshlands support some waterfowl and waterfowl nesting and wintering habitat (Reclamation, 2006b).

The conveyance facilities to be used in the Proposed Action are not managed for fisheries. Some non-native warm-water fish may inhabit the canals. No sensitive or special-status fish species occur in the conveyance facilities that would be used in the project, except that the Kern Brook lamprey (a State Species of Special Concern) is known from the Friant-Kern Canal.

The following list was obtained on November 21, 2006 by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/sacramento/es/spp_list.htm (Document Number 061121054754). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles, which are overlapped by NKWSD: Oil Center, Oildale, Rosedale, Stevens, Gosford, Tupman, McFarland, Famoso, Pond, Wasco NW, Wasco SW and Wasco. See Table 5 for the species and critical habitat on the combined list for these quadrangles (FWS, 2006). NKWSD has some shared acreage with KCWA.

TABLE 5: FEDERAL STATUS SPECIES ON QUAD LISTS FOR NKWSD

Common Name	***Scientific Name***	***Status***	***ESA***	***Summary basis for ESA determination***
Bakersfield cactus	*Opuntia treleasei*	E[1]	NE[2]	Does not inhabit croplands or lands fallowed and untilled for less than three years
Bald eagle	*Haliaeetus leucocephalus*	T[3]	NE	No individuals or habitat in area of effect
Blunt-nosed leopard lizard	*Gambelia sila*	E	NE	Records are either old (ca 1975) or on Center for Natural Lands Management or DFG managed lands
Buena Vista Lake shrew	*Sorex ornatus relictus*	E	NE	Known to occur in southern portion of district. No construction of new facilities; no conversion of lands from existing uses
California red-legged frog	*Rana aurora draytonii*	T	NE	No individuals or habitat in area of effect
Delta smelt	*Hypomesus transpacificus*	T	NE	No downstream effects from action
Giant garter snake	*Thamnophis gigas*	T	NE	Species believed to have been extirpated from Tulare Basin except Burrel/Lanare; no construction of new facilities; no conversion of native lands or lands fallowed and untilled for three or more years
Giant kangaroo rat	*Dipodomys ingens*	E	NE	Survey data along Poso Creek showed kangaroo rat tracks, but not to species and affected only by construction, which will not result from the project
San Joaquin kit fox	*Vulpes macrotis mutica*	E	NE	No construction of new facilities; no conversion of lands from existing uses
San Joaquin woolly-threads	*Monolopia congdonii*	E	NE	No records within 10 years; species not expected to occur close enough to croplands to colonize bare soil

Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	E	NE	Some records from southwestern portion of the district; 1993 records near Poso Creek/FKC; more recent survey data showed kangaroo rat tracks along Poso Creek/FKC, but not to species & affected only by construction, which will not result from the project
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	NE	No elderberry shrubs in area of effect
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	NE	No vernal pools in area of effect

[1] E: Listed as Endangered under the ESA.
[2] NE: No Effect to the species or critical habitat determination under ESA.
[3] T: Listed as Threatened under the ESA.

Special status species known to occur in NKWSD are Swainson's hawk, Tipton kangaroo rat, the San Joaquin kit fox, Buena Vista Lake shrew and the blunt-nosed leopard lizard. Bakersfield cactus is known from the vicinity of the district's southwestern portion.

MID

The Central Valley Project Improvement Act (CVPIA) established an environmental restoration fund maintained through the imposition of a surcharge on each acre-foot of Project water delivered. The CVPIA dedicates 800,000 AF per year to environmental purposes and further mandates the delivery of water to wetland habitat areas. Land within the Friant division historically provided habitat for a variety of plant and animals. With the advent of irrigated agriculture and urban development over the last 100 years, many species have become threatened and endangered because of habitat loss. Of approximately 5.6 million acres of valley grasslands and San Joaquin saltbrush scrub, the primary natural habitats across the valley, less than 5 percent remains today. Much of the remaining habitat consists of isolated fragments supporting small, highly vulnerable populations. Data compiled by the California Energy commission indicates that only 15 percent of the Southern San Joaquin Valley remains in some form of natural condition (Reclamation, 2001).

The following list was obtained on November 21, 2006, by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/sacramento/es/spp_list.htm (061121102524). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles, which are overlapped by MID: Bonita Ranch, Madera, Gregg, Herndon, Lanesbridge, Biola, Gravelly Ford, Firebaugh NE, Berenda, Kismet, Daulton, and Raynor Creek. See Table 6 for the species and critical habitat on the combined list for these quadrangles (FWS, 2006).

