

7.6 AGRICULTURAL RESOURCES

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7.6.1 INTRODUCTION

7.6.1.1 Content

This section describes the potential effects of the proposed project on agricultural resources. The proposed project could potentially affect agricultural resources in those parts of the San Joaquin Valley served by the SWP.

The proposed project consists of the Monterey Amendment and the Settlement Agreement. The Monterey Amendment amends the terms of the long-term water supply contracts between the California Department of Water Resources (Department) and its contractors. The amendments change how SWP water is allocated among the contractors and allows changes in management of SWP water. Chapter 6 describes the changes in SWP and SWP contractor operations that are attributable to the Monterey Amendment. Some of the operational changes attributable to the Monterey Amendment would affect deliveries of SWP water to SWP contractors and could consequently have effects on agricultural resources.

The Settlement Agreement would not be expected to have any effects on agricultural resources. It would have no effect on deliveries of SWP water to contractors in the San Joaquin Valley. Elements of the proposed project that could affect agricultural resources are shown in Table 7.6-1.

TABLE 7.6-1		
IMPACTS OF PROPOSED PROJECT ELEMENTS ON AGRICULTURAL RESOURCES		
Proposed Project Element	Potentially Affected Environmental Resources	Impact Number
Monterey Amendment		
Reallocation of water supplies in droughts	Acreages of irrigated farmland	7.6-1
Permanent transfers of water	Acreages of irrigated farmland	7.6-1
Transfer of Kern Fan lands	NA	NA
Water supply management practices	NA	NA
Restructured financial arrangements	NA	NA
Settlement Agreement	NA	NA
<small>Note: NA – Not Applicable.</small>		

During public review of the Notice of Preparation for this EIR, the State Department of Food and Agriculture commented on the NOP and noted that the proposed project has the potential for significant positive impacts on agricultural water users but at the same time could have long-term adverse impacts on agriculture from water transfers away from agricultural to urban users. Specific issues raised include permanent loss of agricultural production capacity associated with project growth-inducing impacts and cumulative loss of agricultural production and resources. Growth-inducing impacts are addressed in Chapter 8 and cumulative impacts are addressed in Chapter 10.

7.6.1.2 Analytical Method

The impacts of the proposed project on agricultural resources in the period 1996 to 2003 were examined by compiling and analyzing historical information on irrigated acreage and cropping patterns and relating them to proposed project-related changes in the agricultural water supply. Environmental documents prepared for Monterey Amendment-related transfers of Table A amounts from agricultural contractors to M&I contractors were examined and knowledgeable persons were interviewed to determine the effects of altered SWP deliveries on the acreage of irrigated agricultural land and cropping patterns. Possible future impacts were examined by compiling information on trends in agriculture and determining the likely effects of proposed project-related changes in agricultural water supply on the trends.

7.6.1.3 Standards of Significance

For purposes of this EIR, impacts on agricultural resources would be considered significant if the proposed project would:

- Result in a permanent conversion of a substantial acreage of Prime, Unique or Statewide Important Farmland; or
- Result in a substantial inconsistency with objectives of local, regional and state plans, including zoning for agricultural use or Williamson Act Contracts.

7.6.2 ENVIRONMENTAL SETTING

7.6.2.1 Physical Setting in 1995

All of the SWP's agricultural contractors are located in Kern County and Kings County except for Oak Flat WD,¹ which is located in Stanislaus County.

Kern County

Kern County is located at the southern end of the San Joaquin Valley. Western Kern County is located on the valley floor whereas foothills and mountains of the Sierra Nevada occupy the eastern part of the county. The southern San Joaquin Valley portion of Kern County is very flat. Historically, shallow lakes and seasonal wetlands occupied much of the valley floor. In the early part of the twentieth century, the lakes and wetlands were drained and the valley bottom converted to agricultural use. Soils in the valley portion of Kern County have two general origins, delineated approximately by the trough of the valley. The eastern alluvial fans were developed from a much higher energy environment, deposited by the precipitation and runoff of the Sierra Nevada. The soils are mostly of granitic origin, well drained, absent of salinity, with large well developed groundwater basins and ideal for agriculture. However the western alluvial fans originated from sedimentary rock formed on the sea bottom and consequently resulted in poorly drained soils of marginal quality. Most of the soils on the west side of the valley required some reclamation before crops could be grown profitably. Now, most of the southern San Joaquin Valley portion of Kern County is devoted to agriculture. Because the climate is arid, with an average of less than six inches of annual precipitation, almost all crops must be irrigated.²

