Table 3-4: Normal Year With and Without the Partial Assignment Contract

PRE-RESOURCES EXCHANGE

Wet Year

Calendar Year - 1998

MONTH	DEMAND	KAWEAH		CVP			CVP TRANSFERS		KAWEAH RIVER TRANSFERS		GROUNDWATER
	(AF)	(AF)		(AF)			(AF)		(AF)		(AF)
		Delivered	Lost	Class 1[1]	Class 2[2]	Section 215	In	Out	In	Out	
January	213	124	0	0	0	0	0	0	0	0	89
February	487	112	0	0	0	0	0	0	0	0	375
March	730	124	0	0	0	0	0	0	0	0	606
April	485	120	0	0	0	0	0	0	0	0	365
May	3,971	179	800	0	0	0	0	0	0	0	3,792
June	5,100	478	1,700	958	0	1,085	0	0	0	0	2,579
July	6,647	783	0	2,437	790	1,647	0	0	0	0	990
August	4,080	627	0	1,681	0	0	655	0	0	0	1,117
September	2,090	513	0	1,228	0	0	0	0	0	0	349
October	427	495	0	518	0	0	0	0	0	0	0
November	7	0	0	564	0	0	0	0	0	0	0
December	3	0	0	0	0	0	0	0	0	0	3
TOTAL	24,240	3,555	2,500	7,386	790	2,732	655	0	0	0	10,265[3]

(1) Class 1 CVP = 100% Allocation.
(2) Class 2 CVP = 10% Allocation.
(3) Beneficial impacts of effective precipitation not included.

POST RESOURCES EXCHANGE

Wet Year

Calendar Year - 1998

MONTH	DEMAND	KAWEAH		CVP			CVP TRANSFERS		KAWEAH RIVER TRANSFERS		GROUNDWATER
	(AF)	(AF)		(AF)			(AF)		(AF)		(AF)
		Delivered	Lost	Class 1[1]	Class 2[2]	Section 215	In	Out	In	Out	
January	213	124	0	0	0	0	0	0	0	0	89
February	487	112	0	0	0	0	0	0	49	0	326
March	730	124	0	0	0	0	0	0	111	0	495
April	485	120	0	0	0	0	0	0	169	0	196
May	3,971	179	0	0	0	0	0	0	265	0	3,527
June	5,100	478	0	775	0	1,268	0	0	220	0	2,359
July	6,647	1,583	0	2,057	50	2,027	655	0	227	0	48
August	4,080	2,327	0	1,419	0	0	0	0	58	0	276
September	2,090	513	0	1,228	0	0	0	0	0	0	349
October	427	495	0	518	0	0	0	0	6	0	0
November	7	0	0	503	0	0	0	0	39	0	0
December	3	0	0	0	0	0	0	0	74	0	0
TOTAL	24,240	6,055	0	6,500[3]	50	3,295	655	0	1,218	0	7,665[4][5]

(1) Class 1 CVP = 100% Allocation.
(2) Class 2 CVP = 10% Allocation.
(3) Class 1/Longs Exchange. 1,200 AF Class 1 for 1,218 AF of Longs.
(4) Groundwater extraction reduction - 2,600 AF.
(5) Beneficial impacts of effective precipitation not included.

3.1.1.3 Kaweah Delta Water Conservation District

KDWCD is an historical short-term contractor within the Friant Division of the CVP. The District also has a history of receiving and executing temporary contracts and taking delivery of Friant Division supply. KDWCD has a demonstrated long-term diversion history of CVP water averaging 24,400 af annually (1955-1998).

KDWCD is comprised of four districts that are entirely or partially within KDWCD's boundary and are listed below:

- Lakeside Irrigation Water District
- Corcoran Irrigation District
- Kings County Water District
- Tulare Irrigation District (Long-Term CVP Contractor).

KDWCD is located in both Tulare and Kings Counties (see Figure 1-1), and is comprised of about 340,000 acres, with approximately 255,000 acres located in the westerly portion of Tulare County and 82,000 acres in the northeasterly corner of Kings County. KDWCD encompasses the alluvial fan of the Kaweah River, extending about 40 miles in a southwesterly direction from the foothills of the Sierra

Nevada on the east to the central axis of the San Joaquin Valley in the vicinity of the Tulare Lakebed on the west. The western boundary of KDWCD generally bisects the service area of the Kings County Water District and is generally bounded on the south by the service area of the Lower Tule River Irrigation District. Its maximum length from north to south is about 24 miles.

Per KDWCD, it was formed in 1927 under provisions of the Water Conservation Act of 1927 for the purpose of conserving and storing waters of the Kaweah River, protecting lands from flood damage and conserving and protecting the underground waters of the Kaweah delta. The FKC traverses the eastern portion of the KDWCD, delivering San Joaquin River water diverted at Friant Dam. The Tulare Irrigation District (TID), which lies entirely within the KDWCD, obtains water from the FKC under a long-term contract with Reclamation. Although TID is the only entity within the KDWCD with a long-term contract for CVP water, the KDWCD itself, as well as other entities within KDWCD, historically have received CVP water frequently that was surplus to the needs of long-term Friant Division contractors under short-term contracts of up to 15 years in length and temporary 1-year contracts (Fugro 2003).

Numerous public and private entities (including KDWCD) within the Kaweah River Basin divert water for irrigation from the Kaweah River and its distributaries. These entities cooperatively manage the water supplies and water rights through an association called the Kaweah and St. Johns Rivers Association (Association). By agreement, KDWCD staff serves as staff to the Association in the performance of watermaster duties, including administration of agreements and record keeping. About 250,000 acres (about 73 percent) within KDWCD have access to surface water supplies from the river system. Because of the erratic nature of flow in the Kaweah River, which varies substantially in magnitude from month-to-month and from year-to-year, nearly all of these lands obtain supplemental irrigation supply from groundwater. All municipal and industrial water uses within KDWCD are supplied from groundwater.

At McKay Point, a significant geographical feature immediately to the east of the eastern KDWCD boundary and about 1.5 miles west of the community of Lemon Cove, the Kaweah River divides into the St. Johns River and Lower Kaweah River branches, and enters KDWCD in these two channels. Within KDWCD, the Lower Kaweah branch divides into several distributaries.

KDWCD has historically received substantial quantities of water surplus to the needs of CVP contractors. Over the past 50 years, an excess of 5 million af of CVP water has been imported into the district. KDWCD can take delivery of CVP water from the FKC, which passes through the eastern portion of the district. The wasteway on the FKC at the St. Johns River crossing (FKC Milepost 69.48) and the waste way at the Kaweah River crossing (FKC Milepost 71.29) deliver CVP water into KDWCD distribution system. Additionally, the turnout for the TID (FKC Milepost 68.14) serves as a significant point of diversion for CVP water used within KDWCD (Fugro 2003).

Water can and has been diverted into other waterways such as Cottonwood Creek to be used in KDWCD service area. In addition, CVP water has been released into the Kings River channel for delivery through canal systems in the western portion of KDWCD area. Refer to Table 3-5 for the historical water supplies imported into KDWCD.

Table 3-5: Historical CVP Deliveries to KDWCD.