TABLE 6: FEDERAL STATUS SPECIES ON QUAD LISTS FOR MID

Common Name	***Species Name***	***Fed Status***	***ESA***	***Summary basis for ESA determination***
Bald eagle	*Haliaeetus leucocephalus*	T	NE	No individuals or habitat in area of effect

Blunt-nosed leopard lizard	*Gambilia sila*	E	NE	No individuals or habitat in area of effect
Conservancy fairy shrimp	*Branchinecta conservatio*	E	NE	Some vernal pools in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
California tiger salamander, Central DPS	*Ambystoma californiense*	T	NE	Documented recent occurrences in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
California red-legged frog	*Rana aurora draytonii*	T	NE	No individuals or habitat in area of effect
Central Valley steelhead	*Oncorhynchus mykiss*	T	NE	No effect on natural stream systems
Delta smelt	*Hypomesus transpacificus*	T	NE	No downstream effects from action
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	E	NE	No individuals or habitat in area of affect; species not trapped since 1992 but may still occur on Alkali Sink Ecological Reserve.
Giant garter snake	*Thamnophis gigas*	T	NE	No individuals or habitat in area of effect
Greene's tuctoria-critical habitat	*Tuctorai greenei*	CH	NE	Documented recent occurrences in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
Hairy Orcutt grass	*Orcuttia pilosa*	E	NE	Some vernal pools in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
Hairy orcutt grass-critical habitat		CH	NE	
Fleshy Owl's Clover	*Castilleja campestris spp. succulenta*	T	NE	Documented recent occurrences in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
Fleshy Owl's Clover-Critical Habitat		CH	NE	
San Joaquin kit fox	*Vulpes macrotis mutica*	E	NE	Occurs in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities No construction of new facilities; no conversion of lands from existing uses
San Joaquin Valley Orcutt Grass	*Orcuttia inaequalis*	T	NE	Documented recent occurrences in eastern portion of the district, but no conversion of native

				lands or lands fallowed and untilled for three years or more, no new facilities
San Joaquin Valley Orcutt Grass critical habitat		CH	NE	Occurs in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	NE	No elderberry shrubs in area of effect
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	NE	Documented recent occurrences in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities
Vernal pool fairy shrimp - critical habitat		CH	NE	Occurs in eastern portion of the district, but no conversion of native lands or lands fallowed for three years or more, no new facilities
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	NE	Some vernal pools in eastern portion of the district, but no conversion of native lands or lands fallowed and untilled for three years or more, no new facilities

WWD

The biological resources in WWD are similar to biological resources found in other agricultural areas of the San Joaquin Valley. The project area is dominated by agricultural habitat that includes field crops, orchards, and pasture. The vegetation is primarily crops and frequently includes weedy non-native annual and biennial plants.

The following list was obtained on November 28, 2006 by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/sacramento/es/spp_list.htm (Document Number 061128104405). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles, which are overlapped by WWD: Stratford, Westhaven, Kettleman City, Huron, Guijuarral Hills, Avenal, La Cima, Coalinga, Burrel, Vanguard, Lemoore, Five Points, Westside, Harris Ranch, Calflax, Tres Pecos Farms, Lillis Ranch, Domengine Ranch, San Joaquin, Helm, Tranquillity, Coit Ranch, Levis, Cantua Creek, Chaney Ranch, Chounet Ranch, Tumey Hills, Monocline Ridge, Firebaugh, Hammonds Ranch and Broadview Farms. See Table 7 for the species and critical habitat on the combined list for these quadrangles (FWS, 2006).

TABLE 7: FEDERAL STATUS SPECIES ON QUAD LISTS FOR WWD

Common Name	***Scientific Name***	***Status***	***ESA***	***Summary basis for ESA determination***
Bald eagle	*Haliaeetus leucocephalus*	T[1]	NE[2]	No individuals or habitat in area of effect
Blunt-nosed leopard lizard	*Gambelia sila*	E[3]	NE	May still occur along the western edge of north WWD, but no conversion of native lands or

