

Chapter 21

1 Environmental Justice

2 21.1 Introduction

3 This chapter describes the presence of environmental justice populations in the
 4 study area and potential changes that could have disproportionately high and
 5 adverse human health or environmental effects on minority and/or low-income
 6 populations as a result of implementing the alternatives evaluated in this
 7 Environmental Impact Statement (EIS). Implementation of the alternatives could
 8 affect conditions through potential changes in operation of the Central Valley
 9 Project (CVP) and State Water Project (SWP) and ecosystem restoration.

10 21.2 Regulatory Environment and Compliance 11 Requirements

12 This chapter was prepared in compliance with Presidential Executive Order
 13 12898, *Federal Actions to Address Environmental Justice in Minority Populations*
 14 *and Low-Income Populations*, dated February 11, 1994 and Title VI of the Civil
 15 Rights Act of 1964.

16 Potential actions that could be implemented under the alternatives evaluated in
 17 this EIS could have disproportionately high and adverse human health or
 18 environmental effects on minority and/or low-income populations. Actions
 19 located on public agency lands; or implemented, funded, or approved by Federal
 20 and state agencies would need to be compliant with appropriate Federal and state
 21 agency policies and regulations, as summarized in Chapter 4, Approach to
 22 Environmental Analyses.

23 21.3 Affected Environment

24 This section describes changes that could result in disproportionately high and
 25 adverse human health or environmental effects on minority and/or low-income
 26 populations due to changes in CVP and SWP operations. The conditions
 27 described in this chapter are related to the distribution of minority populations and
 28 populations below poverty levels.

29 21.3.1 Area of Analysis

30 A summary of conditions are described in this section of the EIS for the following
 31 regions that could be affected by implementation of alternatives analyzed in this
 32 EIS, as described in Chapter 4, Approach to Environmental Analysis.

- 33 • Trinity River Region
- 34 • Central Valley Region

- 1 • San Francisco Bay Area Region
- 2 • Central Coast Region
- 3 • Southern California Region

4 **21.3.2 Characterization of Conditions Considered in the** 5 **Environmental Justice Analysis**

6 Characterization of the conditions within the Study Area is based upon publically
7 available data from government websites and other data sources. The data
8 sources used include the 2010 U.S. Census Bureau data on minority populations
9 and the 2010 American Community Survey (ACS) 5-year population estimates on
10 populations below the poverty level.

11 **21.3.2.1 Determination of Minority Populations**

12 The U.S. Census Bureau provides a total population value for each county, which
13 are also used by the State Department of Finance, as presented in Chapter 14,
14 Socioeconomics. The U.S. Census Bureau also provides a definition of minority
15 and low income populations. Minority populations are defined by the
16 U.S. Census as racial and ethnic minorities. Racial minorities, as defined by the
17 U.S. Census, include people who identified themselves in the census as belonging
18 to one of the following categories:

- 19 • Single Race
 - 20 – Black/African American
 - 21 – American Indian and Alaskan Native
 - 22 – Asian
 - 23 – Native Hawaiian and Other Pacific Islander
 - 24 – Some Other Race
- 25 • Two or More Races (inclusive the races listed above and White).

26 Ethnic minorities, as defined by the U.S. Census, include individuals who
27 identified themselves as being of Hispanic or Latino origin by responding to one
28 of the following categories in the census:

- 29 • Mexican
- 30 • Mexican American
- 31 • Chicano
- 32 • Puerto Rican
- 33 • Cuban
- 34 • Other Spanish/Hispanic/Latino

35 Individuals who identified themselves of Hispanic or Latino origin maybe of one
36 or more races according to the U.S. Census.

37 **21.3.2.2 Determination of Populations below the Poverty Level**

38 Populations below the Federal poverty level can be identified using several
39 methodologies. The information presented in this chapter has been developed in
40 ACS reports by the U.S. Census Bureau based upon 48 different sets of dollar

1 value thresholds related to family size and ages. The poverty level is assigned at
 2 the family-level and affects every member of the family. The thresholds are
 3 consistent throughout the United States and do not consider geographic
 4 differentials. The thresholds are updated each year based on the Consumer Price
 5 Index. For the five-year ACS reporting period used in this chapter, separate
 6 thresholds are applied to each year in this continuous survey. Other federal
 7 agencies rely upon different poverty statistics including the Current Population
 8 Survey Annual Social and Economic Supplement and the U.S. Department of
 9 Health and Human Services poverty guidelines.

10 The population for whom poverty level is estimated by ACS is smaller value than
 11 the total population values presented in Chapter 14, Socioeconomics, for each
 12 county and the equivalent population values used for the distribution of the
 13 population by race and ethnicity. The population values to determine poverty
 14 rates do not include institutionalized individuals (e.g., military personnel that live
 15 in group quarters, students that live in college dormitories, and prison inmates.
 16 The U.S. Census Bureau designates geographical areas with poverty rates at and
 17 above 20 percent as “poverty areas.”

18 **21.3.2.3 Social Services**

19 The need for and delivery of social services within each county is another
 20 indication of social conditions, including Federal grants to the state and local
 21 agencies for Medicaid, other health related activities, and nutrition and family
 22 welfare; and Federal direct payments made to individuals under the CalFresh
 23 (previously referred to as “Food Stamps”) and supplemental social security
 24 income.

25 **21.3.2.4 Limited English Proficiency**

26 Another consideration related to environmental justice is the ability of the Federal
 27 government to provide access to federally conducted and assisted programs and
 28 activities to all people who, as a result of their national origin, are limited in their
 29 English proficiency (LEP). These individuals are not able to speak, read, write, or
 30 understand the English language at a level that permits them to interact effectively
 31 with Federal employees who provide Federal services. Therefore, these
 32 individuals are often excluded from Federal programs, do not receive all available
 33 Federal services, and/or experience delays when interacting with Federal
 34 programs. The Executive Order 13166 became effective on August 11, 2000 to
 35 ensure meaningful participation by individuals who have limited English
 36 proficiency in federally conducted and federally assisted programs and activities.
 37 This information is compiled and reported by the U.S. Census Bureau.

38 **21.3.3 Trinity River Region**

39 The Trinity River Region includes the area in Trinity County along the Trinity
 40 River from Trinity Lake to the confluence with the Klamath River; and in
 41 Humboldt and Del Norte counties along the Lower Klamath River from the
 42 confluence with the Trinity River to the Pacific Ocean. Tribal lands along the
 43 Trinity or Lower Klamath River within the Trinity River Region include the

1 Hoopa Valley Indian Reservation, Yurok Indian Reservation, and Resighini
2 Rancheria.

3 **21.3.3.1 Minority Populations**

4 As recorded in the 2010 Census, the Trinity River Region had a total population
5 of 177,019 (U.S. Census 2014a). About 24.3 percent of this population identified
6 themselves as a racial minority and/or of Hispanic or Latino origin, regardless of
7 race, as presented in Table 21.1 (U.S. Census 2014a, 2014b, 2014c, 2014d).
8 There are fewer minorities in the Trinity River Region than in the entire State of
9 California.

10 **21.3.3.2 Poverty Levels**

11 Poverty levels presented in Table 21.2 are calculated on a subset of the total
12 population of a county, as described above in section 21.3.2, Characterization of
13 Conditions Considered in the Environmental Justice Analysis. Of the total
14 population for whom poverty is determined in the Trinity River Region,
15 167,987 individuals (or 18.2 percent) were below the poverty level based on the
16 2006–2010 ACS 5-year dataset (U.S. Census 2014e). The U.S. Census Bureau
17 defines geographical areas with more than 20 percent of the population below the
18 poverty level as a “poverty areas.” Both Humboldt and Del Norte counties are
19 defined as poverty areas.