Water Year[1]	KDWCD	Tulare ID	Lakeside Irrigation WD	Misc[2]	Total[3]
1949	0	26,507	0	0	26,507

Water Year[1]	KDWCD	Tulare ID	Lakeside Irrigation WD	Misc[2]	Total[3]
1950	0	59,979	0	0	59,979
1951	0	100,080	0	0	100,080
1952	35,000	72,440	0	0	107,440
1953	1,500	130,862	0	0	132,362
1954	476	154,048	0	0	154,524
1955	600	159,046	0	0	159,646
1956	68,100	170,982	0	0	239,082
1957	13,438	132,464	0	0	145,902
1958	61,155	141,418	0	0	202,573
1959	0	99,603	0	0	99,603
1960	0	43,623	0	0	43,623
1961	0	32,269	0	0	32,269
1962	50,000	195,172	0	0	245,172
1963	62,501	195,075	34,692	0	292,268
1964	10,249	95,488	0	0	105,737
1965	60,623	211,200	29,441	0	301,264
1966	18,022	81,690	18,114	0	117,826
1967	170,184	119,370	14,206	0	303,760
1968	0	102,182	43,379	0	145,561
1969	53,005	126,313	0	0	179,318
1970	2,136	106,363	9,920	0	118,419
1971	9,265	93,146	12,528	0	114,939
1972	0	42,015	0	0	42,015
1973	115,367	152,267	0	0	267,634
1974	72,660	187,468	0	0	260,128
1975	115,676	160,107	0	0	275,783
1976	0	36,782	0	0	36,782
1977	109	0	0	0	109
1978	0	121,837	0	0	121,837
1979	20,876	226,670	0	405	247,951
1980	0	211,706	0	328	212,034
1981	930	57,165	0	199	58,294
1982	0	235,192	0	0	235,192
1983	0	62,602	0	0	62,602
1984	0	121,469	0	0	121,469
1985	11,443	69,178	0	12,302	92,923
1986	0	163,909	0	0	163,909
1987	0	12,691	0	18,310	31,001

Water Year[1]	KDWCD	Tulare ID	Lakeside Irrigation WD	Misc[2]	Total[3]
1988	0	79,579	0	19,480	99,059
1989	0	26,218	0	13,395	39,613
1990	0	994	0	0	994
1991	0	25,746	0	0	25,746
1992	0	17,640	0	0	17,640
1993	10,000	170,896	7,727	0	188,623
1994	0	27,777	0	0	27,777
1995	25,149	89,824	5,629	5,080	125,682
1996	8,462	123,040	0	0	131,502
1997	0	82,932	0	0	82,932
1998	20,359	58,705	0	0	79,064
1999	4,103	106,191	0	0	110,294
2000	11,801	102,641	0	0	114,442
2001	0	28,296	0	0	28,296
2002	0	41,637	0	0	41,637
2003	2,178	129,904	0	0	132,082
2004	0	9,740	0	0	9,740
2005	12,446	218,038	8,251	0	238,735
Total	1,047,704	5,728,339	183,887	69,499	7,029,429
Average	19,049	104,152	3,343	1,264	127,808

[1] October through September Water Year
[2] Includes Corcoran ID and City of Visalia.
[3] Data compiled from KDWCD and USBR annual reports, FWUA, and Bookman-Edmonston Engineering.

KDWCD has also purchased the entire lower Kaweah River high-flow water right, and is the lead local agency in the management of the storage right behind Terminus Dam.

Based on a recent property purchase, KDWCD is the owner of four of a total of 13 (4/13) shares of stock in a low flow pre-1914 stock water right on the Kaweah River (the Longs Canal Company right). This stock water right is one of the first entitled to divert water from the natural flow of the Kaweah River and thus, decreases in available yield during dry years and increases in available yield during above normal years. Figure 3-1 shows the historic location of the diversion and use of this water right. Table 3-6 shows the history of annual entitlement to the Longs Canal Company on the Kaweah River from 1968 through 2006.

Table 3-6: Historical Kaweah River Water Supply Amounts from the Longs Canal Company.

Water Year	Total	4/13 Share
1968	4,221	1,299
1969	4,552	1,401
1970	4,479	1,378
1971	4,608	1,418
1972	3,740	1,151

Water Year	Total	4/13 Share
1973	4.741	1.459
1974	4.792	1.474
1975	4.535	1.395
1976	3.387	1.042
1977	3.109	957
1978	4.517	1.390
1979	4.900	1.508
1980	4.536	1.396
1981	4.101	1.262
1982	4.912	1.511
1983	5.111	1.573
1984	5.343	1.644
1985	4.512	1.388
1986	4.482	1.379
1987	4.078	1.255
1988	3.788	1.166
1989	3.446	1.060
1990	3.210	988
1991	3.549	1.092
1992	2.924	900
1993	3.997	1.230
1994	3.409	1.049
1995	4.907	1.510
1996	4.033	1.241
1997	3.991	1.228
1998	4.875	1.500
1999	4.573	1.407
2000	3.914	1.204
2001	3.947	1.214
2002	4.159	1.280
2003	4.813	1.481
2004	3.956	1.217
2005	4.969	1.529
2006	4.569	1.406
Minimum	2.924	900
Maximum	5.343	1.644
Average	4.257	1.310