				lands fallowed for three years or less
California condor	*Gymnogyps californianus*	E	NE	No individuals or habitat in area of effect
California red-legged frog	*Rana aurora draytonii*	T	NE	No individuals or habitat in area of effect
California tiger salamander, central population	*Ambystoma californiense*	T	NE	No individuals or habitat in area of effect
Central Valley Steelhead	*Oncorhynchus mykiss*	T	NE	No downstream effects from action
Delta smelt	*Hypomesus transpacificus*	T	NE	No downstream effects from action
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	E	NE	No individuals or habitat in area of effect; species not trapped since 1992 but may still occur on Alkali Sink Ecological Reserve
Fresno kangaroo rat critical habitat	*Dipodomys nitratoides exilis*	CH (F)[4]	NE	Only occurs at Alkali Sink Ecological Reserve, outside of area of effect
Giant garter snake	*Thamnophis gigas*	T	NE	Occurs near eastern boundary of northern WWD (Mendota Wildlife Area), but no conversion of native lands or lands fallowed for three years or less will occur as a result of the project
Giant kangaroo rat	*Dipodomys ingens*	E	NE	No individuals or habitat in area of effect
Palmate-bracted bird's beak	*Cordylanthus palmatus*	E	NE	No individuals or habitat in area of effect
San Joaquin kit fox	*Vulpes macrotis mutica*	E	NE	No construction of new facilities; no conversion of lands from existing uses
San Joaquin woolly-threads	*Monolopia congdonii*	E	NE	May still exist along the western edge of WWD; species not expected to occur close enough to croplands to colonize bare soil
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	E	NE	Occurs near irrigated croplands at Lemoore Naval Air Station, but no conversion of native lands or lands fallowed for three years or less will occur as a result of the project
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	NE	No elderberry shrubs in area of effect
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	NE	No vernal pools in area of effect
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	NE	No vernal pools in area of effect

[1] E: Listed as Endangered under the ESA.

[2] NE: No Effect to the species or critical habitat determination under ESA.

[3] T: Listed as Threatened under the ESA.

[4] CH(F): Critical habitat designated as final under the ESA.

The bald eagle is considered a winter migrant. There are no rivers or creeks in Westlands. The delta smelt (*H. transpacificus*), Sacramento splittail (*Pogonichthys macrolepidotus*) and steelhead (*O. mykiss*) do not occur within the district's boundary. Distribution of species identified in Table 3-5 is illustrated in Figure 2. Occurrence of these species lies primarily to the west of Westlands on the east side of the California Coast Range. Most sightings have been documented within a 5-mile buffer zone outside and to the west of Westlands boundary. There are no vernal pools within Westlands.

Special status species known to occur within WWD are the California least tern (known to forage at the sewage ponds at Lemoore Naval Air Station), Tipton kangaroo rat, the San Joaquin kit fox, the San Joaquin pocket mouse, and the blunt-nosed leopard lizard.

KCWA

The irrigated lands in Semitropic are similar to those described above. The non-irrigated lands in Semitropic include valley mesquite, saltbush habitat, and riparian-freshwater habitat. Occurrences of the latter are not common or extensive because of the lack of freshwater to sustain the habitat throughout the year. The low lying shrubs and scattered mesquite host a variety of birds, mammals, and insects including dove, quail, coyotes, rabbits and lizards. The limited marshlands support some waterfowl and waterfowl nesting and wintering habitat.

The following list was obtained on December 1, 2006 by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/sacramento/es/spp_list.htm (document number 061201041614). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles, which are overlapped by KCWA and Semitropic: Arvin, Weed Patch, Mettler, Tejon Hills, Conner, Millux, Conner SW, Coal Oil Canyon, Mouth of Kern, Pentland, Oil Center, Lamont, Oildale, Rosedale, Stevens, Gosford, Rio Bravo, Buttonwillow, East Elk Hills, Tupman, Lokern, Belridge, West Elk Hills, Deepwell Ranch, McFarland, Famoso, North of Oildale, Pond, Wasco NW, Wasco SW, Wasco, Lost Hills NE, Lost Hills NW, Lost Hills, Semitropic, Allensworth, Delano West, Lone Tree Well, Hacienda Ranch. See Table 8 for the species and critical habitat on the combined list for these quadrangles (FWS, 2006).

TABLE 8: FEDERAL STATUS SPECIES ON QUAD LISTS FOR KCWA

Common Name	***Scientific Name***	***Status***	***ESA***	***Summary basis for ESA determination***
Bakersfield cactus	*Opuntia treleasei*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Bald eagle	*Haliaeetus leucocephalus*	T[1]	NE[2]	No individuals or habitat in area of effect
Blunt-nosed leopard lizard	*Gambelia sila*	E[3]	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Buena Vista Lake shrew	*Sorex ornatus relictus*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Buena Vista Lake shrew critical habitat		CH[4]	NE	Present in area of effect, but no conversion of native lands or lands fallowed and untilled for three years or more
California condor	*Gymnogyps californianus*	E	NE	No individuals or habitat in area of effect.