20 Poverty rates based upon the 2000 census were reported as 40 percent for Indians
21 on the Yurok Indian Reservation, 34 percent of the Indians on the Hoopa Valley
22 Indian Reservation, and 54 percent of the Indians on and off Karuk Reservation
23 trust lands (NMFS 2012a, 2012b, 2012c). The Yurok Tribe has reported an
24 average poverty rate of 80 percent of the Indians on the Yurok Indian Reservation
25 (Yurok Tribe 2014a). Average per capita income of residents on the Resighini
26 Rancheria (not limited to Resighini Rancheria members) in 1999 was reported to
27 be approximately 46 percent of the average per capita income in Del Norte
28 County (NMFS 2012d).

29 **21.3.3.3 Social Services**

30 Federal grants to the state and local agencies for Medicaid, other health related
31 activities, and nutrition and family welfare; and Federal direct payments made to
32 individuals under the CalFresh (previously referred to as “Food Stamps”) and
33 supplemental social security income within counties in the Trinity River Region
34 are summarized in Table 21.3.

35 Social services to tribal members are funded by the tribe and/or the federal
36 government (DOI and DFG 2012). The Hoopa Valley Tribe provides food
37 distribution and other social services, including Temporary Assistance for Needy
38 Families (TANF) which receives some assistance from Humboldt County social
39 services to provide cash assistance, utility billing assistance, childcare,
40 educational assistance, job development, substance abuse assistance, and family
41 assistance (Hoopa Tribe 2014 a, 2014b). The Yurok Tribe provides a wide range
42 of services, including general assistance, food distribution, Indian Child welfare,
43 low income energy assistance, Yurok Youth Program, emergency and temporary

1 assistance, and Yurok Domestic Violence/Sexual Assault Project (Yurok
2 Tribe 2014b).

3 **21.3.3.4 Limited English Proficiency**

4 The percent of the population that speaks English and other languages at home
5 and the percent of the population that speak English “less than very well” based
6 on the language they speak at home are presented in Tables 21.4 and 21.5.

7 **21.3.4 Central Valley Region**

8 The Central Valley Region includes the Sacramento Valley, San Joaquin Valley,
9 and Delta and Suisun Marsh subregions.

10 **21.3.4.1 Sacramento Valley**

11 The Sacramento Valley includes the counties of Shasta, Plumas, Tehama, Glenn,
12 Colusa, Butte, Sutter, Yuba, Nevada, Placer, and El Dorado counties.
13 Sacramento, Yolo, and Solano counties also are located within the Sacramento
14 Valley; however, these counties are discussed below as part of the Delta and
15 Suisun Marsh subsection. Other counties in this region are not anticipated to be
16 affected by changes in CVP and SWP operations, and are not discussed here,
17 including: Alpine, Sierra, Lassen, and Amador counties.

18 **21.3.4.1.1 Minority Populations**

19 As recorded in the 2010 U.S. Census, the Sacramento Valley portion of the
20 Central Valley Region had a total population of 1,325,380 in 2010. About
21 25.8 percent of this population identified themselves as a racial minority and/or of
22 Hispanic or Latino origin, regardless of race, as presented in Table 21.6. The
23 table also shows the minority population distribution for the entire Central Valley
24 Region and the State of California.

1 **Table 21.1 Minority Population Distribution in Trinity River Region in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Trinity County	13,786	87.3%	0.4%	4.8%	0.7%	0.1%	1.6%	5.2%	7.0%	16.5%
Humboldt County	134,623	81.7%	1.1%	5.7%	2.2%	0.3%	3.7%	5.3%	9.8%	22.8%
Del Norte County	28,610	73.7%	3.5%	7.8%	3.4%	0.1%	6.9%	4.5%	17.8%	35.3%
Trinity River Region	177,019	80.8%	1.4%	6.0%	2.3%	0.2%	4.1%	5.2%	10.9%	24.3%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	40.1%	59.9%

2 Sources: U.S. Census 2014a, 2014b, 2014c, 2014d

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **Table 21.2 Population below Poverty Level in Trinity River Region, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Trinity County	13,225	1,993	15.1%
Humboldt County	129,592	22,973	17.7%
Del Norte County	25,170	5,526	22.0%
Trinity River Region	167,987	30,492	18.2%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note: a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

4 **Table 21.3 Federal Funds Distributed for Social Programs in Trinity River Region in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Trinity County	\$12.5	\$4.9	\$6.6
Humboldt County	\$167.8	\$36.0	\$65.6
Del Norte County	\$28.8	\$10.1	\$19.1
Trinity River Region	\$209.1	\$51.0	\$91.3
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

5 Source: Gaquin and Ryan 2013

1 **Table 21.4 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the Trinity**
 2 **River Region, 2006–2010**

Areas	Only English	Spanish/ Spanish Creole	Portuguese/ Portuguese Creole	German	Tagalog	Hmong	Total Excluding English
Trinity County	93.9%	3.8%	0.0%	0.3%	0.1%	0.0%	4.2%
Humboldt County	90.8%	5.7%	0.4%	0.3%	0.3%	0.0%	6.8%
Del Norte County	83.3%	11.6%	0.1%	0.5%	0.5%	1.6%	14.2%
Trinity River Region	89.8%	6.5%	0.4%	0.3%	0.3%	0.3%	7.8%
STATE OF CALIFORNIA	57.0%	28.5%	0.2%	0.3%	2.2%	0.2%	31.4%

3 Source: U.S. Census 2014f

4 **Table 21.5 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Trinity River Region that**
 5 **Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish/ Spanish Creole	Portuguese/ Portuguese Creole	German	Tagalog	Hmong
Trinity County	1.4%	0.0%	0.0%	0.0%	0.0%
Humboldt County	2.3%	0.2%	0.1%	0.1%	0.0%
Del Norte County	3.1%	0.0%	0.1%	0.1%	0.6%
Trinity River Region	2.4%	0.1%	0.1%	0.1%	0.1%
STATE OF CALIFORNIA	13.6%	0.1%	0.05%	0.7%	0.1%

6 Source: U.S. Census 2014f

1 **Table 21.6 Minority Population Distribution in the Central Valley Region–Sacramento Valley in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Shasta County	177,223	86.7%	0.9%	2.8%	2.5%	0.2%	2.5%	4.4%	8.4%	17.6%
Plumas County	20,007	89.0%	1.0%	2.7%	0.7%	0.1%	3.0%	3.6%	8.0%	15.0%
Tehama County	63,463	81.5%	0.6%	2.6%	1.0%	0.1%	9.9%	4.3%	21.9%	28.1%
Glenn County	28,122	71.1%	0.8%	2.2%	2.6%	0.1%	19.6%	3.6%	37.5%	44.1%
Colusa County	21,419	64.7%	0.9%	2.0%	1.3%	0.3%	27.3%	3.6%	55.1%	60.2%
Butte County	220,000	81.9%	1.6%	2.0%	4.1%	0.2%	5.5%	4.7%	14.1%	24.8%
Yuba County	72,155	68.4%	3.3%	2.3%	6.7%	0.4%	11.8%	7.1%	25.0%	41.2%
Nevada County	98,764	91.4%	0.4%	1.1%	1.2%	0.1%	2.7%	3.2%	8.5%	13.5%
Sutter County	94,737	61.0%	2.0%	1.4%	14.4%	0.3%	15.3%	5.6%	28.8%	49.6%
Placer County	348,432	83.5%	1.4%	0.9%	5.9%	0.2%	3.8%	4.3%	12.8%	23.9%
El Dorado County	181,058	86.6%	0.8%	1.1%	3.5%	0.2%	4.0%	3.8%	12.1%	20.1%
Sacramento Valley Subtotal	1,325,380	81.7%	1.3%	1.6%	4.7%	0.2%	6.1%	4.5%	23.1%	25.8%
Central Valley Region	8,379,045	61.4%	6.3%	1.3%	9.5%	0.4%	15.7%	5.4%	42.6%	53.5%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