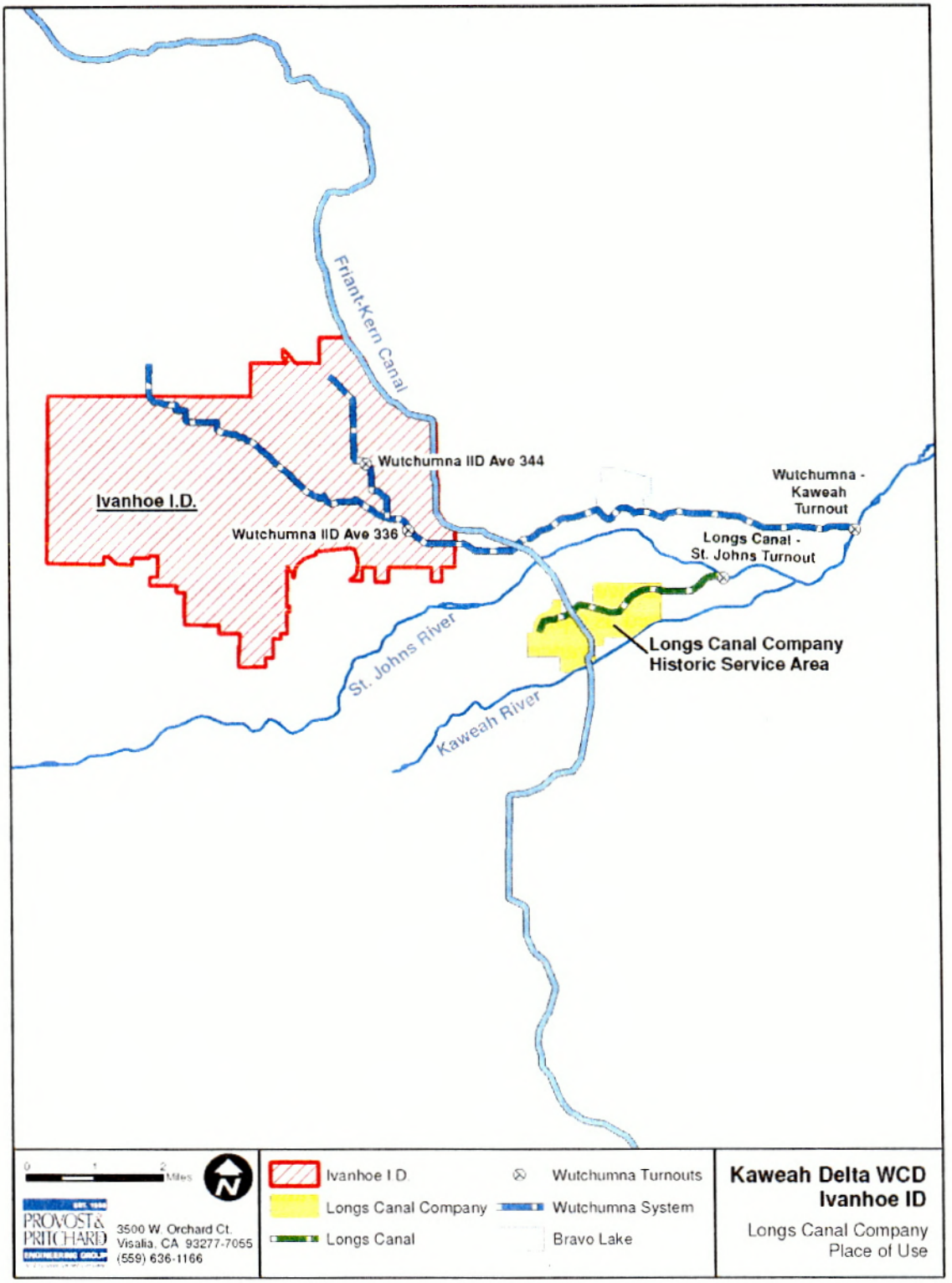

Figure 3-1: Current Diversion and Use Location for the Longs Canal Company Water Right.

3.1.1.4 Cottonwood Creek Turnout (MP 66.46)

Cottonwood Creek is an ephemeral stream with a relatively low elevation watershed that principally carries rainstorm event generated flows. It is also used periodically in wet years by IID for purposes of groundwater recharge of Friant Division and Kaweah River supplies.

Releases have generally been in the 15 to 25 cubic feet per second (cfs) range for groundwater recharge purposes. Flood flows have been as high as an estimated 5,000 cfs (Fugro 2003).

3.1.1.5 Tulare Irrigation District Turnout (MP 68.14)

This is the current diversion point for most of the Friant Division deliveries to TID. Annually TID diverts in excess of 100,000 af of CVP entitlement on the average with instantaneous flows ranging up to 800 cfs through this turnout and channel system for irrigation and groundwater recharge purposes (Fugro 2003).

3.1.1.6 St. John's River Wasteway (MP 69.42)

The St. John's River is used as a primary delivery system for much of the Kaweah River water entitlement and also serves an important flood conveyance function. KDWCD has used the St. John's River in the past to deliver CVP water under temporary or short-term contract. On the average over 190,000 af/y of Kaweah water is transported through the St. John's River with flows ranging in excess of 3,500 cfs. The water is used for irrigation and groundwater recharge (Fugro 2003).

3.1.1.7 Kaweah River Wasteway/Lower Kaweah River Branch (MP 71.29)

The Lower Kaweah River also is used as a primary delivery system for the Kaweah River water entitlement and also serves a flood conveyance function. KDWCD has used the Lower Kaweah River in the past to deliver CVP water under temporary and short-term contracts. On average, over 200,000 af/y of Kaweah water is transported through the Lower Kaweah River with flows ranging in excess of 2,000 cfs. The water is used for irrigation and groundwater recharge (Fugro 2003).

3.1.1.8 Trauger Pumping Plant/Lewis Creek Turnout (MP 85.55)

The Trauger Pumping Plant Turnout from the FKC is a main delivery point for the Lindsay Strathmore Irrigation District's (LSID) CVP Friant Division water supply. Valving currently exists which would allow water from the forebay of the pumping plant to be subsequently diverted into Lewis Creek. This would take the cooperation of LSID. Lewis Creek, otherwise, is an ephemeral stream with a relatively low elevation watershed that principally carries rainstorm event generated flows. Except for possibly early in the Friant Division history, little water has been purposefully diverted into Lewis Creek. It typically only carries flood waters with peak flows (25-year event) in the range of 3,000-4,000 cfs and a minor capacity of only some 1,500 cfs (Fugro 2003).

3.1.2 Environmental Consequences

3.1.2.1 No Action

Under the No-Action Alternative, IID would continue to operate in their current fashion. IID would continue to seek to increase the quantity of pre-1914 water rights available for use in dry years and would purchase water on the "spot market" to increase the overall supply available to the growers within the IID to the extent that such water is available and affordable. Like IID, if the assignment is not approved, KDWCD would continue to participate in the "spot market" for Kaweah River and CVP supplies and in the purchase of surplus CVP water.

3.1.2.2 Proposed Action

Flows for groundwater recharge purposes through the Cottonwood Creek turnout would likely increase in size and volume to provide greater recharge consistent with the bigger geographic sphere of influence

represented by KDWCD. However, the relative change in flow volume would not affect the channel wetted perimeter nor significantly differ in volume or duration from flows and conditions currently seen in the channel.

Given the inefficiencies in delivering the water via the Lewis Creek to KDWCD service area it would likely only be used in wet years when water is relatively inexpensive.

An estimated half of the proposed CVP water assignment for KDWCD is anticipated to be delivered through the St. John's River. This represents approximately 2,500 af/y, which is roughly only 1.3 percent of the St. John's River's annual flow volume.

The other half of the proposed CVP water assignment for KDWCD is anticipated to be delivered through the Lower Kaweah River. This is approximately 2,500 af/y and roughly around 1.2 percent of the Lower Kaweah River's annual flow volume.

Under the Proposed Action, IID would become the owner of the 4/13 share of the Longs Canal Company water right. As described above, the average annual water supply from 4/13 of the water right is approximately 1,300 af and increasing in drier years. In wetter years, IID would be able to use their Class II supply when the Longs Canal Company water right supply decreased. With the change of ownership of 4/13 of the Longs Canal Company water right, the point of diversion for the right would move approximately 2.5 miles upstream on the Kaweah River to the Wutchumna Turnout. The water represented by the remaining nine of 13 shares of Longs Canal Company stock would continue to be diverted at the Longs Canal Company historic point of diversion (see Figure 3-1 above). Additionally, IID would be able to store up to 2,500 af of their Wutchumna water supply until needed and not be forced to take only during the spring time flows.

The Proposed Action would increase the reliability of supply for the IID because the nature of the Longs Canal Company right being assigned to IID provides an increased amount of yield in dry years. The Proposed Action also addresses dry and critically dry year shortage needs of IID, as well as optimizing the management of the IID's pre-1914 water rights from the Kaweah River with the proposed reservoir storage capacity.

The Proposed Action would not adversely affect CVP operations and would use existing diversion points. There would be no construction or modification of CVP facilities. The approval of the Proposed Action would not interfere with CVP obligations to deliver water to other contractors or fish and wildlife areas. The proposed partial assignment would not have an adverse effect on unique geological features such as wetlands, wild or scenic rivers, refuges, flood plains, or rivers placed on the nationwide river inventory.