California jewelflower	*Caulanthus californicus*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more
California red-legged frog	*Rana aurora draytonii*	T	NE	No individuals or habitat in area of effect
Conservancy fairy shrimp	*Branchinecta conservatio*	E	NE	No individuals or habitat in area of effect
Delta smelt	*Hypomesus transpacificus*	T	NE	No downstream effects from action
Giant garter snake	*Thamnophis gigas*	T	NE	Species believed to have been extirpated from Tulare Basin except Burrel/Lanare; no construction of new facilities; no conversion of native lands or lands fallowed and untilled for three years or more
Giant kangaroo rat	*Dipodomys ingens*	E	NE	No conversion of native lands or lands fallowed for three years or more
Kern mallow	*Eremalche kernensis*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more
San Joaquin kit fox	*Vulpes macrotis mutica*	E	NE	No construction of new facilities; no conversion of lands from existing uses.
San Joaquin woolly-threads	*Monolopia congdonii*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more; species not expected to occur close enough to croplands to colonize bare soil.
southwestern willow flycatcher	*Empidonax traillii extimus*	E	NE	No individuals or habitat in area of effect
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	E	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	NE	No vernal pools in area of effect
Vernal pool fairy shrimp critical habitat	*Branchinecta lynchi*	CH[4]	NE	No conversion of native lands or lands fallowed and untilled for three years or more
Western snowy plover	*Charadrius alexandrinus nivosus*	T	NE	Documented in the Goose Lake Bed; no change in availability of habitat (such as evaporation ponds used for nesting) will occur as a result of the project

[1] E: Listed as Endangered under the ESA.

[2] NE: No Effect to the species or critical habitat determination under ESA.

[3] T: Listed as Threatened under the ESA.

[4] CH(F): Critical habitat designated as final under the ESA.

There are 20 federally threatened and endangered plants and animals and critical habitat for two species that have the potential to occur within KCWA. Out of the 20 species likely to occur in KCWA, 11 species have been sighted in KCWA according to the CNDDB. These are: the California jewelflower, the Kern mallow, the San Joaquin woolly-threads, Bakersfield cactus, the Giant kangaroo rat, the Tipton kangaroo rat, the Buena Vista Lake shrew, the San Joaquin kit fox, the blunt-nosed leopard lizard, the giant garter snake and the western snowy plover.

Unit SLO-1 of California red-legged frog critical habitat is less than one mile from Berrenda Mesa Water District and unit cc-6 of California tiger salamander critical habitat is within four miles. All critical habitat for the Buena Vista Lake shrew is entirely contained within Kern Delta Water District, a member of KCWA. The Buena Vista Lake shrew has been historically present within the boundaries of the District. The last sighting, however, was in 1991 near Lake Evans. The giant garter snake has also been historically present within the boundaries of the District. However, the species is believed to have been extirpated from most of the Tulare Basin, south of Burrel/Lanare. A recent survey of historically occupied areas in the southern Tulare Basin was funded by Reclamation. No giant garter snakes have been detected thus far during the survey.

Within the boundaries of the KCWA ID #4 are the San Joaquin woolly-threads, Bakersfield cactus, San Joaquin kit fox and the valley elderberry longhorn beetle. These species were last reported in 1992, 1995, 1986 and 1991 respectively.

The conveyance facilities to be used in the Proposed Action are not managed for fisheries. Some non-native warm-water fish may inhabit the canals. No sensitive or special-status fish species occur in the conveyance facilities that would be used in the project.

Semitropic

The irrigated lands in Semitropic are similar to biological resources found in other agricultural areas of the San Joaquin Valley. The non-irrigated lands in Semitropic include valley mesquite, saltbush habitat, and riparian-freshwater habitat. Occurrences of the latter are not common or extensive because of the lack of freshwater to sustain the habitat throughout the year. The low lying shrubs and scattered mesquite host a variety of birds, mammals, and insects including dove, quail, coyotes, rabbits and lizards. The limited marshlands support some waterfowl and waterfowl nesting and wintering habitat. Some of the largest blocks of native lands remaining in the southern San Joaquin Valley are in the boundaries of Semitropic. Many of these lands are protected, such as the Kern National Wildlife Refuge and the Center for Natural Lands Management's Lokern Preserve, but others are not.