2 Sources: U.S. Census 2014a, 2014g, 2014h, 2014i, 2014j, 2014k, 2014l, 2014m, 2014n, 2014o, 2014p, 2014q

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **21.3.4.1.2 Poverty Levels**

2 Poverty levels presented in Table 21.7 are calculated on a subset of the total
3 population of a county, as described above in section 21.3.2, Characterization of
4 Conditions Considered in the Environmental Justice Analysis. Of the total
5 population for whom poverty status is determined within the Sacramento Valley
6 portion of the Central Valley Region, 1,288,594 individuals, 12.6 percent were
7 below the poverty level based on the 2006–2010 ACS 5-year dataset (U.S. Census
8 2014e).

9 The U.S. Census Bureau defines geographical areas with more than 20 percent of
10 the population below the poverty level as a “poverty areas.” There are no
11 counties in this area defined as poverty areas; although, 20 percent of the
12 populations in Tehama and Yuba counties are below the poverty level.

13 **21.3.4.1.3 Social Services**

14 Federal grants to the state and local agencies for Medicaid, other health related
15 activities, and nutrition and family welfare; and Federal direct payments made to
16 individuals under the CalFresh and supplemental social security income within
17 counties in the Sacramento Valley portion of the Central Valley Region are
18 summarized in Table 21.8.

19 **21.3.4.1.4 Limited English Proficiency**

20 The percent of the population that speaks English and other languages at home
21 and the percent of the population that speak English “less than very well” based
22 on the language they speak at home are presented in Tables 21.9 and 21.10.

23 **21.3.4.2 San Joaquin Valley**

24 The San Joaquin Valley includes the counties of Stanislaus, Merced, Madera,
25 Fresno, Kings, Tulare, and Kern counties. San Joaquin County also is located
26 within the San Joaquin Valley; however, this county is discussed below as part of
27 the Delta and Suisun Marsh subsection. Other counties in this region are not
28 anticipated to be affected by changes in CVP and SWP operations, and are not
29 discussed here, including: Calaveras, Mariposa, and Tuolumne counties.

30 **21.3.4.2.1 Minority Populations**

31 As recorded in the 2010 U.S. Census, the San Joaquin Valley portion of the
32 Central Valley Region had a total population of 3,286,353 in 2010. About
33 63.3 percent of this population identified themselves as a racial minority and/or of
34 Hispanic or Latino origin, regardless of race, as presented in Table 21.11. The
35 table also shows the minority population distribution for the entire Central Valley
36 Region and the State of California.

1 **Table 21.7 Population below Poverty Level in the Central Valley Region–Sacramento Valley, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Shasta County	174,180	28,772	16.5%
Plumas County	20,179	2,437	12.1%
Tehama County	61,201	12,397	20.3%
Glenn County	27,853	4,875	17.5%
Colusa County	20,768	3,107	15.0%
Butte County	213,501	39,290	18.4%
Yuba County	68,848	13,760	20.0%
Nevada County	97,209	8,740	9.0%
Sutter County	92,477	13,194	14.3%
Placer County	334,718	22,090	6.6%
El Dorado County	177,660	14,003	7.9%
Sacramento Valley Subtotal	1,288,594	162,665	12.6%
Central Valley Region	8,025,054	1,268,984	15.8%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note: a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

1 **Table 21.8 Federal Funds Distributed for Social Programs in the Central Valley Region – Sacramento Valley in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Shasta County	\$199.0	\$50.8	\$93.5
Plumas County	\$19.3	\$7.9	\$5.9
Tehama County	\$61.6	\$17.5	\$23.1
Glenn County	\$25.3	\$10.6	\$11.3
Colusa County	\$18.6	\$8.2	\$6.5
Butte County	\$263.4	\$44.7	\$104.9
Yuba County	\$125.0	\$21.8	\$45.2
Nevada County	\$53.8	\$15.4	\$16.1
Sutter County	\$76.4	\$20.1	\$28.8
Placer County	\$139.2	\$44.8	\$43.2
El Dorado County	\$62.5	\$32.4	\$29.0
Sacramento Valley Subtotal	\$1,044.1	\$274.2	\$407.5
Central Valley Region	\$8,759.9	\$4,308.9	\$3,179.8
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

2 Source: Gaquin and Ryan 2013

1 **Table 21.9 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the Central**
 2 **Valley Region – Sacramento Valley, 2006–2010**

Areas	Only English	Spanish/ Spanish Creole	Tagalog	German	Chinese	Hmong	Total Excluding English
Shasta County	91.5%	4.6%	0.3%	0.6%	0.3%	0.01%	5.7%
Plumas County	92.4%	5.9%	0.1%	0.4%	0.6%	0.0%	7.0%
Tehama County	80.4%	16.9%	0.1%	0.4%	0.2%	0.02%	17.7%
Glenn County	67.4%	29.6%	0.1%	0.2%	0.0%	0.0%	29.8%
Colusa County	54.3%	44.1%	0.4%	0.1%	0.3%	0.0%	44.8%
Butte County	85.4%	9.3%	0.3%	0.3%	0.5%	1.3%	11.7%
Yuba County	74.4%	17.8%	0.8%	0.4%	0.3%	3.1%	22.3%
Nevada County	93.4%	4.1%	0.1%	0.8%	0.1%	0.0%	5.1%
Sutter County	65.5%	20.5%	0.5%	0.4%	0.5%	0.1%	21.9%
Placer County	86.1%	6.3%	1.3%	0.4%	0.7%	0.1%	8.7%
El Dorado County	88.2%	7.3%	0.4%	0.6%	0.5%	0.02%	9.0%
Sacramento Valley Subtotal	84.4%	9.7%	0.6%	0.5%	0.5%	0.4%	11.6%
Central Valley Region	66.2%	23.1%	1.7%	0.3%	1.2%	0.8%	27.1%
STATE OF CALIFORNIA	57.0%	28.5%	2.2%	0.3%	2.9%	0.2%	34.1%

3 Source: U.S. Census 2014f

1 **Table 21.10 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Central Valley Region –**
 2 **Sacramento Valley that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish/ Spanish Creole	Tagalog	German	Chinese	Hmong
Shasta County	1.4%	0.1%	0.05%	0.1%	0.01%
Plumas County	1.8%	0.0%	0.00%	0.6%	0.0%
Tehama County	8.0%	0.1%	0.04%	0.1%	0.0%
Glenn County	13.3%	0.0%	0.1%	0.0%	0.0%
Colusa County	24.7%	0.0%	0.02%	0.3%	0.0%
Butte County	3.8%	0.1%	0.04%	0.4%	0.8%
Yuba County	9.2%	0.2%	0.1%	0.2%	2.1%
Nevada County	2.1%	0.1%	0.1%	0.06%	0.0%
Sutter County	12.3%	0.1%	0.02%	0.2%	0.03%
Placer County	2.7%	0.4%	0.05%	0.3%	0.07%
El Dorado County	3.3%	0.1%	0.1%	0.2%	0.0%
Sacramento Valley Subtotal	4.6%	0.2%	0.06%	0.2%	0.3%
Central Valley Region	10.8%	0.5%	0.04%	0.06%	0.4%
STATE OF CALIFORNIA	13.6%	0.7%	0.04%	1.6%	0.1%