3.2 Groundwater Resources

3.2.1 Affected Environment

For planning purposes, the California Department of Water Resources (DWR) divides California into ten hydrologic regions (HRs), which correspond to the State's major drainage areas. The San Joaquin River HR covers approximately 9.7 million acres (15,200 square miles) and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties. The region contains two entire groundwater basins and part of the San Joaquin Valley Groundwater Basin, which continues south into the Tulare Lake HR. The San Joaquin Valley

Groundwater Basin is divided into nine subbasins in this region. The basins underlie 3.73 million acres (5,830 square miles) or about 38 percent of the entire HR area.

The Tulare Lake HR covers approximately 10.9 million acres (17,000 square miles) and includes all of Kings and Tulare counties and most of Fresno and Kern counties. The region has 12 distinct groundwater basins and seven subbasins of the San Joaquin Valley Groundwater Basin, which crosses north into the San Joaquin River HR. These basins underlie approximately 5.33 million acres (8,330 square miles) or 49 percent of the entire HR area (DWR 2003).

3.2.1.1 San Joaquin Valley Groundwater Basin

The Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the Valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

3.2.1.2 Tulare Lake Subbasin

The Tulare Lake Subbasin is bounded on the south by the Kings-Kern county line, on the west by the California Aqueduct, the eastern boundary of Westside Groundwater Subbasin, and Tertiary marine sediments of the Kettleman Hills. It is bounded on the north by the southern boundary of the Kings Groundwater Subbasin, and on the east by the westerly boundaries of the Kaweah and Tule Groundwater Subbasins. The southern half of the Tulare Lake Subbasin consists of lands in the former Tulare Lake bed in Kings County (DWR 2003).

3.2.1.3 Kaweah Subbasin

The Kaweah Subbasin has a surface area of 446,000 acres, and lies between the Kings Subbasin on the north, the Tule Subbasin on the south, crystalline bedrock of the Sierra Nevada foothills on the east, and the Kings River Conservation District on the west. The Kaweah Subbasin generally overlies lands in KDWCD and includes the lands of IID. Major rivers and streams overlying the Kaweah Subbasin include the Kaweah and St. Johns Rivers. The waters of the Kaweah and St. Johns Rivers are the primary source of recharge to the area. The Kaweah Subbasin has been identified by DWR as being critically overdrafted. 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 2005).

3.2.1.4 Kaweah Delta Water Conservation District

KDWCD boundaries are for the most part coincident with the DWR Kaweah Subbasin designation (Unit 1232), which is a subset of the larger Tulare Lake Hydrologic Unit. The Kaweah Subbasin boundaries are generally similar to KDWCD boundaries except for areas to the east and a small portion in the southwest corner near Corcoran, which falls within the Tulare Lakebed (DWR 2003).

For the past 50 years, KDWCD has been monitoring and recording groundwater levels. Currently, over 300 wells are monitored twice a year. These measurements continue to indicate that the Kaweah River Subbasin is an overdrafted basin. This agrees with DWR's determination that the Kaweah Subbasin is being critically overdrafted. The long-term trend of the water table has dropped in excess of 7 inches a year, or more than 30 feet since 1956. KDWCD as a whole is in a condition of overdraft. The magnitude of the overdraft is about 17,000 to 36,000 af/yr (as estimated by the Inventory and Specific Yield Methods, respectively), and occurs in the western portion of KDWCD. The safe yield of KDWCD is currently estimated to be about 575,000 af/yr (Fugro 2003).

Since KDWCD formation in 1927, a variety of programs have been implemented to promote groundwater recharge including recharge basin construction and operation, water importation, and proactive efforts to prevent water exportation from the Kaweah River Basin. KDWCD currently has access to rivers, canals, and over 40 recharge basins, encompassing more than 5,000 acres, which have been designed to capture and store surface water sources, including the Kaweah River. These basins have been operated in this fashion prior to the early 1940's.

In 1995, KDWCD adopted a Groundwater Management Plan (Plan). The Plan area is all the land within KDWCD's boundary, except those lands managed by agreement by other entities or under separate authority. In accordance with the Plan objectives, KDWCD has incorporated participation of several other entities in the Plan through Memoranda of Understanding, including IID.

3.2.1.5 Ivanhoe Irrigation District

IID has three groundwater recharge areas, covering approximately 15 acres, which are typically used when Reclamation makes Class II water available in excess of crop demand. These periods typically occur in high runoff years when, because of the runoff pattern, the storage in Millerton Reservoir reaches its flood storage criteria thereby requiring Reclamation to evacuate water so as to maintain available storage within the prescribed criteria. During these periods, the Friant Division contractors must decide whether to utilize or transfer their portion of that water which must be evacuated. IID typically uses as much of this water as possible for irrigation purposes and that which is in excess of the current water requirement is diverted to the recharge basins. The IID also uses approximately 3 miles of Cottonwood Creek for recharge purposes (IID 2004).

IID does not have any groundwater extraction facilities; therefore each landowner must provide his own well to irrigate during periods when surface water is not available and for frost protection. Each landowner with a furrow irrigation system and many with micro irrigation systems have a tailwater return system capturing any water not immediately penetrating and returning it back into their distribution system for irrigation or for deep percolation during the rainy season. All deep percolation losses return to a usable groundwater source (IID 2004).

The IID is signatory to the Groundwater Management Plan of KDWCD. The IID executed a Memorandum of Understanding in 2004 indicating their commitment to participate in the regional Groundwater Management Plan. The IID had considered the generation of a plan of their own; however, after consideration of KDWCD plan and the nature of regional program goals within the Kaweah River Basin, elected to participate in the area-wide plan.

3.2.2 Environmental Consequences

3.2.2.1 No Action

Under the No Action Alternative there may be impacts to groundwater resources as the overdraft in the Kaweah River Basin would continue, resulting in declining groundwater levels as described in the groundwater section above.

3.2.2.2 Proposed Action

Under the Proposed Action, KDWCD would become a long-term CVP contractor with a reliable water supply that would be used for preserving the groundwater in the Kaweah River Basin.

The Proposed Action would help alleviate the declining groundwater conditions within the Kaweah River Basin, at least to the extent of abating the increasing overdraft conditions.

With respect to the need for the CVP supply by KDWCD, the completed Water Resources Investigation performed for KDWCD by Fugro West, Inc. indicated that the Kaweah River Basin experiences an average annual overdraft of between 17,000 af and 36,000 af (as estimated by the Inventory and Specific Yield Methods, respectively). KDWCD can, therefore, adequately demonstrate the need for the water supply associated with the assignment quantity.

KDWCD has the ability to better manage the groundwater basin than IID as IID only has three groundwater recharge areas, covering approximately 15 acres. As previously mentioned, KDWCD currently has access to rivers, canals, and over 40 recharge basins, encompassing more than 5,000 acres, which have been designed to capture and store surface water sources, including the Kaweah River. Both IID and KDWCD share the same groundwater basin, therefore the replenishment of the groundwater would benefit the aquifer for both districts. Direct recharge of surface water as well as "in lieu" recharge would reduce overdraft by providing water above natural recharge to the Kaweah River Basin. Therefore, there would be no adverse impact from the Proposed Action.