The conveyance facilities to be used in the Proposed Action are not managed for fisheries. Some non-native warm-water fish may inhabit the canals. No sensitive or special-status fish species occur in the conveyance facilities that would be used in the project, except that the Kern Brook lamprey (a State Species of Special Concern) is known from the Friant-Kern Canal.

The following list was obtained on December 15, 2006 by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list.cfm (document number 061215015042). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles, which are overlapped by Semitropic: Lone Tree Well, Hacienda Ranch, Allensworth, Delano

West, Lost Hills NW, Lost Hills NE, Wasco NW, Pond, Lost Hills, Semitropic, Wasco SW, Wasco, Lokern, Buttonwillow and Rio Bravo See Table 3-7 for the species and critical habitat on the combined list for these quadrangles. Semitropic has some shared acreage with KCWA.

TABLE 3.5: FEDERAL STATUS SPECIES ON QUAD LISTS

Common Name	***Species Name***	***Fed Status***	***ESA***	***Summary basis for ESA determination***
Bald eagle	*Haliaeetus leucocephalus*	T[1]	NE[2]	No individuals or habitat in area of effect
Blunt-nosed leopard lizard	*Gambelia sila*	E[3]	NE	Records are either old (ca 1975) or on Center for Natural Lands Management or DFG managed lands
Buena Vista Lake shrew	*Sorex ornatus relictus*	E	NE	Only known location in action area is on Kern NWR
California jewelflower	*Caulanthus californicus*	E	NE	Does not inhabit croplands or lands fallowed and untilled for less than three years
California red-legged frog	*Rana aurora draytonii*	T	NE	No individuals or habitat in area of effect
Conservancy fairy shrimp	*Branchinecta conservatio*	E	NE	No vernal pools in area of affect
Delta smelt	*Hypomesus transpacificus*	T	NE	No downstream effects from action
Giant garter snake	*Thamnophis gigas*	T	NE	No individuals or habitat in area of effect
Giant kangaroo rat	*Dipodomys ingens*	E	NE	No individuals known; survey data along Poso Creek showed kangaroo rat tracks, but not to species (most likely either *D. heermani* or *D. nitratoides nitratoides*) and affected only by construction, which will not result from the project
Kern mallow	*Eremalche kernensis*	E	NE	Only one record, which is more than 10 yrs old; no facilities or construction will result from the project; no new lands will be brought into production
San Joaquin kit fox	*Vulpes macrotis mutica*	E	NE	No construction of new facilities; no conversion of lands from existing uses
San Joaquin woolly-threads	*Monolopia congdonii*	E	NE	No records within 10 years; species not expected to occur close enough to croplands to colonize bare soil
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	E	NE	Occurrences on Buttonwillow Ecological Reserve and lands managed by the Center for Natural Lands Management; other occurrences are from 1985; recent survey data showed kangaroo rat tracks along Poso Creek.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	NE	No elderberry shrubs in area of effect
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	NE	No vernal pools in area of effect
Vernal pool fairy shrimp - critical habitat		CH	NE	None in area of effect

[1] T: Listed as Threatened under the ESA.
[2] NE: No Effect to the species or critical habitat determination under ESA.
[3] E: Listed as Endangered under the ESA.

Western snowy plover	*Charadrius alexandrinus nivosus*	T	NE	Documented in the Goose Lake Bed within Semitropic; no change in availability of habitat (such as evaporation ponds used for nesting) will occur as a result of the project

Special status species known to occur in areas of undeveloped native vegetation in Semitropic are the San Joaquin antelope ground squirrel, the Tipton kangaroo rat, the San Joaquin kit fox, and the blunt-nosed leopard lizard.

3.4.2 Environmental Consequences

No Action
Under the No Action Alternative, it is expected that the trend toward an increase in permanent crops in WWD will continue. Semitropic would continue to operate its existing 650,000AF - capacity groundwater banking program and would continue proposed expansion for their SWRU facilities, which would increase storage capacity to 1.65 million-af and recovery capacity from 200,000 AF/Y to a total of 290,000 AF/Y.