3 Source: U.S. Census 2014f

1 **Table 21.11 Minority Population Distribution in the Central Valley Region – San Joaquin Valley in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Stanislaus County	514,453	65.6%	2.9%	1.1%	5.1%	0.7%	19.3%	5.4%	41.9%	53.3%
Madera County	150,865	62.6%	3.7%	2.7%	1.9%	0.1%	24.8%	4.2%	53.7%	62.0%
Merced County	255,793	58.0%	3.9%	1.4%	7.4%	0.2%	24.5%	4.7%	54.9%	68.1%
Fresno County	930,450	55.4%	5.3%	1.7%	9.6%	0.2%	23.3%	4.5%	50.3%	67.3%
Tulare County	442,179	60.1%	1.6%	1.6%	3.4%	0.1%	29.0%	4.2%	60.6%	67.4%
Kings County	152,982	54.3%	7.2%	1.7%	3.7%	0.2%	28.1%	4.9%	50.9%	64.8%
Kern County	839,631	59.5%	5.8%	1.5%	4.2%	0.1%	24.3%	4.5%	49.2%	61.4%
San Joaquin Valley Subtotal	3,286,353	59.1%	4.5%	1.6%	5.9%	0.2%	24.1%	4.6%	50.6%	63.3%
Central Valley Region	8,379,045	61.4%	6.3%	1.3%	9.5%	0.4%	15.7%	5.4%	42.6%	53.5%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

2 Sources: U.S. Census 2014a, 2014r, 2014s, 2014t, 2014u, 2014v, 2014w, 2014x

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **21.3.4.2.2 Poverty Levels**

2 Poverty levels presented in Table 21.12 are calculated on a subset of the total
3 population of a county, as described above in section 21.3.2, Characterization of
4 Conditions Considered in the Environmental Justice Analysis. Of the total
5 population for whom poverty status is determined within the San Joaquin Valley
6 portion of the Central Valley Region, 3,111,943 individuals, 20.8 percent, were
7 below the poverty level based on the 2006–2010 ACS 5-year dataset (U.S. Census
8 2014e). The U.S. Census Bureau defines geographical areas with more than
9 20 percent of the population below the poverty level as a “poverty areas.”
10 Merced, Fresno, Tulare, and Kern counties are defined as poverty areas because
11 more than 20 percent of the populations in these counties are below the poverty
12 level.

13 **21.3.4.2.3 Social Services**

14 Distribution of social services varies for each county. Federal grants to the state
15 and local agencies for Medicaid, other health related activities, and nutrition and
16 family welfare; and Federal direct payments made to individuals under the
17 CalFresh and supplemental social security income within counties in the San
18 Joaquin Valley portion of the Central Valley Region are summarized in
19 Table 21.13.

20 **21.3.4.2.4 Limited English Proficiency**

21 The percent of the population that speaks English and other languages at home
22 and the percent of the population that speak English “less than very well” based
23 on the language they speak at home are presented in Tables 21.14 and 21.15.

24 **21.3.4.2.5 Effects of Recent Drought in Two San Joaquin Valley**
25 **Communities**

26 The San Joaquin Valley portion of the Central Valley Region includes about
27 8.8 percent of the state’s total population, 9.3 percent of the state’s population that
28 identified themselves as a racial minority and/or of Hispanic or Latino origin, and
29 about 13.1 percent of the state’s population below the poverty level. Merced,
30 Fresno, and Tulare counties had the highest concentration of total minority
31 populations and the highest concentration of individuals living below the poverty
32 level. There are communities within these counties that have higher
33 concentrations of minority populations and/or populations below the poverty
34 level. These communities are mainly farming communities that have been
35 impacted by loss in agricultural employment, as described in Chapter 12,
36 Agricultural Resources, and Chapter 19, Socioeconomics. The impacts have
37 increased recently during the current drought.

1 **Table 21.12 Population below Poverty Level in the Central Valley Region – San Joaquin Valley, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Stanislaus County	502,108	82,480	16.4%
Madera County	138,151	26,656	19.3%
Merced County	246,260	53,738	21.8%
Fresno County	890,694	200,288	22.5%
Tulare County	423,902	97,012	22.9%
Kings County	133,206	25,713	19.3%
Kern County	777,622	159,967	20.6%
San Joaquin Valley Subtotal	3,111,943	645,854	20.8%
Central Valley Region	8,025,054	1,268,984	15.8%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note:

4 a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

1 **Table 21.13 Federal Funds Distributed for Social Programs in the Central Valley Region – San Joaquin Valley in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Stanislaus County	\$535.9	\$145.3	\$198.7
Madera County	\$144.3	\$33.6	\$45.6
Merced County	\$260.0	\$73.7	\$126.0
Fresno County	\$992.0	\$274.8	\$468.5
Tulare County	\$569.1	\$116.0	\$196.5
Kings County	\$129.2	\$37.8	\$49.3
Kern County	\$712.0	\$203.4	\$328.6
San Joaquin Valley Subtotal	\$3,342.5	\$884.6	\$1,413.2
Central Valley Region	\$8,759.9	\$4,308.9	\$3,179.8
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

2 Source: Gaquin and Ryan 2013

1 **Table 21.14 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the**
 2 **Central Valley Region – San Joaquin Valley, 2006–2010**

Areas	Speaks Only English	Spanish and Spanish Creole	Tagalog	Chinese	Portuguese/ Portuguese Creole	Hmong	Total Excluding English
Stanislaus County	59.8%	30.6%	0.7%	0.4%	0.9%	0.1%	32.8%
Madera County	58.0%	38.6%	0.3%	0.1%	0.2%	0.3%	39.5%
Merced County	48.5%	41.5%	0.7%	0.5%	2.2%	2.5%	47.4%
Fresno County	57.4%	32.5%	0.7%	0.6%	0.1%	2.7%	36.6%
Tulare County	53.2%	42.5%	0.7%	0.2%	0.7%	0.2%	44.4%
Kings County	57.4%	37.9%	1.6%	0.4%	1.0%	0.0%	40.9%
Kern County	59.0%	36.4%	1.1%	0.3%	0.0%	0.0%	37.8%
San Joaquin Valley Subtotal	57.0%	35.8%	0.8%	0.4%	0.5%	1.0%	38.5%
Central Valley Region	66.2%	23.1%	1.7%	1.2%	0.3%	0.8%	27.1%
STATE OF CALIFORNIA	57.0%	28.5%	2.2%	2.9%	0.2%	0.2%	34.0%

3 Source: U.S. Census 2014f

1 **Table 21.15 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Central Valley Region –**
 2 **San Joaquin Valley that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish and Spanish Creole	Tagalog	Chinese	Portuguese/ Portuguese Creole	Hmong
Stanislaus County	13.1%	0.2%	0.3%	0.4%	0.0%
Madera County	17.7%	0.1%	0.0%	0.1%	0.1%
Merced County	19.4%	0.2%	0.2%	0.9%	1.2%
Fresno County	14.7%	0.2%	0.3%	0.0%	1.3%
Tulare County	21.4%	0.3%	0.1%	0.3%	0.1%
Kings County	19.4%	0.6%	0.3%	0.3%	0.0%
Kern County	16.4%	0.4%	0.2%	0.0%	0.0%
San Joaquin Valley Subtotal	16.5%	0.3%	0.2%	0.2%	0.5%
Central Valley Region	10.8%	0.5%	0.6%	0.1%	0.4%
STATE OF CALIFORNIA	13.6%	0.7%	1.6%	0.1%	0.1%

3 Source: U.S. Census 2014f

1 Conditions in this geographic area have been the focus of recent newspaper
2 articles describing conditions in these communities. According to AgAlert
3 (2014), a weekly newspaper for California agriculture, increased levels of land
4 fallowing on irrigated cropland in the San Joaquin Valley has resulted in
5 significant economic losses in small farming communities. Higher than typical
6 unemployment rates has resulted in increased food insecurity. As a result, food
7 banks are facing increased demand. Another article in the Fresno Bee Newspaper
8 (2014) described the food insecurity issue in the City of Mendota, a community in
9 Fresno County.