3.3 Land Use

3.3.1 Affected Environment

The districts involved in the Proposed Action are located in portions of Kings and Tulare Counties. Collectively these counties represent 4 percent of the State's land area and 1 percent of the State's population.

According to the 2002 National Agricultural Statistics Services, the number of farms in these counties increased 6 percent from 6,525 in 1997 to 6,892 in 2002 (representing 9 percent of the State's farms), and the lands being farmed in these counties increased 4 percent from 1,966,493 acres in 1997 to 2,039,054 acres in 2002 (representing 7 percent of the State's farmed acres) (USDA 2002).

3.3.1.1 Kings County

Located in the southern half of the Central Valley, Kings County encompasses approximately 1,436 square miles. Included in the County are the incorporated cities of Avenal, Corcoran, Hanford, and Lemoore. Nearly 70 percent of the County's population lives in these incorporated areas, with over 32 percent residing in the city of Hanford.

In 2005, over 87 percent of the County's total acreage was used for agriculture (CDC 2004). The current agricultural land uses in Kings County are shown on Table 3-7.

Table 3-7: Kings County Land Use Trends.

Land Use Category	2002 Acreage	2004 Acreage	% Change
Prime Farmland	140,875	140,582	(0.2)
Farmland of Statewide Importance	431,336	429,768	(0.4)
Unique Farmland	28,314	28,524	0.7
Farmland of Local Importance	7,566	8,283	9.5
Important Farmland Subtotal	608,091	607,157	(0.2)
Grazing Land	236,582	233,493	(1.3)

Agricultural Land Subtotal	844,673	840,650	(0.5)
Urban and Built-up Land	29,796	30,768	3.3
Other Land	16,247	19,298	18.8
Water Area	66	66	0.0
Total Area Inventoried	890,782	890,782	0.0

Summarized from California Department of Conservation website.

The Corcoran Irrigation District, KDWCD, Kings County Water District, Lakeside Irrigation Water District, Melga Water District, and the Salyer Water District are located within the County.

3.3.1.2 Tulare County

Located in the southern half of the Central Valley, Tulare County encompasses approximately 4,844 square miles. Included in the County are the incorporated cities of Dinuba, Exeter, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake. Nearly 62 percent of the County's population lives in these incorporated areas, with over 24 percent residing in the city of Visalia (CDC 2004).

In 2005, over 51 percent of the County's total acreage was used for agriculture. The current agricultural land uses in Tulare County are shown on Table 3-8.

Table 3-8: Tulare County Land Use Trends.

Land Use Category	2002 Acreage	2004 Acreage	% Change
Prime Farmland	387,620	384,388	(0.8)
Farmland of Statewide Importance	345,763	339,579	(1.8)
Unique Farmland	12,746	12,525	(1.7)
Farmland of Local Importance	126,815	137,436	8.4
Important Farmland Subtotal	872,944	873,928	0.1
Grazing Land	440,550	440,618	0.0
Agricultural Land Subtotal	1,313,494	1,314,546	0.1
Urban and Built-up Land	52,213	53,928	3.3
Other Land	215,506	212,739	(1.3)
Water Area	4,656	4,656	0.0
Total Area Inventoried	1,585,869	1,585,869	0.0

Summarized from California Department of Conservation website.

The Alta Irrigation District, Exeter Irrigation District, IID, KDWCD, St. Johns Water District, and the TID are located in the County.

3.3.2 Environmental Consequences

3.3.2.1 No Action

Under the No Action Alternative, land use would continue as the existing conditions described above.

3.3.2.2 Proposed Action

The Proposed Action would not have an adverse effect on prime or unique farmlands. No native, untilled lands would be cultivated by the water from the proposed partial assignment within the service areas for the two districts, due to the restrictions from the Biological Opinion (1-1-01-F-0027) on Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contracts, January 19, 2001. For areas outside the service areas, where some additional groundwater may be available, the data indicates that either the amount of groundwater flow to those areas is relatively small (Fugro 2003), or that the lands are protected for conservation purposes (i.e. the Creighton Ranch Preserve borders the southern portion of KDWCD). Nor would it cause land use changes within the boundaries of the districts because land in IID would continue to be farmed using the remaining CVP water and other water supplies available to IID, including supplies received in exchange for the proposed partial assignment. KDWCD would use the assigned CVP water within their district to address existing groundwater overdraft issues within the Kaweah River Basin by delivering the water for direct groundwater recharge, or delivering the water to water service customers within the district as a substitute to groundwater pumping. The Proposed Action would not involve new facilities or construction. No additional infrastructure would be constructed, and no conversion of existing natural habitat into farmland or other uses is anticipated as a result of the Proposed Action.

3.4 Biological Resources

3.4.1 Affected Environment

The action area includes all areas to be directly or indirectly affected by the Federal action and not merely the immediate areas involved in the action (50 C.F.R. §402.02), where "affect" means to bring about a change.

The following areas, covering portions of Fresno, Kings, Madera, and Tulare counties make up the action area and could be potentially affected by the Proposed Action:

- The entire KDWCD, located in northwestern Tulare and northeastern Kings counties, including the Long's Canal area, as well as a two-mile buffer around KDWCD;
- IID, located in northwestern Tulare County;
- Lake Kaweah, located in Tulare County;
- Reaches of the Kaweah River upstream from KDWCD and IID, and downstream from Lake Kaweah, located in Tulare County;
- Reaches of the St. Johns River upstream from Long's Canal, located in Tulare County;
- Millerton Lake, located in Fresno and Madera counties; and
- The FKC, between Millerton Lake and the Kaweah River, located in Fresno and Tulare counties.

With the exception of the two districts and their two-mile buffers, the rest of the action area does not harbor federally listed species or critical habitat. These areas also lack other special-status species.

Table 3-6 lists, by taxonomic group, the federal endangered and threatened species and candidate species that were obtained from the USFWS's website on August 14, 2007 (http://www..gov/sacramento/es/spp_lists/auto_list_form.cfm) (document number 070814062613) for the U.S. Geological Survey (USGS) 7½ minute quadrangles that overlie all, or portions of, the action area. Based on location and habitat, the potential for occurrence of species was determined and is also shown in Table 3-9. Critical habitat found on the USFWS list is explained in the next section.

Categories of listed status used in Table 3-9 include:

FE Federally listed Endangered
FT Federally listed Threatened
FC Federal candidate for listing

Table 3-9: Potential for Occurrence of Special Status Species in KDWCD and IID.

Common Name	Scientific Nomenclature	Designation	Potential to Occur	
			KDWCD	IID
	Plants			
Hoover's spurge	*Chamaesyce hooveri*	FT	•	•
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	FT	•	•
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	FT	•	•
	Crustaceans			
Conservancy fairy shrimp	*Branchinecta conservatio*	FE		
vernal pool fairy shrimp	*Branchinecta lynchi*	FT	•	•
vernal pool tadpole shrimp	*Lepidurus packardi*	FE	•	•
	Insects			
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	•	•
	Fish			
delta smelt	*Hypomesus transpacificus*	FT		
	Amphibians			
California tiger salamander	*Ambystoma californiense*	FT	•	•
California red-legged frog	*Rana aurora draytonii*	FT		
mountain yellow-legged frog (Sierra Nevada populations)	*Rana muscosa*	FC		
	Reptiles			
blunt-nosed leopard lizard	*Gambelia sila*	FE	•	•
giant garter snake	*Thamnophis gigas*	FT		
	Birds			
California condor	*Gymnogyps californianus*	FE	•	•
	Mammals			
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	FE		
giant kangaroo rat	*Dipodomys ingens*	FE		
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	FE	•	•
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	•	•

Critical habitat for Hoover's spurge, the San Joaquin Valley Orcutt grass, the vernal pool fairy shrimp, the vernal pool tadpole shrimp, the California tiger salamander, and the California condor exists in the action area.