There are many irrigation districts in the San Joaquin Valley portion of Kern County. The first irrigation districts were originally formed to deliver local surface water. Additional districts formed when the SWP and the Friant-Kern Canal, a part of the CVP, were built. KCWA was

created by the state legislature and ratified by the electorate in Kern County in 1961. KCWA has the authority to acquire and contract for water supplies for the county. It has additional powers to manage flood and storm waters and to protect the quality of underground waters. KCWA is a major SWP contractor. Its Table A amount represents about one-quarter of the total SWP Table A amount.

Figure 7.6-1 shows irrigated acreage in the San Joaquin Valley portion of Kern County from 1970 to 1999. The amount of irrigated acreage in a particular year depends on numerous factors including crop prices and the availability of surface water. The mean irrigated acreage in the period was 867,400 acres. A maximum of 972,800 acres was irrigated in 1984. A minimum of 729,400 acres was irrigated in 1991, a very dry year. About 800,000 acres was irrigated in 1994.³

Water demand in the San Joaquin Valley portion of Kern County averages about 2,500,000 acre-feet (AF) per year. Water sources include local ground and surface water and imported water from the SWP and CVP. SWP water represents as much as 50 percent of the San Joaquin Valley portion of Kern County's supply in some years. Information on Kern County's water supply between 1970 and 1998 is provided in Figure 7.2-1.

Kings County

Kings County lies north of Kern County on the western side of the floor of the San Joaquin Valley. A large portion of the farmland in the county lies on the historical Tulare Lake bed. High water tables, clayey and saline soils in portions of the valley floor in Kings County influence the type of crops planted. Soil reclamation was necessary in some areas before any crops could be farmed. Farmland occupies 85 percent of the county. The climate is arid and almost all crops are irrigated.