10 Although there are emergency programs such as those administered through the
11 U.S. Department of Agriculture (USDA), many of these programs are specific in
12 their targets, require a long time to implement, or are of limited duration. For
13 example, the 2014 Farm Bill includes \$100 million in livestock disaster
14 assistance; \$15 million in assistance to farmers and ranchers to implement water
15 conservation practices; and \$60 million for food banks in the State of California
16 (USDA 2014a). The USDA February 14, 2014 news release announcing these
17 programs acknowledges that previous implementation of assistance programs
18 were hampered by long processing times and emphasizes that the USDA is
19 committed to reduce the response times by more than 80 percent. The USDA also
20 is working with California Department of Education to expand the number of
21 Summer Food Service Program meal sites. The U.S. Department of Homeland
22 Security also provides assistance with food and related expenses through the
23 Emergency Food and Shelter National Board Program (USDHS 2014); however
24 this assistance is limited to one month. There also are many California-based
25 programs, including the California Department of Social Services that provided in
26 2014 up to \$25 million in food assistance for counties affected by employment
27 losses due to the drought that has reduced agriculturally-related jobs
28 (CDSS 2014). This program is specifically targeted for counties where the
29 unemployment rate in 2013 was higher than the statewide average, including
30 Fresno, Merced, and Tulare counties. This aid includes pre-packaged food boxes
31 to be delivered to local food banks. Families and individuals that expected to
32 experience long-term impacts due to the drought also were provided assistance to
33 apply for the CalFresh Program to supplement funding for the food budget.

34 *Huron and Mendota*

35 The cities of Huron and Mendota are both located in Fresno County. Economic
36 activities in both cities and surrounding communities are based on agriculture. Of
37 the 25 major employers in Fresno County, only one, Stamoules Produce
38 Company, is located in the City of Mendota (CEDD 2013). None of the 25 major
39 employers in Fresno County are located in Huron. Another major employer in the
40 City of Mendota is a medium security Federal prison for men (BOP 2014).

41 In 2010, the number of people that identified themselves as a racial minority
42 and/or of Hispanic or Latino origin and the portion of the population below the
43 poverty level in these two cities were significantly higher than the distribution of
44 these populations in Fresno County and the State of California, as presented in
45 Tables 21.16 and 21.17. Although the two communities became more racially

1 diverse in 2010 than they were in the 2000 Census, both communities became
 2 poorer. While Huron and Mendota have experienced increases in poverty levels,
 3 the proportion of the population below the poverty level has been relatively stable
 4 in Fresno County.

5 **Table 21.16 Racial and Ethnic Minority Population in Huron and Mendota in 2010**

Areas	Total Population	Racial Minority	Hispanic or Latino Origin	Below Poverty Level
Huron City	6,754	65.9%	96.6%	54.5%
Mendota City	11,014	47.1%	96.6%	44.6%
Fresno County	930,450	44.6%	50.3%	22.5%
State of California	37,253,956	42.4%	37.6%	13.7%

6 Source: U.S. Census Bureau, 2013a, 2013b, 2014e, 2014u

7 **Table 21.17 Racial and Ethnic Minority Population in Huron and Mendota in 2000**

Areas	Total Population	Racial Minority	Hispanic or Latino Origin	Below Poverty Level
Huron City	6,306	79.6%	98.3%	39.4%
Mendota City	7,890	72.7%	94.7%	41.9%
Fresno County	799,407	45.7%	44.0%	22.9%
State of California	33,871,648	40.5%	32.4%	14.2%

8 Sources: U.S. Census Bureau, 2013c, 2013d, 2013e, 2013f

9 *Other Indicators of Economic Conditions*

10 Other indicators of economic struggles within these communities are the number
 11 of individuals who are on poverty alleviation programs, including CalFresh, the
 12 Federal Supplemental Nutrition Assistance Program administered by the State of
 13 California, California Work Opportunity and Responsibility to Kids
 14 (CalWORKs), and National School Lunch Program (NSLP).

15 Both CalFresh and CalWORKs are administered by the California Department of
 16 Social Services. The CalFresh Program issues monthly electronic benefits that
 17 can be used to buy most foods. The program’s purpose is to help improve the
 18 health and well-being of qualified households and individuals. CalWORKs is a
 19 social welfare program that provides cash aid and services to eligible needy
 20 California families. Figure 21.1 shows the trend in the average annual population
 21 on public assistance (both the CalFresh Program and CalWORKs program)
 22 between 2006 and 2012, the years for which electronic data were available for the
 23 cities of Huron and Mendota. The populations in Huron and Mendota have higher
 24 levels of participations in the two public assistance programs compared to the
 25 levels in Fresno County and the state. Additionally, the rates of participation in

1 the two communities have been growing at a faster rate than growth in these
 2 programs in Fresno County and the state. Eligibility in the CalFresh Program is
 3 based upon several factors, including a poverty threshold requirement and
 4 citizenship/immigration status. Eligibility for CalWORKs is determined on the
 5 basis of citizenship, age, income, resources, assets and other factors
 6 (CDSS 2013j).

7 The NSLP program includes students that are eligible for assistance under
 8 CalFresh and other federal assistance programs, such as the Temporary
 9 Assistance for Needy Families and the Food Distribution Program on Indian
 10 Reservations; and students who are eligible under the Other Source Categorically
 11 Eligible Programs. A student is eligible under the Other Source Categorically
 12 Eligible Programs if that student is: (1) homeless, runaway or migrant; (2) a foster
 13 child; or (3) enrolled in a Federally-funded Head Start Program or a comparable
 14 State-funded Head Start Program or pre-kindergarten programs, or in an Even
 15 Start Program (USDA 2014b). Students enrolled in the NSLP are eligible for
 16 either free or reduced price meals (FRPM). Figure 21.2 shows the proportion of
 17 students enrolled in the FRPM program in the two communities, Fresno County,
 18 and the state. Participation on FRPM in Fresno County is higher than in the entire
 19 state; and lower than within Huron and Mendota.

20 Relatively large participation in the social services programs is related to low
 21 employment in Huron and Mendota. Annual unemployment rates in Huron and
 22 Mendota between 2006 and 2012 have consistently remained higher than for
 23 Fresno County and the state, as presented in Figure 21.3. The pattern of
 24 unemployment has been similar to unemployment patterns in Fresno County, and
 25 increased following the economic recession that started in 2007. The increase in
 26 unemployment also occurred at a time when both agricultural cultivated acreage
 27 and farm employment in the area declined; and included five consecutive years
 28 with reduced water availability, as described in Chapter 12, Agricultural
 29 Resources, and Chapter 19, Socioeconomics.

30 **21.3.4.3 Delta and Suisun Marsh**

31 The Delta and Suisun Marsh portion of the Central Valley Region includes
 32 Sacramento, Yolo, Solano, San Joaquin, and Contra Costa counties.