In Tulare County, populations of the Hoover's spurge occur from 315 to 345 feet in elevation. Six occurrences of Hoover's spurge are documented in the 44 quadrangles queried (CNDDB 2006), none of which are located within either district. However, an extant population is known to occur immediately north of KDWCD. This species is presumed to occur within suitable vernal pool habitat in and immediately adjacent to the action area.

Two occurrences of San Joaquin Valley Orcutt grass are documented in the quadrangles queried, one of which may be extirpated (CNDDB 2006). An extant population is located 0.6 miles north of KDWCD and 2.5 miles northwest of IID. Suitable habitat for this species occurs in vernal pools in the extreme northern portion of KDWCD. Therefore, San Joaquin Valley Orcutt grass potentially occurs within suitable habitat within the action area.

The California National Diversity Database (CNDDB) query produced 23 occurrence records for vernal pool fairy shrimp, all from populations that are presumed extant by California Department of Fish and Game (DFG). Seven of those records are from within KDWCD. The remaining 16 records are from outside KDWCD, ranging from 0.25 to 13.2 miles from KDWCD. There are several records for the species within 10 miles of IID, but none from within the district. These local occurrences of vernal pool fairy shrimp indicate that the species continues to occur on suitable habitat within the action area.

The CNDDB query produced six occurrence records for vernal pool tadpole shrimp, from between 1995 and 2002. All records are from populations that are presumed extant by DFG. Three of those records are from within the northern part of KDWCD. The remaining three records were located 1.8 to 5.0 miles north of KDWCD. No occurrence of the species has been recorded within IID. Records ranged from 4.6 to 15.2 miles west or north of IID. Vernal pool tadpole shrimp are presumed to occur on suitable habitat within KDWCD.

The CNDDB query produced nine occurrence records for California tiger salamanders. Seven of those records are from populations that are presumed extant by DFG, and two of those are from within KDWCD. The remaining five records from populations presumed extant are from outside KDWCD and IID, but within five miles of their northern boundaries. California tiger salamanders have the potential to breed and/or estivate within suitable habitat within the action area.

The CNDDB query produced 11 occurrence records for blunt-nosed leopard lizards, recorded between 1959 and 2001. All of those records are from populations that are presumed extant by DFG, and one record from 1974 is from within KDWCD. The CNDDB query produced no occurrence record for the species within the 12-quadrangle area surrounding IID. These local records of blunt-nosed leopard lizards suggest that the species could occur within the action area where suitable habitat is present.

The CNDDB query produced 11 records for Tipton kangaroo rats. Eight of those records are from populations that are presumed extant by DFG, one of which is from a population that straddles the western boundary of KDWCD. The remaining seven presumed extant records are from outside KDWCD, ranging from 1.6 to 13.9 miles to the south and west of KDWCD. Restricting the CNDDB query to the 12-quadrangle area surrounding IID produced no records for the Tipton kangaroo rat. The local occurrences of Tipton kangaroo rat suggest that the species could occur on suitable habitat within the action area.

The CNDDB query produced six records for the San Joaquin kit fox, from between 1975 and 2002. All of those records are from populations that are presumed to be extant by the DFG. Two of the occurrence records cover large geographic areas rather than geographic points. Combined, those two occurrence

records encompass IID in its entirety and approximately half of KDWCD. These local records of San Joaquin kit fox suggest that the species could traverse, forage, or occupy portions of the action area, if suitable habitat is present. Dispersing kit foxes from the Bakersfield area may use the FKC as a movement corridor. However, this corridor is not always conducive to kit fox use due to a lack of a stable escape den system and the presence of larger carnivores that are known to compete with and kill kit foxes, such as red foxes and coyotes (ESRP, unpublished data).

Three other non-Federally-listed special-status species are addressed in this assessment. These are the greenhorn adobe-lily, *Fritillaria striata*, (listed as threatened under the California Endangered Species Act), the Swainson's hawk, *Buteo swainsonii* (also listed as threatened under the California Endangered Species Act and protected by the Migratory Bird Treaty Act), and the little willow flycatcher (listed as endangered under the California Endangered Species Act and protected by the Migratory Bird Treaty Act).

One extant population of greenhorn adobe-lily, located approximately 10.4 miles southeast of KDWCD near Porterville, is documented in the 44 quadrangles queried (CNDDB 2006). Heavy clay soils suitable for supporting this species, such as those of the Cibo complex, may occur at the base of the foothills in the extreme eastern portion of the KDWCD (Camp et al. 1993). Greenhorn adobe-lily is therefore not expected to occur on most district lands, and especially not those that are in cultivation.

The CNDDB query produced 23 occurrence records for Swainson's hawk. Twenty-one of those records are presumed extant by DFG, and 12 of those presumed extant are from within KDWCD. The remaining nine records presumed extant are from various sites 1.5 to 15 miles outside KDWCD. One 1999 occurrence record is from a site within the southern portion of KDWCD from which the species is considered possibly extirpated. Restricting the CNDDB query to the 12-quadrangle area surrounding IID produced three occurrence records for Swainson's hawk, all of which are presumed extant. These records ranged from 11.2 to 15.9 miles south to southwest of IID. Swainson's hawk are presumed to utilize suitable habitat within KDWCD. The following vegetation types/agricultural crops are considered small mammal and insect foraging habitat for Swainson's hawks:

- alfalfa
- fallow fields
- beet, tomato, and other low-growing row or field crops
- dry-land and irrigated pasture
- rice land (when not flooded)
- cereal grain crops (including corn after harvest)

The CNDDB query produced one 1988 record for the little willow flycatcher, 7.8 miles north of KDWCD and 7.7 miles northeast of IID. No breeding populations of willow flycatcher currently exist in the Central Valley. Migrant willow flycatchers are often seen in California including the Central Valley. These migrants most likely belong to populations occurring outside of California where the species is more numerous.

3.4.2 Environmental Consequences

3.4.2.1 No Action

The conditions of special status wildlife species and habitats under the No Action Alternative would be the same as they would be under existing conditions described in the Affected Environment.

3.4.2.2 Proposed Action

Reclamation requested initiation of formal consultation on December 13, 2007 with USFWS for the 17 federally protected, threatened or endangered species that may occur in the Proposed Action Area, and of that total, nine of these species have designated critical habitat either in or adjacent to the Proposed Action footprint. A biological assessment was provided.

Reclamation determined that the Proposed Action would not affect the San Joaquin adobe sunburst, the Conservancy fairy shrimp or its critical habitat, the valley elderberry longhorn beetle or its critical habitat, the delta smelt or its critical habitat, the California red-legged frog or its critical habitat, the mountain yellow-legged frog (Sierra Nevada DPS), the giant garter snake, the California condor or its critical habitat, the Fresno kangaroo rat or its critical habitat, or the giant kangaroo rat.