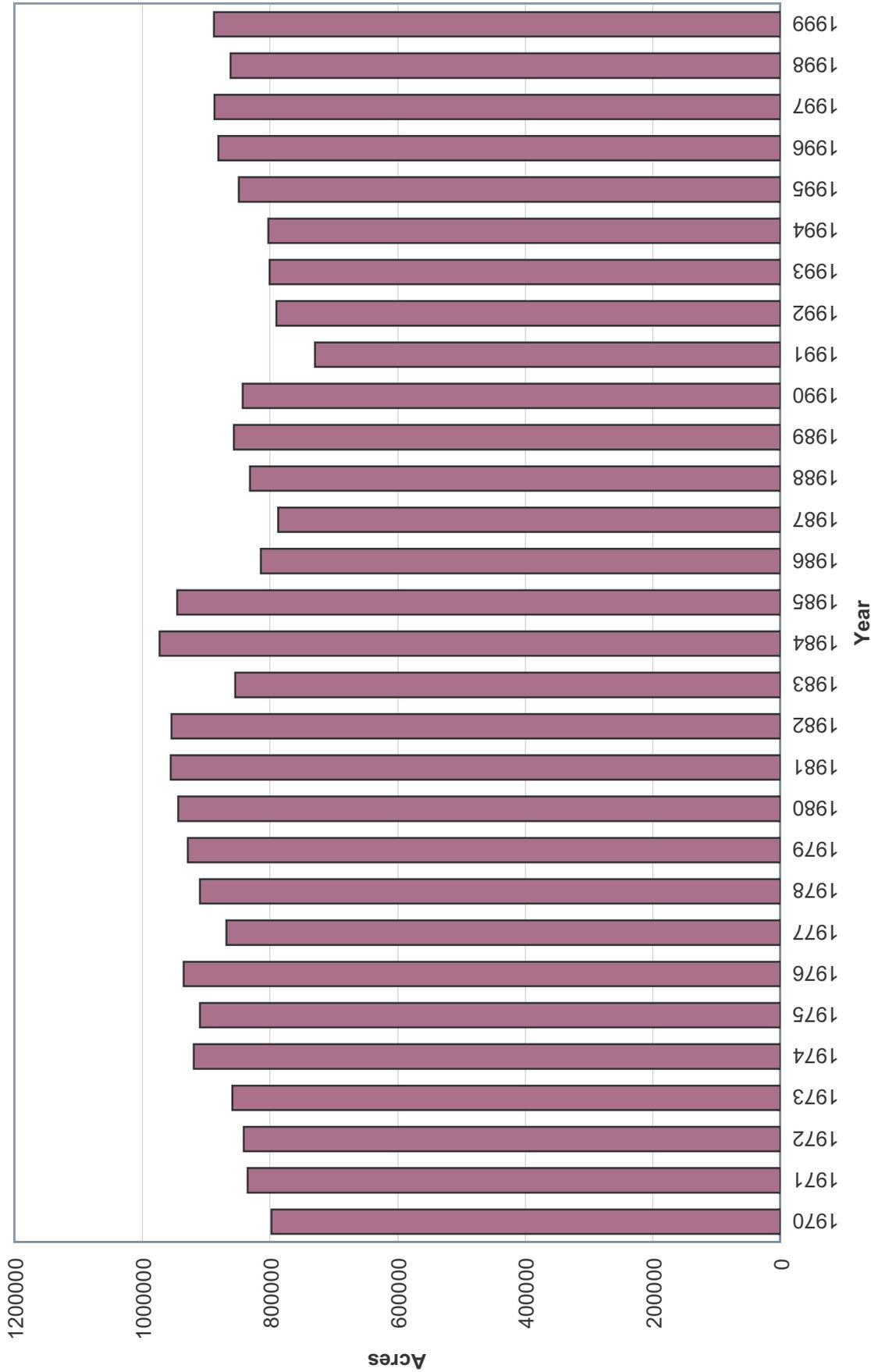
Agricultural lands in three water districts in Kings County would be affected by the proposed project, Kings County WD, Dudley Ridge WD and Tulare Lake Basin WSD. Kings County WD's boundaries encompass 143,000 acres of land. The district obtains most of its water supplies from the Kings and Kaweah rivers. SWP water represents less than five percent of Kings County WD's supplies.⁴

Tulare Lake Basin WSD's boundaries encompass 178,000 acres of land. Most of district lies within lands formerly occupied by Tulare Lake. Its sources of water include the Kings and Tule rivers, groundwater and the SWP.⁵

Dudley Ridge WD's boundaries encompass 37,660 acres of land about half of which is irrigated. Almost all its water is obtained from the SWP.⁶

7.6.2.2 Changes in Physical Setting between 1996 and 2003

For several decades, the proportion of permanent crops (fruits and nuts) in the San Joaquin Valley has increased and the proportion of field crops has decreased. In 1980, field crops were cultivated on 72 percent of the cropland in the San Joaquin Valley. In 1997, field crops were grown on 55 percent of the cropland.⁷ In late 1970s and 1980s interest rates made financing very expensive and many smaller farming operations were bought out by larger operations. After the prolonged six-year drought of 1986 to 1992 and the reduction in Delta pumping necessitated by more stringent Delta water quality standards and the Central Valley Project Improvement Act, many agricultural operations re-evaluated their farming strategies. The



Source: PBS&J, 2007.

FIGURE 7.6-1

Irrigated Acreage in the San Joaquin Valley Portion of Kern County



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aforementioned events resulted in a shift in the views of Westside farmers and had a large impact on how future farming was to occur. Some agricultural land was abandoned during this period as profitability was drastically reduced. The trend toward planting high value permanent crops and vegetables in place of field crops continued into the 2000s.

The value of agricultural production in the San Joaquin Valley has increased between 1996 and the present. The value of agricultural production in Kern County in 2005 was \$3.5 billion. Current trends show increasing acreages of tree crops and decreasing acreages of field crops and to lesser extent vegetable crops.⁸ The value of agricultural production in Kings County in 2005 was \$1.4 billion. Kings County is also experiencing a trend toward increased acreage of tree crops.⁹

7.6.3 IMPACTS AND MITIGATION MEASURES

7.6-1 Proposed project-induced changes in SWP deliveries to agricultural contractors could potentially result in a permanent conversion of Prime, Unique, and/or Statewide Important Farmland acreage and could potentially result in substantial inconsistencies with local, regional, or State objectives addressing agricultural resources.