33 **21.3.4.3.1 Minority Populations**

34 As recorded in the 2010 U.S. Census, the Delta and Suisun Marsh portion of the
 35 Central Valley Region had a total population of 2,718,287 in 2010. About
 36 54.8 percent of this population identified themselves as a racial minority and/or of
 37 Hispanic or Latino origin, regardless of race, as presented in Table 21.18. The
 38 table also shows the minority population distribution for the entire Central Valley
 39 Region and the State of California.

40 **21.3.4.3.2 Poverty Levels**

41 Poverty levels presented in Table 21.19 are calculated on a subset of the total
 42 population of a county, as described above in section 21.3.2, Characterization of
 43 Conditions Considered in the Environmental Justice Analysis.

1 **Table 21.18 Minority Population Distribution in the Central Valley Region – Delta and Suisun Marsh in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Sacramento County	1,418,788	57.5%	10.4%	1.0%	14.3%	1.0%	9.3%	6.6%	21.6%	51.6%
Yolo County	200,849	63.2%	2.6%	1.1%	13.0%	0.5%	13.9%	5.8%	30.3%	50.1%
Solano County	413,344	51.0%	14.7%	0.8%	14.6%	0.9%	10.5%	7.6%	24.0%	59.2%
San Joaquin County	685,306	51.0%	7.6%	1.1%	14.4%	0.5%	19.1%	6.4%	38.9%	64.1%
Contra Costa County	1,049,025	58.6%	9.3%	0.6%	14.4%	0.5%	10.7%	5.9%	24.4%	52.2%
Total Delta and Suisun Marsh Valley	3,767,312	56.2%	9.6%	0.9%	14.3%	0.7%	11.9%	6.4%	26.2%	54.8%
Central Valley Region	8,379,045	61.4%	6.3%	1.3%	9.5%	0.4%	15.7%	5.4%	42.6%	53.5%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

2 Sources: U.S. Census 2014a, 2014y, 2014z, 2014aa, 2014ab, 2014ac

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **Table 21.19 Population below Poverty Level in the Central Valley Region – Delta and Suisun Marsh, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Sacramento County	1,368,693	190,768	13.9%
Yolo County	186,800	31,895	17.1%
Solano County	397,576	41,158	10.4%
San Joaquin County	657,594	105,502	16.0%
Contra Costa County	1,013,854	91,142	9.0%
Total Delta and Suisun Marsh Valley	3,624,517	460,465	12.7%
Central Valley Region	8,025,054	1,268,984	15.8%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note:

4 a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

1 Of the total population for whom poverty status is determined within the Delta
2 and Suisun Marsh portion of the Central Valley Region, 3,624,517 individuals,
3 12.7 percent were below the poverty level based on the 2006–2010 ACS 5-year
4 dataset (U.S. Census 2014e). The U.S. Census Bureau defines geographical areas
5 with more than 20 percent of the population below the poverty level as a “poverty
6 areas.” None of the counties in this area are defined as poverty areas.

7 **21.3.4.3.3 Social Services**

8 Distribution of social services varies for each county. Federal grants to the state
9 and local agencies for Medicaid, other health related activities, and nutrition and
10 family welfare; and Federal direct payments made to individuals under the
11 CalFresh and supplemental social security income within counties in the Delta
12 and Suisun Marsh portion of the Central Valley Region are summarized in
13 Table 21.20.

14 **21.3.4.3.4 Limited English Proficiency**

15 The percent of the population that speaks English and other languages at home
16 and the percent of the population that speak English “less than very well” based
17 on the language they speak at home are presented in Tables 21.21 and 21.22.

18 **21.3.5 San Francisco Bay Area Region**

19 The San Francisco Bay Area Region includes portions of Napa, Alameda, Santa
20 Clara, and San Benito counties that are within the CVP and SWP service areas.
21 Contra Costa County also is part of the San Francisco Bay Area Region.
22 However, for this chapter, Contra Costa County is discussed under section
23 14.3.4.3, Delta Suisun Marsh.

24 **21.3.5.1 Minority Populations**

25 As recorded in the 2010 U.S. Census, the San Francisco Bay Area Region had a
26 total population of 3,483,666 in 2010. About 64.4 percent of this population
27 identified themselves as a racial minority and/or of Hispanic or Latino origin,
28 regardless of race, as presented in Table 21.23. The table also shows the minority
29 population distribution for the State of California.

30 **21.3.5.2 Poverty Levels**

31 Poverty levels presented in Table 21.24 are calculated on a subset of the total
32 population of a county, as described above in section 21.3.2, Characterization of
33 Conditions Considered in the Environmental Justice Analysis. Of the total
34 population for whom poverty status is determined within the San Francisco Bay
35 Area Region, 3,344,994 individuals, 10.1 percent were below the poverty level
36 based on the 2006–2010 ACS 5-year dataset (U.S. Census 2014e). The
37 U.S. Census Bureau defines geographical areas with more than 20 percent of the
38 population below the poverty level as a “poverty areas.” None of the counties in
39 the San Francisco Bay Area Region are defined as poverty areas.

1 **Table 21.20 Federal Funds Distributed for Social Programs in the Central Valley Region – Delta and Suisun Marsh in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Sacramento County	\$2,115.5	\$2,695.9	\$659.1
Yolo County	\$504.8	\$39.7	\$55.2
Solano County	\$264.2	\$71.7	\$118.6
San Joaquin County	\$739.1	\$153.5	\$287.4
Contra Costa County	\$749.7	\$189.3	\$238.8
Total Delta and Suisun Marsh Valley	\$4,373.3	\$3,150.1	\$1,359.1
Central Valley Region	\$8,759.9	\$4,308.9	\$3,179.8
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

2 Source: Gaquin and Ryan 2013

1 **Table 21.21 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the**
 2 **Central Valley Region – Delta and Suisun Marsh, 2006 – 2010**

Areas	Speaks Only English	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Russian	Total Excluding English
Sacramento County	69.8%	13.2%	2.2%	2.0%	1.5%	1.6%	20.5%
Yolo County	65.8%	20.2%	3.3%	0.8%	0.9%	1.6%	26.9%
Solano County	70.6%	15.9%	0.8%	6.8%	0.6%	0.1%	24.1%
San Joaquin County	0.0%	25.1%	1.0%	2.8%	1.0%	0.0%	29.9%
Contra Costa County	67.6%	17.3%	2.9%	2.8%	0.6%	0.6%	24.2%
Total Delta and Suisun Marsh Valley	56.5%	17.2%	2.1%	2.8%	1.0%	0.9%	24.0%
Central Valley Region	66.2%	23.1%	1.2%	1.7%	0.6%	0.5%	27.1%
STATE OF CALIFORNIA	57.0%	28.5%	2.9%	2.2%	1.4%	0.4%	35.4%

3 Source: U.S. Census 2014f

1 **Table 21.22 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Central Valley Region –**
 2 **Delta and Suisun Marsh that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–**
 3 **2010**

Areas	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Russian
Sacramento County	6.0%	1.3%	0.7%	0.9%	0.9%
Yolo County	9.5%	1.5%	0.2%	0.3%	1.0%
Solano County	7.4%	0.4%	2.2%	0.3%	0.0%
San Joaquin County	12.3%	0.6%	1.0%	0.6%	0.0%
Contra Costa County	8.4%	1.3%	0.7%	0.3%	0.3%
Total Delta and Suisun Marsh Valley	8.1%	1.1%	0.9%	0.6%	0.5%
Central Valley Region	10.8%	0.6%	0.5%	0.3%	0.2%
STATE OF CALIFORNIA	13.6%	1.6%	0.7%	0.9%	0.2%