Reclamation received USFWS' biological opinion of May 29, 2009 (Appendix B) acknowledging that, based on Reclamation's determination, the Proposed Action would have no effect on San Joaquin Valley adobe sunburst, Conservancy fair shrimp, valley elderberry longhorn beetle, California red-legged frog, blunt-nosed leopard lizard, giant garter snake, California condor, Fresno kangaroo rat, and giant kangaroo rat.

USFWS determined that the groundwater flows that would occur as a result of the Proposed Action may adversely affect Hoover's spurge, San Joaquin Valley Orcutt grass, vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander, critical habitats for all five of the aforementioned species, the San Joaquin kit fox, the blunt-nosed leopard lizard and the Tipton kangaroo rat.

Because the Kaweah River Basin (Basin) is in overdraft condition and KDWCD plans to enhance the groundwater resources to increase reliability and not expand groundwater extraction to facilitate the conversion of native lands within the Basin; this should minimize effects on these species and critical habitats.

Non-Federally-listed special-status species are not expected to be adversely affected by the Proposed Action. The greenhorn adobe-lily's habitat does not include agricultural lands and the Proposed Action would not lead to any land conversion in those lands in and adjacent to the extreme eastern portion of KDWCD. The Swainson's hawk can utilize croplands; therefore, the Proposed Action is expected to maintain their habitat. The little willow flycatcher would at most occasionally fly over as a migrant species and therefore would be unaffected.

Table 3-10 below summarizes effects on federally listed species and critical habitats for the Proposed Action.

Table 3-10: Summary of Effects on Federally endangered, threatened species and candidate species for listing.

Common Name	Scientific Name	Listing Status	Critical Habitat	Effect on Species	Effect on Critical Habitat
Hoover's spurge	*Chamaesyce hooveri*	Threatened	Designated	May adversely affect	May adversely affect
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	Threatened	Designated	May adversely affect	May adversely affect
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	Threatened	No	None	None
Conservancy fairy shrimp	*Branchinecta conservatio*	Endangered	Designated	None	None
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	Designated	May adversely affect	May adversely affect
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	Designated	May adversely affect	May adversely affect
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened	Designated	None	None
delta smelt	*Hypomesus transpacificus*	Threatened	Designated	None	None
California tiger salamander, Central DPS	*Ambystoma californiense*	Threatened	Designated	May adversely affect	May adversely affect
California red-legged frog	*Rana aurora draytonii*	Threatened	Designated	None	None
mountain yellow-legged frog, Sierra Nevada DPS	*Rana muscosa*	Candidate	N/A	None	N/A
blunt-nosed leopard lizard	*Gambelia sila*	Endangered	No	May adversely affect	None
giant garter snake	*Thamnophis gigas*	Threatened	No	None	None
California condor	*Gymnogyps californianus*	Endangered	Designated	None	None
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	Endangered	Designated	None	None
giant kangaroo rat	*Dipodomys ingens*	Endangered	No	None	None
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	Endangered	No	May adversely affect	None
San Joaquin kit fox	*Vulpes macrotis mutica*	Endangered	No	May adversely affect	None

A may adversely affect decision was based on a small potential for groundwater flow from water delivered to KDWCD under the assigned contract to move outside of the district. Reclamation and KDWCD have no control over land use in these areas, and so they could then be vulnerable to land conversion with the use of the additional groundwater. It was also determined that, if threatened and endangered species or critical habitat did not occur in the action area, the effects were "none" (see above table).

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. The San Joaquin Valley supported extensive populations of Native Americans, principally the Northern Valley Yokuts, in the prehistoric period. Cultural studies in the San Joaquin Valley have been limited. The conversion of land and intensive farming practices over the last century has probably destroyed many Native American cultural sites.

The CVP is being evaluated for the National Register of Historic Places (NRHP). Facilities potentially affected by the Proposed Action include the Friant-Kern Canal.

The FKC 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 (Reclamation 2007).

3.5.2 Environmental Consequences

3.5.2.1 No Action

Under the No Action Alternative, there are no impacts to cultural resources since conditions would remain the same as exiting conditions.

3.5.2.2 Proposed Action

The partial contract assignment does not involve construction or operation of new facilities, and would not have an impact on cultural and historical resources, either by disturbing paleontological or archeological resources, having the potential to cause a physical change that would affect unique ethnic cultural values, or restricting existing religious or sacred uses within the Proposed Action area. Consequently, the undertaking is not a type of activity with the potential to affect cultural resources eligible to the National Register of Historic Places (i.e., historic properties).

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, ITAs may be located off trust land.

The nearest ITA to the proposed site is approximately 4 miles west and it is the Santa Rosa Rancheria.

3.6.2 Environmental Consequences

3.6.2.1 No Action

Under the No Action Alternative there are no impacts to ITAs, since conditions would remain the same as exiting conditions.

3.6.2.2 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.

3.7 Socioeconomic Resources

3.7.1 Affected Environment

Both IID and KDWCD are located in portions of Kings and Tulare Counties. In 2006, the farms in Tulare County generated $3,872,059,700 in gross production value. This represents a decrease of $490,678,300 or 11 percent when compared to the 2005 gross production value of 4,362,738,300 (Tulare 2007). The gross value of all agricultural crops and products produced during 2006 in Kings County is $1,289,186,000. This represents a decrease of $118,033,000 (8.4 percent) from the 2005 gross production value (Kings 2007).

Additionally, there are many small businesses that support agriculture such as feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, and marketing. The economy of Kings County has been dominated by agriculture and related industries since its formation. Kings County has consistently ranked among the top counties in the nation in the production of cotton, barley, and alfalfa seed. In 2006, Kings County produced 25 crops or products that each grossed over $1 million per year (Kings 2007).

Tulare County has become the second-leading producer of agricultural commodities in the United States. In 2006, Tulare County produced 46 crops or products that each grossed over $1 million per year (Tulare 2007).

3.7.2 Environmental Consequences

3.7.2.1 No Action

Under the No Action Alternative, socioeconomic trends would continue as described above.

3.7.2.2 Proposed Action

As a result of the assignment of the CVP water, KDWCD would enhance the groundwater resources available within the Basin for the benefit of the landowners and water users located within the Basin. The IID would have a firmer dry-year supply and the KDWCD would have increased opportunity and flexibility with their groundwater recharge operations. This increased flexibility would lead to better dry-year protections and increased groundwater recharge within these districts. This would solidify the need for farm labor during the year. Seasonal labor requirements would not change, and agriculturally dependent businesses would not be affected. No adverse affects on public health and safety would occur. The Proposed Action would provide reliable dry year supply of water to sustain existing croplands. Businesses rely on these crops to maintain jobs. The Proposed Action would continue to support the economic vitality in the region. Therefore, the Proposed Action would not result in an adverse impact to socioeconomic resources.

3.8 Environmental Justice

3.8.1 Affected Environment

Executive Order 12898 requires that all federal agencies address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the U.S. and its territories. The vast majority of the water utilized within the Proposed Action area would be for agricultural uses. Low income and minority populations are commonly found working in agricultural settings.

3.8.2 Environmental Consequences

3.8.2.1 No Action

The No-Action Alternative would not affect minority disadvantaged populations, with the possible exception that during dry years, the farm economies could be impacted negatively which would have otherwise benefited by the Proposed Action.