Proposed Action
The Proposed Action would be consistent with the current operations at MID, WWD, NKWSD and KCWA and would not negatively impact CVP and SWP deliveries. The Proposed Action would not prevent water deliveries to refuges or preclude the Environmental Water Account from negotiating actions to obtain water from willing sellers in accordance with the Central Valley Project Improvement Act. It is anticipated that only existing facilities would be used for the banking and recovery of the 10,000 AF of water in NKWSD and the 15,000 AF of water in Semitropic. The Proposed Action does not require the construction of the SWRU, however, SWRU facilities might be used in the future to facilitate the return of the water from Semitropic to WWD. Future SWRU facilities would not be utilized to return any of the water banked at NKWSD.

Critical habitat has been designated by the U.S. Fish & Wildlife Service for vernal pool species and the California tiger salamander; one unit of critical habitat for vernal pool fairy shrimp is within a short distance (~5 miles) of the boundaries of NKWSD and units of the species and others are in eastern MID. All critical habitat for the Buena Vista Lake shrew is contained within KCWA. Critical habitat would not be affected by the Proposed Action, because no constituent elements would be altered within the action area.

Demands have been met and conditions in MID that support biological resources would not change. The water delivered to lands in WWD will be used to irrigate crops already in cultivation. The construction of new facilities would not be required to bring the water to these locations, and the Proposed Action would bring no native or untilled lands into production. Orchards provide some habitat for the San Joaquin kit fox, but the habitat value is relatively small, and would not be affected by the Proposed Action. Unprotected native lands and lands fallowed and untilled for three years or more in WWD cannot be brought into production with the transferred water.

There are no waterways containing sensitive fishes that would be affected by the Proposed Action. Kern Brook lamprey, a species which continues to live in the siphons of the FKC as long as it contains water, would not be affected. There are no sensitive or special-status fish species which occur in the conveyance facilities that would be used in the project, therefore there

would be no effect on the delta smelt, anadromous salmonids, critical habitat for the delta smelt or salmonids, or the southern DPS of the North American green sturgeon. Likewise, there will be no effect on any essential fish habitat (EFH) covered by a Federal Fishery Management Plan. The SWP would otherwise still be pumped out of the south Delta at Banks Pumping Plant. The only change for the Proposed Action is that it would be conveyed through existing turnouts to WWD instead of KCWA and Semitropic.

The Proposed Action would not change the availability or quality of any habitat for the California least tern, because no waterways or nesting areas will be created, destroyed or modified in any way.

Cumulative Effects
As the Proposed Action itself has no impacts on special-status plant, fish or wildlife resources, it does not contribute to cumulative impacts on those resources.

3.5 CULTURAL RESOURCES

3.5.1 Affected Environment

Cultural Resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The San Joaquin Valley is rich in historical and pre-historic cultural resources. Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Prior to the 18th Century, many Native American tribes inhabited the Central Valley. It is possible that many cultural resources lie undiscovered across the valley. However, a systematic inventory for cultural resources on the farmers' lands in MID, NKWSD, KCWA has not been conducted, and prehistoric and historic resources may be present on these lands. The lands have historically been cultivated for agricultural purposes and have been routinely tilled and irrigated. Any archaeological resources that may be present have likely been impacted by these agricultural practices.

The CVP is being evaluated for the National Register of Historic Places (NRHP). Facilities include the Friant Dam, Friant-Kern Canal, Tracy Pumping Plant, and Delta-Mendota Canal.

Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. The Friant-Kern Canal carries water over 151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties. Construction of the canal began in 1945 and was completed in 1951.

Environmental Consequences
No Action
Under the No Action Alternative, there are no impacts to cultural resources as no modifications to existing facilities and no new facilities would be constructed. Existing recharge and extraction operations would continue to operate as has historically occurred. Current recharge and

extraction operations would continue to operate within existing facilities. There would be no potential to affect historic properties.

Proposed Action
The conveyance of Friant Unit CVP and exchanged water sources would not harm any cultural resources. All of the water sources involved would be exchanged and conveyed in existing facilities to established agricultural land or M&I users in Bakersfield. No excavation or construction is required to convey the water and no untilled land will be cultivated with this water. The short duration of this water would not result in changes in current conditions in MID, NKWSD, KCWA or WWD. Consequently, the undertaking is not a type of activity with the potential to affect cultural resources eligible to the NRHP.

Cumulative Effects
The Proposed Action when added to the previous transfer and exchange activities and reasonably foreseeable transfer and exchange activities of WWD does not contribute to cumulative affects to archeological or cultural resources.