1996 — 2003

As a result of the Monterey Amendment, average annual deliveries of SWP water to agricultural contractors as a group under 2003 conditions decreased by 10 percent compared to the baseline scenario. The decrease in average annual deliveries to agricultural contractors as a group was caused by the provisions of the Monterey Amendment that altered water allocation procedures (Article 18) and provided for a retirement of 45,000 AF of Table A from agricultural contractors and transfers of 130,000 AF of Table A amounts from agricultural to M&I contractors (Article 53). The greatest reductions in deliveries were experienced by agricultural contractors that transferred Table A amounts to others. The following analysis is focused on the agencies with the greatest reductions in average annual deliveries.

Table 7.6-2 shows the Table A transfers and retirements that occurred between 1996 and 2003. Agricultural contractors retired 45,000 AF of Table A amount and transferred 114,000 AF of Table A amount to M&I contractors as specified in the Monterey Amendment. An additional 22,273 AF of Table A amount was transferred by Tulare Lake Basin WSD to several M&I and agricultural contractors unrelated to the Monterey Amendment.

Between 1995 and 2003, agricultural contractors in Kern and Kings retired or transferred to municipal contractors a total of 159,000 AF of Table A amount. Approximately 64,000 acres of land could be irrigated with 159,000 AF of water in a year when full Table A amounts are delivered and assuming KCWA's average application rate of 2.48 feet.

Kern County

Since the Monterey Amendment, 159,000 AF of Table A amount has been retired or transferred. Of this amount, most (154,670 AF) was owned by KCWA member agencies. KCWA member agencies retiring or transferring considerable amounts of Table A amount included Belridge WSD (41,335 AF), Berrenda Mesa WD (32,000 AF), Lost Hills WD (21,290 AF) and Wheeler Ridge-Maricopa WD (51,815 AF). They retired or transferred 146,440 AF, more than 90 percent of the total Table A amount retired or transferred by KCWA member agencies.

Transferring/Retiring Contractor	Transaction Type	Purchasing Contractor	Quantity (AF)
Semitropic Water Storage District ^a	Retirement	NA	3,000
Tejon-Castaic Water District ^a	Retirement	NA	900
Wheeler Ridge-Maricopa Water Storage District ^a	Retirement	NA	10,815
Improvement District No. 4 ^a	Retirement	NA	4,330
Lost Hills Water District ^a	Retirement	NA	6,290
Belridge Water Storage District ^a	Retirement	NA	15,335
Dudley Ridge Water District	Retirement	NA	4,330
Belridge Water Storage District ^a	Transfer	Palmdale Water District	4,000
Belridge Water Storage District ^a	Transfer	Napa County Flood Control and Water Conservation District	4,025
Belridge Water Storage District ^a	Transfer	Solano County Water Agency	5,756
Belridge Water Storage District ^a	Transfer	Alameda County Flood Control and Water Conservation District – Zone 7	10,000
Belridge Water Storage District ^a	Transfer	Alameda County Flood Control and Water Conservation District – Zone 7	2,219
Berrenda Mesa Water District ^a	Transfer	Mojave Water Agency	25,000
Berrenda Mesa Water District ^a	Transfer	Alameda County Flood Control and Water Conservation District – Zone 7	7,000
Lost Hills Water District ^a	Transfer	Alameda County Flood Control and Water Conservation District – Zone 7	15,000
Wheeler Ridge-Maricopa Water Storage District ^{a,b}	Transfer	Castaic Lake Water District	41,000
Tulare Lake Basin Water Service District	Transfer	Antelope Valley – East Kern Water Agency	3,000
Tulare Lake Basin Water Service District	Transfer	Dudley Ridge Water District	3,973
Tulare Lake Basin Water Service District	Transfer	Alameda County Flood Control and Water Conservation District, Zone 7	400
Tulare Lake Basin Water Service District	Transfer	County of Kings	5,000
Tulare Lake Basin Water Service District	Transfer	Coachella Valley Water District	9,900
Notes:			
a. Kern County Water Agency member agencies.			
b. Pending resolution of a legal challenge.			