3.8.2.2 Proposed Action

The Proposed Action would not have any disproportionately high and adverse effects on the health or environment of minority and/or low-income populations. Under the Proposed Action, IID would have a firmer dry-year supply and KDWCD would have increased opportunity and flexibility with their groundwater recharge operations. This increased flexibility would lead to better dry-year protections and increased groundwater recharge within these districts. This would solidify the need for farm labor during the year. However, the overall need for farm labor is not expected to change as a result of this action. IID borders the unincorporated and economically disadvantaged community of Ivanhoe. Stabilization and optimization of water resources within and adjacent to IID would also improve water resources conditions within the community of Ivanhoe. Therefore, there would be no adverse impacts from the Proposed Action.

3.9 Cumulative Effects

Cumulative effects are those actions of federal, state, local, and private entities that are reasonably foreseeable in the action area that have an incremental impact when added to other past and present actions.

It is anticipated that urban growth would continue to occur as described in the county general plans and as projected by the Department of Finance with protections for the environment. CVP contract water supplies have been incorporated into water supply plans of most CVP contractors for the last 40 years or more and temporary transfers will not drive land use decisions formulated by the entities with the land use approval decision-making authority. These agencies are mandated to meet anticipated growth as addressed in county general plans. The general plans typically assume that urban growth would continue with or without the CVP water service contractual supplies based upon the ability to use existing supplies and to acquire or develop alternative long-term supplies.

It should be noted that use of CVP long-term water service contracts are not the factor driving growth and land use change. Demographic, economic, political, and other factors, independent of the long-term contract renewal process and transfer and exchange approvals, are causing changes with direct and indirect effects to land use that are beyond the range of Reclamation's responsibilities.

KDWCD has indicated that they may recommend to the KDWCD Board of Directors that it authorize an effort to annex land located adjacent to the eastern boundary of KDWCD along the Kaweah River

corridor potentially as far east as to the toe of Terminus Dam, which has been part of KDWCD's Sphere of Influence for many years. The purpose of the contemplated, or future, annexation would be to bring within the boundaries of KDWCD an area that is important to the KDWCD as it relates to the KDWCD's responsibilities for groundwater management/protection, water diversion and flood control. KDWCD is currently planning to replace a diversion structure in this area and would annex to address issues involving insurance and flood control protection. The recommendation of annexation contemplates that the landowners of any potential property for annexation would consent to the annexation as required by law. CVP water would not be used on this potential property.

The Proposed Action would not result in cumulative adverse impacts. This analysis indicates that this assignment may improve water supply reliability for the IID and provide improved access to CVP water for KDWCD but does not change the net CVP water deliveries in the geographic area. This program would modify water supply reliability but not change long-term CVP contract amounts or deliveries from within historical ranges.

Section 4 Consultation and Coordination

4.1 Fish and Wildlife Coordination Act (16 USC . 651 et seq.)

The Fish and Wildlife Coordination Act requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The implementation of the CVPIA, of which this action is a part, has been jointly analyzed by Reclamation and the USFWS and is being jointly implemented. The Proposed Action does not involve construction projects. Therefore the FWCA does not apply.

4.2 Endangered Species Act (16 USC . 1521 et seq.)

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

Reclamation submitted a biological assessment to the USFWS that analyzed the Proposed Action in sufficient detail to determine to what extent, if any, the Proposed Action may affect any of the federally threatened, endangered or candidate species and critical habitats. Reclamation received a BO (Appendix B) from the USFWS, and ESA compliance requirements have been met. The BO in Appendix B effectively brought KDWCD under the ESA coverage provided previously for Friant Division contractors by BO 1-1-01-F-0027. KDWCD will comply with this BO along with BO 1-1-01-F-0027.

4.3 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, the undertaking is not a type of activity with the potential to affect cultural resources eligible to the National Register of Historic Places (i.e., historic properties).

4.4 Migratory Bird Treaty Act (16 USC Sec. 703 et seq.)

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

The Proposed Action would have no effect on birds protected by the Migratory Bird Treaty Act.

4.5 Executive Order 11988 – Floodplain Management and Executive Order 11990-Protection of Wetlands

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

Section 5 List of Preparers and Reviewers

Laura Myers, Supervisory Natural Resources Specialist, SCCAO
Shauna McDonald, Wildlife Biologist, SCCAO
Patti Clinton, Natural Resources Specialist, SCCAO
Judi Tapia, Natural Resources Specialist, SCCAO
Barbara Hidleburg, Repayment Specialist, SCCAO
Adam Nickels, Archaeologist, MP
Patricia Rivera, ITA, MP
Rick Beseker, Water Resources Specialist, Provost & Pritchard Engineering Group, Inc.
Richard Moss, Principal Engineer, Provost & Pritchard Engineering Group, Inc.

Section 6 References

Camp Dresser & McKee, Inc. 1993. *Kaweah River Delta Corridor Enhancement Study. Prepared for the City of Visalia and the Kaweah Delta Water Conservation District.*

CDC. 2004. *Farmland Mapping and Monitoring Program*, California Department of Conservation, Division of Land Resource Protection, 2002-2004. Available: http://www.consrv.ca.gov/dlrp/FMMP/. Accessed 2007.

Cypher, E. 1998. Progress report on Keck's checkerbloom. Unpublished report for the Endangered Species Recovery Program, Fresno, CA. 6 pp.

DWR. 2003. *California's Groundwater: Bulletin 118 Update 2003.* October 2003. Prepared by California Department of Water Resources, Sacramento, CA.

DWR. 2005. *California Water Plan Update 2005. Volume 3 – Regional Reports; Chapter 8: Tulare Lake Hydrologic Region.* September 2005. Prepared by California Department of Water Resources, Sacramento, CA.

Fugro West, Inc. 2003. *Water Resources Investigation of the Kaweah Delta Water Conservation District Interim Report Task 4 – Surface Water*, December 2003. Prepared for KDWCD.

Harvey, H.T. 2006. *Kaweah Delta Water Conservation District and Ivanhoe Irrigation District Request for Approval of Optimizing Use of Water Resources Implementation Agreement Biological Evaluation*, H.T. Harvey & Associates, 2006.

IID. 2004. *Ivanhoe Irrigation District Water Conservation Plan.* Prepared by Ivanhoe Irrigation District. 2004.

Kings. 2007. Agricultural Crop Report for Kings County 2006. April 2007. Available: http://www.countyofkings.com/ag%20commissioner/rpt2006.pdf. Accessed: 2007.

Reclamation. 2007. United States Bureau of Reclamation. Available: http://www.usbr.gov/dataweb/html/friant.html/ . Accessed: 2007.

Tulare. 2007. Tulare County Annual Crop and Livestock Report for 2006. May 2007. Accessed: http://agcomm.co.tulare.ca.us/pdf/2006%20Crop%20Report.pdf

USDA. 2002. *2002 Census of Agriculture-County Data*, USDA, National Agricultural Statistics Service, 2006. Available: http://www.agcensus.usda.gov/Publications/2002/index.asp. Accessed: 2007.

USFWS. 2007. United States Fish and Wildlife Service. Available: http://www.USFWS.gov/sacramento/es/spp_lists/auto_list_form.cfm. Accessed: 2007.