4 Source: U.S. Census 2014f

1 **Table 21.23 Minority Population Distribution in the San Francisco Bay Area Region in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Alameda County	1,510,271	43.0%	12.6%	0.6%	26.1%	0.8%	10.8%	6.0%	22.5%	65.9%
Santa Clara County	1,781,642	47.0%	2.6%	0.7%	32.0%	0.4%	12.4%	4.9%	26.9%	64.8%
San Benito County	55,269	63.7%	0.9%	1.6%	2.6%	0.2%	26.2%	4.9%	56.4%	61.7%
Napa County	136,484	71.5%	2.0%	0.8%	6.8%	0.3%	14.7%	4.1%	32.2%	43.6%
San Francisco Bay Area Region	3,483,666	46.5%	6.9%	0.7%	28.0%	0.6%	12.0%	5.4%	25.7%	64.4%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

2 Sources: U.S. Census 2014a, 2014ad, 2014ae, 2014af, 2014ag

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **Table 21.24 Population below Poverty Level in the San Francisco Bay Area Region, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Alameda County	1,450,546	165,417	11.4
Santa Clara County	1,710,231	152,066	8.9
San Benito County	54,160	6,323	11.7
Napa County	130,057	12,948	10.0
San Francisco Bay Area Region	3,344,994	336,754	10.1
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note:

4 a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

1 **21.3.5.3 Social Services**

2 Distribution of social services varies for each county. Federal grants to the state
3 and local agencies for Medicaid, other health related activities, and nutrition and
4 family welfare; and Federal direct payments made to individuals under the
5 CalFresh and supplemental social security income within counties in the San
6 Francisco Bay Area Region are summarized in Table 21.25.

7 **21.3.5.4 Limited English Proficiency**

8 The percent of the population that speaks English and other languages at home
9 and the percent of the population that speak English “less than very well” based
10 on the language they speak at home are presented in Tables 21.26 and 21.27.

11 **21.3.6 Central Coast Region**

12 The Central Coast Region includes portions of San Luis Obispo and Santa
13 Barbara counties served by the SWP. SWP water supplies are used directly by
14 municipal and industrial water users, and as part of groundwater replenishment
15 plans to meet municipal, industrial, and agricultural water demands.

16 **21.3.6.1 Minority Populations**

17 As recorded in the 2010 U.S. Census, the Central Coast Region had a total
18 population of 693,532 in 2010. About 43.1 percent of this population identified
19 themselves as a racial minority and/or of Hispanic or Latino origin, regardless of
20 race, as presented in Table 21.28. The table also shows the minority population
21 distribution for the State of California.

22 **21.3.6.2 Poverty Levels**

23 Poverty levels presented in Table 21.29 are calculated on a subset of the total
24 population of a county, as described above in section 21.3.2, Characterization of
25 Conditions Considered in the Environmental Justice Analysis. Of the total
26 population for whom poverty status is determined within the Central Coast
27 Region, 649,348 individuals, 13.8 percent were below the poverty level based on
28 the 2006–2010 ACS 5-year dataset (U.S. Census 2014e). The U.S. Census
29 Bureau defines geographical areas with more than 20 percent of the population
30 below the poverty level as a “poverty areas.” None of the counties in the Central
31 Coast Region are defined as poverty areas.

32 **21.3.6.3 Social Services**

33 Distribution of social services varies for each county. Federal grants to the state
34 and local agencies for Medicaid, other health related activities, and nutrition and
35 family welfare; and Federal direct payments made to individuals under the
36 CalFresh and supplemental social security income within counties in the Central
37 Coast Region are summarized in Table 21.30.

1 **Table 21.25 Federal Funds Distributed for Social Programs in the San Francisco Bay Area Region in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Alameda County	\$2,556.4	\$318.6	\$529.6
Santa Clara County	\$2,000.2	\$334.3	\$466.3
San Benito County	\$27.1	\$12.5	\$8.2
Napa County	\$102.5	\$32.0	\$21.3
San Francisco Bay Area Region	\$4,686.2	\$697.4	\$1,025.4
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

2 Source: Gaquin and Ryan 2013

1 **Table 21.26 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the San**
 2 **Francisco Bay Area Region, 2006–2010**

Areas	Speaks Only English	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Hindi	Total Excluding English
Alameda County	57.4%	16.8%	8.2%	3.8%	1.8%	1.6%	32.2%
Santa Clara County	49.3%	19.1%	7.4%	3.3%	6.5%	1.5%	37.8%
San Benito County	60.1%	37.3%	0.1%	0.7%	0.2%	0.0%	38.3%
Napa County	66.5%	26.2%	0.4%	2.4%	0.2%	0.1%	29.3%
San Francisco Bay Area Region	53.7%	18.6%	7.3%	3.4%	4.1%	1.5%	35.0%
STATE OF CALIFORNIA	57.0%	28.5%	2.9%	2.2%	1.4%	0.4%	35.4%

3 Source: U.S. Census 2014f

1 **Table 21.27 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the San Francisco Bay**
 2 **Area Region that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Hindi
Alameda County	8.2%	4.8%	1.1%	1.1%	0.3%
Santa Clara County	8.9%	3.6%	1.1%	4.0%	0.2%
San Benito County	20.4%	0.1%	0.3%	0.2%	0.0%
Napa County	14.6%	0.2%	0.9%	0.2%	0.04%
San Francisco Bay Area Region	9.0%	3.9%	1.1%	2.5%	0.2%
STATE OF CALIFORNIA	13.6%	1.6%	0.7%	0.9%	0.1%

3 Source: U.S. Census 2014f

4 **Table 21.28 Minority Population Distribution in the Central Coast Region in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
San Luis Obispo County	269,637	82.6%	2.1%	0.9%	3.2%	0.1%	7.3%	3.8%	20.8%	28.9%
Santa Barbara County	423,895	69.6%	2.0%	1.3%	4.9%	0.2%	17.4%	4.6%	42.8%	52.1%
Central Coast Region	693,532	74.7%	2.0%	1.2%	4.2%	0.2%	13.5%	4.3%	34.3%	43.1%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

5 Sources: U.S. Census 2014a, 2014ah, 2014ai

6 Note:

7 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **Table 21.29 Population below Poverty Level in the Central Coast Region, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
San Luis Obispo County	248,764	32,183	12.9%
Santa Barbara County	400,584	57,463	14.3%
Central Coast Region	649,348	89,646	13.8%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note:

4 a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

5 **Table 21.30 Federal Funds Distributed for Social Programs in the Central Coast Region in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
San Luis Obispo County	\$176.0	\$70.7	\$44.5
Santa Barbara County	\$332.1	\$93.3	\$91.6
Central Coast Region	\$508.1	\$164.0	\$136.1
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

6 Source: Gaquin and Ryan 2013

1 **21.3.6.4 *Limited English Proficiency***

2 The percent of the population that speaks English and other languages at home
3 and the percent of the population that speak English “less than very well” based
4 on the language they speak at home are presented in Tables 21.31 and 21.32.

5 **21.3.7 Southern California Region**

6 The Southern California Region includes portions of Ventura, Los Angeles,
7 Orange, San Diego, Riverside, and San Bernardino counties served by the SWP.