Belridge WSD, Berrenda Mesa WD, Lost Hills WD and Wheeler Ridge-Maricopa WD are located on the western side of Kern County. Prior to construction of the SWP, agricultural land in Belridge WSD and Lost Hills WD was dry farmed or used for sheep grazing. Within Berrenda Mesa WD and Wheeler Ridge-Maricopa WD, agricultural lands were used for non-irrigated pasture or were irrigated with groundwater. Groundwater supplies were subject to quality and quantity problems. After completion of the SWP, irrigation systems were built or expanded in the four districts. However, some farmers in the districts were unable to operate their farms profitably for various reasons and consequently, the districts' allocations of SWP water were often not fully used.

Table 7.6-3 shows historical irrigated acreage for Belridge WSD, Berrenda Mesa WD, Lost Hills WD and Wheeler Ridge-Maricopa WD. Irrigated acreage varies depending on the availability of water. In years when it is expected that water will be in short supply, farmers typically plant fewer annual crops. Because irrigators in the four district's are heavily dependent on SWP supplies, irrigated acreage varies with the availability of SWP supplies in the four districts to a greater degree than it does elsewhere in the KCWA service area.

Agency	1985	1990	1991	1995	1999	2001
Belridge WSD						
Annual crops	42,544	38,390	6,750	35,530	25,495	10,400
Permanent crops	5,179	5,730	5,570	6,310	20,545	27,785
All crops	47,723	44,120	12,320	41,840	46,040	38,185
Berrenda Mesa WD						
Annual crops	9,096	1,213	0	1,860	6,080	9,037
Permanent crops	29,988	29,379	28,146	24,736	25,110	20,814
All crops	39,084	30,592	28,146	26,596	31,190	29,851
Lost Hills WD						
Annual crops	39,562	26,372	3,520	39,545	36,065	22,700
Permanent crops	8,720	14,954	14,767	13,800	16,905	20,645
All crops	48,282	41,330	18,287	53,345	52,970	43,345
Wheeler Ridge-Maricopa WSD						
Annual crops	70,352	56,023	39,087	58,562	56,465	40,795
Permanent crops	27,531	26,123	25,369	27,923	36,938	40,425
All crops	97,883	82,146	64,456	86,485	93,403	81,220

Source: Kern County Water Agency.

In 1985, about 233,000 acres were irrigated in the four districts in a year when the agricultural contractors received all the SWP water that they had requested. Farmers were able to plant based on market conditions unlimited by water availability. In 1990, the agricultural contractors received only 50 percent of the SWP water they had requested and in 1991 they received no SWP water. Irrigated acreage dropped by about 15 percent and 45 percent in the four districts in 1990 and 1991 compared to 1985 conditions. In 1995 and 1999, agricultural contractors again received 100 percent of the SWP water they had requested. Irrigated acreage in the four member agencies rose again.

Irrigated acreage in years when agricultural contractors received their full SWP allocation before the Monterey Amendment (1985) and after the Monterey Amendment (1995 and 1999) are fairly similar. The average irrigated acreage in 1995 and 1999 for the four KCWA member agencies was about 216,000 acres, or about seven percent less than in 1985. This change is within a range that might be expected as prices for agricultural products fluctuate.

As noted above, some farmers within the four districts had been unable to use their full Table A amounts profitably prior to the Monterey Amendment. Some land, for which SWP water was available, had never been put into production because the total cost of water, land reclamation, and installation and operation of irrigation systems was greater than likely revenue from crops. Some formerly irrigated land had been taken out of production prior to the Monterey Amendment for economic reasons. Thus, some of the transferred Table A had never been used and part of it was associated with land that had been taken out of irrigated production prior to the Monterey Amendment.

There is no strong evidence to support a conclusion that a substantial amount of land was taken out of irrigated production in the four districts as a result of the Monterey Amendment. Any change in irrigated acreage potentially caused by the Table A transfers may have been masked by the change in the types of crops grown between 1995 and 2003. Some crops use less water than others. For example, a given water supply can irrigate more acres of tree crops than some

annual crops such as alfalfa. Several CEQA documents prepared by the agencies that transferred Table A amounts state that no land was taken out of irrigated production as a result of the transfers.¹⁰

Kings County

Three water agencies in Kings County are SWP contractors, Kings County WD, Dudley Ridge WD and Tulare Lake Basin WSD. Dudley Ridge WD retired 4,330 AF of Table A amount as part of the 45,000 acre-foot retirement called for in the Monterey Amendment.