3.6 INDIAN TRUST ASSETS

3.6.1 Affected Environment

Indian trust assets (ITAs) are legal interests in assets that are held in trust by the U.S. Government for federally recognized Indian tribes or individual Indians. 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. ITAs cannot be sold, leased or otherwise alienated without United States' approval. ITAs 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's may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITAs reserved by Indian tribes, or individual Indians by treaty, statute, or Executive Order.

There are no Indian Trust Assets in MID, NKWSD, KCWA or WWD. The nearest Indian trust assets to this action are located at the Tule River Indian Reservation about 40 miles northeast of the NKWSD.

Environmental Consequences

No Action
Conditions would remain the same as existing conditions under the No Action Alternative; therefore there are no impacts to Indian Trust Assets.

Proposed Action
There are no tribes possessing legal property interests held in trust by the United States in the water involved with this action, nor is there such a property interest in the lands designated to receive the water proposed in this action. The nearest Indian trust assets to this action are located at the Tule River Indian Reservation about 40 miles northeast of the NKWSD. This action will have no adverse effect on Indian trust assets.

Cumulative Effects
The Proposed Action when added with the previous exchange activities and reasonably foreseeable exchange activities of WWD does not contribute to cumulative affects to ITAs.

3.7 SOCIOECONOMIC RESOURCES

3.7.1 Affected Environments

The socioeconomic setting is dependant upon population, employment, housing, and revenues earned by the primary private employers. As stated earlier, MID, WWD and NKWSD are comprised primarily of irrigated agricultural lands. There are many communities across the area where farm workers reside. There are many small businesses that support agriculture such as feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, and marketing.

Madera County is primarily a rural agricultural community and contributes to its vigorous economic force. Farm workers reside in homes within or close to Madera County. There are many small businesses that support agriculture like feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, marketing and other associated jobs, in recent years there has been a growing retail business and the future looks to be heading this way. Madera County has lower business start-up costs and cost of living expenses that add to its attractiveness as well (MID, 2001).

Kern County's (NKWSD) economy is based on the diverse assets of agriculture, oil, aerospace and transportation and warehousing services. Despite this seeming economic diversification, the overall performance of the county has been mixed in recent years when compared to the State and other counties, although noticeable progress has been made overall. This is due in part to the cyclical and uncertain nature of oil and aerospace which are often affected by factors beyond Kern County. Further, the agricultural sector consists mostly of low paying and often seasonal employment which limits the positive multipliers within the economy.

Lower business costs, the availability of land, and relatively lower costs of living also add to Kern's attractiveness and competitive advantage. On the other hand, lackluster new business growth, lower educational attainment and skills gaps, out migration of young people, a high incidence of low-to-moderate income residents, and air quality issues especially within the San Joaquin Valley--are noted disadvantages in Kern County (Kern, 2005).

KCWA
KCWA encompasses all of Kern County. KCWA serves 21 member units. All of the member units serve agricultural water except one (Kern County Water Agency Improvement District No.

4). Kern County is the fourth most productive agricultural county in the nation. A semiarid region, it must rely on adequate imported water supply. A vast groundwater basin supplies 43% of the water used for domestic and agricultural purposes. Other sources of supply include the Kern River (22%), the SWP (23%), and the FKC (11%). With years of flood and years of drought spaced among periods of normal supply, careful management practices have been developed and applied. It is estimated that 75% of the water applied to local crops goes to satisfying actual crop requirements. Significant improvement in efficient irrigation has been made through the utilization of drip and low volume application methods, as well as careful management of row and border systems.

WWD

WWD lies within an area of western Fresno and Kings Counties. Agriculture is vitally important in both counties, with agriculture being Fresno County's major industry. Fresno County consistently ranks among the top agricultural counties in the Country's agricultural production and employment. Hispanic communities in Fresno and Kings Counties, though relatively small and similar in size, have undergone varying rates of population growth over the years, which can be heavily influenced by the agricultural economy (Reclamation, 2004). The shift in cropping patterns to more permanent crops has had some economic impacts to WWD, as well. Permanent crops such as trees and vines require year-round maintenance and tend to provide stable employment at higher wages. Spring and fall vegetable crops, although seasonal, are labor-intensive and generate strong on-farm revenues that support regional job creation and economic growth (WWD, 2006).

3.7.2 Environmental Consequences

No Action

The socioeconomic conditions under the No Action Alternative would be the same as they would be under existing conditions described in the Affected Environment; therefore, no additional effects are associated with this alternative.