The only SWP contractor in Kings County that experienced a reduction in Table A amount is a result of the Monterey Amendment was Dudley Ridge WD. The district's Table A amount declined from 61,673 AF to 57,343 AF or by about 7 percent. The reduction is too small to have much effect on irrigated acreage.

Impact Conclusions

The proposed project had little or no impact on the acreage of irrigated land in the southern San Joaquin Valley. If any land was taken out of irrigated production it remained in agricultural use as dry farmed or fallow land and was not converted to water uses. No Prime, Unique or Farmland of Statewide Importance was converted to nonagricultural uses nor were conflicts created with respect to existing agricultural zoning or Williamson Act contracts as a result of the proposed project. The proposed project had a ***less-than-significant impact*** on the area of land irrigated in the southern San Joaquin Valley and on special status farmland between 1995 and 2003.

Mitigation Measures

None required.

Future Impacts

As a result of the Monterey Amendment, average annual deliveries of SWP water to agricultural contractors by 2020 would be expected to be five percent less than they would under the baseline scenario. The decrease in average future annual deliveries to agricultural contractors was caused by the provisions of the Monterey Amendment that altered water allocation procedures (Article 18) and enabled transfers of Table A amounts (Article 53).

The altered allocation procedures were implemented in 1995 and no further changes in the procedures would occur between 2003 and 2020. Two additional Monterey Amendment-related Table A transfers would occur between 2003 and 2020. For this analysis it was assumed that KCWA would transfer 12,000 AF of Table A amount to Coachella Valley WD and 4,000 AF to Desert WA. The transfers would be too small relative to KCWA's total water supply to have an appreciable effect on the acreage of irrigated land in Kern County.

The proposed project would have little or no impact on the acreage of irrigated land in the southern San Joaquin Valley in the future. If any land was to be taken out of irrigated production it would remain in agricultural use as dry farmed or fallow land and would not be converted to urban uses. No Prime, Unique or Farmland of Statewide Importance would be converted to non-agricultural uses nor would a conflict be created with respect to existing agricultural zoning or Williamson Act contracts as a result of the proposed project. The

proposed project would have a ***less-than-significant impact*** on the area of land irrigated in the southern San Joaquin Valley or on special status farmland.

Mitigation Measures

None required.

ENDNOTES

1. A small portion of Tulare Lake Basin WSD lies within Tulare County.
2. California Department of Water Resources, *Draft Environmental Impact Report on Kern Water Bank Project*, 1986.
3. Kern County Water Agency, Annual Report, 2000.
4. Mills, Don, Kings County Water District, personal communication with Fan Lau, EIP Associates, March 14, 2005.
5. Graham, Brent, Tulare Lake Basin WSD, personal communication with Katy Ehrlich, Davis Research, May 26, 2006.
6. Besecker, Rick, Provost and Pritchard Engineering Group, managers of Dudley Ridge WD, personal communication with Katy Ehrlich, Davis Research, May 30, 2006.
7. Congressional Research Service, *California's San Joaquin Valley: A Region in Transition*. 2005.
8. Kern County, Department of Agriculture and Measurement Standards, Agricultural Crop Report, 2005.
9. Kings County, Department of Agriculture and Measurement Standards, Agricultural Crop Report, 2005.
10. Montgomery Watson, *Draft and Final Environmental Impact Report on Transfer of Water Entitlements from Berenda Mesa Water District for use in Dougherty Valley*, 1995 and 1996; Water Transfer Associates, *Draft and Final Supplemental Environmental Impact Report on Transfer of Water Entitlements from Berenda Mesa Water District for use in Dougherty Valley*, 1997; and Belridge Water Storage District, *Draft and Final Environmental Impact Report on Transfer of State Project Water Entitlements from Belridge Water Storage District, Lost Hills Water District and Wheeler Ridge-Maricopa Water Storage District*, 1998.