Proposed Action

The delivery of the Friant CVP water to WWD lands would provide water to the area in water supply shortage years and would help sustain WWD's existing croplands. Businesses rely on these crops to maintain jobs. The Proposed Action would not induce population growth within WWD, nor would seasonal labor requirements change. Agriculturally dependent businesses would not be affected by the proposed action. No adverse effects on public health and safety would occur. The Proposed Action would not have highly controversial or uncertain environmental effects or involve unique or unknown environmental risks. The Proposed Action would continue to support the economic vitality in the region. MID, NKWSD, and WWD are responsible for managing water for the benefit of agriculture, since they exist to support growers within their respective districts. Maximizing the use of water service actions is beneficial to local economic conditions and agricultural employment.

Cumulative Effects

Transfers and exchanges of this nature provide options for managing the finite water supplies. Other past, present and foreseeable future water exchange actions would not have highly controversial or uncertain environmental effects or involve unique or unknown environmental risks, nor would they have cumulatively significant environmental effects.

3.8 ENVIRONMENTAL JUSTICE

3.8.1 Affected Environment

As mandated by Executive Order 12898 (E.O. 12898), published February 11, 1994, entitled, "Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations", this EA addresses potential environmental justice concerns. The population of some small communities typically increases during late summer harvest. The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America.

3.8.2 Environmental Consequences

No Action
The No Action Alternative would have no impact on environmental justice. NKWSD, MID and WWD would continue to engage opportunities to maximize management of their water supply within the facilities available to them either in district or utilizing other district's facilities as approved by Reclamation and DWR. Conditions would be the same as the existing conditions; therefore, no additional impacts are associated with this alternative.

Proposed Action

The Proposed Action is a transfer of water from an area that demands have been met and to an area that needs water. The amount of crops or agricultural lands would not change as a result of the Proposed Action. The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. No impacts relevant to Environmental Justice are anticipated because the project does not include any construction or development of project facilities, or any change in operations that would affect the general public.

Cumulative Effects
The Proposed Action would not have any measurable impact on minority or disadvantaged populations within MID, NKWSD or WWD in conjunction with other activities.

SECTION 4 CONSULTATION AND COORDINATION

4.1 FISH AND WILDLIFE COORDINATION ACT (16 USC § 651 ET SEQ.)

The Fish and Wildlife Coordination Act (FWCA) provides a basic procedural framework for the orderly consideration of fish and wildlife conservation and enhancement measures in federally constructed, permitted, or licensed water development projects. The FWCA provides that, whenever any water body is proposed to be controlled or modified "for any purpose whatever" by a Federal agency or by any "public or private agency" under a Federal permit or license, the action agency[1] is required first to consult with the wildlife agencies (U.S. Fish and Wildlife

Service, National Marine Fisheries Service and California Department of Fish and Game), "with a view to the conservation of fish and wildlife resources in connection with that project."

The Proposed Action does not involve the controlling or modification of any body of water. Therefore, the FWCA does not apply.

4.2 ENDANGERED SPECIES ACT (16 USC § 1521 ET SEQ.)

Section 7 of the Endangered Species Act 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 federally endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation has determined the Proposed Action would have no effect on federally proposed or listed threatened and endangered species or their proposed or designated critical habitat. No further consultation is required under Section 7 of the Endangered Species Act. This determination is based on the fact that the Proposed Action involves water already allocated and available to MID and all water demands in MID have been met. Habitat types and conditions that support biological resources in MID would not change. The Proposed Action would support existing land uses and conditions. No native lands or lands fallowed and untilled for three years or more would be converted or cultivated with CVP water. This water would support existing agricultural lands in NKWSD and WWD.

This water would be transferred to WWD and conveyed through existing facilities. No modifications or construction would be required. This Proposed Action involves a small banking transaction when compared to the Semitropic's, including the SWRU's, overall capacity. The SWRU is expected to be constructed regardless of the Proposed Action and is in no way dependent upon the Proposed Action.

4.3 MAGNUSON- STEVENS ACT FISHERY CONSERVATION AND MANAGEMENT ACT (16 USC § 1801 ET SEQ.)

The Magnuson-Stevens Act (MSA) requires Federal agencies to consult with the NMFS on activities that may adversely affect EFH (MSA section 305(b)(2))1. Reclamation has determined that there would be no effects on any EFH as a result of the Proposed Action.

4.4 NATIONAL HISTORIC PRESERVATION ACT (15 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, there would be no effect on any historical, archaeological or cultural resources, and no further compliance actions are required.

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