8 **21.3.7.1 Minority Populations**

9 As recorded in the 2010 U.S. Census, the Southern California Region had a total
10 population of 20,972,319 in 2010. About 64.2 percent of this population
11 identified themselves as a racial minority and/or of Hispanic or Latino origin,
12 regardless of race, as presented in Table 21.33. The table also shows the minority
13 population distribution for the State of California.

14 **21.3.7.2 Poverty Levels**

15 Poverty levels presented in Table 21.34 are calculated on a subset of the total
16 population of a county, as described above in section 21.3.2, Characterization of
17 Conditions Considered in the Environmental Justice Analysis. Of the total
18 population for whom poverty status is determined within the Southern California
19 Region, 20,296,879 individuals, 13.8 percent, were below the poverty level based
20 on the 2006–2010 ACS 5-year dataset (U.S. Census 2014e). The U.S. Census
21 Bureau defines geographical areas with more than 20 percent of the population
22 below the poverty level as a “poverty areas.” None of the counties in the
23 Southern California Region are defined as poverty areas.

24 **21.3.7.3 Social Services**

25 Distribution of social services varies for each county. Federal grants to the state
26 and local agencies for Medicaid, other health related activities, and nutrition and
27 family welfare; and Federal direct payments made to individuals under the
28 CalFresh and supplemental social security income within counties in the Southern
29 California Region are summarized in Table 21.35.

30 **21.3.7.4 Limited English Proficiency**

31 The percent of the population that speaks English and other languages at home
32 and the percent of the population that speak English “less than very well” based
33 on the language they speak at home are presented in Tables 21.36 and 21.37.

1 **Table 21.31 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the**
 2 **Central Coast Region, 2006–2010**

Areas	Speaks Only English	Spanish and Spanish Creole	Chinese	Tagalog	French (including Patois and Cajun)	German	Total Excluding English
San Luis Obispo County	83.3%	13.1%	0.3%	0.5%	0.3%	0.4%	14.7%
Santa Barbara County	61.3%	31.9%	0.8%	0.9%	0.6%	0.6%	34.7%
Central Coast Region	70.0%	24.5%	0.6%	0.8%	0.5%	0.5%	26.8%
STATE OF CALIFORNIA	57.0%	28.5%	2.9%	2.2%	0.4%	0.3%	34.3%

3 Source: U.S. Census 2014f

4 **Table 21.32 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Central Coast Region**
 5 **that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish and Spanish Creole	Chinese	Tagalog	French (including Patois and Cajun)	German
San Luis Obispo County	5.5%	0.1%	0.2%	0.04%	0.04%
Santa Barbara County	16.5%	0.4%	0.4%	0.1%	0.1%
Central Coast Region	12.2%	0.3%	0.4%	0.1%	0.1%
STATE OF CALIFORNIA	13.6%	1.6%	0.7%	0.1%	0.04%

6 Source: U.S. Census 2014f

1 **Table 21.33 Minority Population Distribution in the Southern California Region in 2010**

Areas	Total Population	Races							Hispanic or Latino Origin	Total Minority ^a
		White	Black/ African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races		
Ventura County	823,318	68.7%	1.8%	1.0%	6.7%	0.2%	17.0%	4.5%	40.3%	51.3%
Los Angeles County	9,818,605	50.3%	8.7%	0.7%	13.7%	0.3%	21.8%	4.5%	47.7%	72.2%
Orange County	3,010,232	60.8%	1.7%	0.6%	17.9%	0.3%	14.5%	4.2%	33.7%	55.9%
San Diego County	3,095,313	64.0%	5.1%	0.9%	10.9%	0.5%	13.6%	5.1%	32.0%	51.5%
Riverside County	2,189,641	61.0%	6.4%	1.1%	6.0%	0.3%	20.5%	4.8%	45.5%	60.3%
San Bernardino County	2,035,210	56.7%	8.9%	1.1%	6.3%	0.3%	21.6%	5.0%	49.2%	66.7%
Southern California Region	20,972,319	56.3%	6.7%	0.8%	12.1%	0.3%	19.2%	4.6%	43.1%	64.2%
STATE OF CALIFORNIA	37,253,956	57.6%	6.2%	1.0%	13.0%	0.4%	17.0%	4.9%	37.6%	59.9%

2 Sources: U.S. Census 2014a, 2014aj, 2014ak, 2014al, 2014am, 2014an, 2014ao

3 Note:

4 a. Total Minority is an aggregation of all non-white racial groups and includes all individuals of Hispanic or Latino origin, regardless of race.

1 **Table 21.34 Population below Poverty Level in the Southern California Region, 2006–2010**

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Ventura County	798,863	73,842	9.2%
Los Angeles County	9,604,871	1,508,618	15.7%
Orange County	2,925,244	296,846	10.1%
San Diego County	2,930,875	361,248	12.3%
Riverside County	2,075,782	278,358	13.4%
San Bernardino County	1,961,244	291,020	14.8%
Southern California Region	798,863	73,842	9.2%
STATE OF CALIFORNIA	35,877,036	4,919,945	13.7%

2 Source: U.S. Census 2014e

3 Note:

4 a. Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals

1 **Table 21.35 Federal Funds Distributed for Social Programs in the Southern California Region in 2010**

Areas	Grants (millions of dollars)		Distributed to Individuals (millions of dollars)
	Medicaid and Other Health-Related Items	Nutrition and Family Welfare	CalFresh Benefits and Supplemental Security Income
Ventura County	\$445.3	\$153.9	\$147.1
Los Angeles County	\$13,950.6	\$2,840.6	\$4,259.6
Orange County	\$1,678.3	\$610.6	\$633.2
San Diego County	\$3,866.8	\$677.8	\$790.1
Riverside County	\$966.4	\$347.2	\$488.0
San Bernardino County	\$1,236.2	\$390.1	\$751.9
Southern California Region	\$22,143.6	\$5,020.2	\$7,069.9
STATE OF CALIFORNIA	\$41,931.1	\$11,743.7	\$12,469.4

2 Source: Gaquin and Ryan 2013

1 **Table 21.36 Top Five Non-English Languages Spoken at Home as a Proportion of the Total Population Five Years and Older in the**
 2 **Southern California Region, 2006–2010**

Areas	Speaks Only English	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Korean	Total Excluding English
Ventura County	62.6%	29.5%	1.0%	1.7%	0.4%	0.4%	33.1%
Los Angeles County	43.6%	39.4%	3.6%	2.5%	0.8%	2.0%	48.3%
Orange County	55.6%	26.2%	2.2%	1.5%	5.4%	2.5%	37.8%
San Diego County	63.7%	24.4%	1.4%	3.1%	1.3%	0.5%	30.6%
Riverside County	60.5%	33.2%	0.5%	1.4%	0.6%	0.4%	36.2%
San Bernardino County	59.5%	33.6%	1.0%	1.4%	0.6%	0.5%	37.1%
Southern California Region	52.3%	33.7%	2.4%	2.2%	1.5%	1.5%	41.3%
STATE OF CALIFORNIA	57.0%	28.5%	2.9%	2.2%	1.4%	1.1%	36.1%

3 Source: U.S. Census 2014f

1 **Table 21.37 Percent of Population Speaking One of the Top Five Non-English Languages Spoken at Home in the Southern California**
 2 **Region that Speaks English “Less than Very Well” as a Proportion of the Total Population Five Years and Older, 2006–2010**

Areas	Spanish and Spanish Creole	Chinese	Tagalog	Vietnamese	Korean
Ventura County	14.1%	0.5%	0.5%	0.2%	0.2%
Los Angeles County	19.0%	2.2%	0.8%	0.5%	1.3%
Orange County	13.4%	1.0%	0.4%	3.3%	1.5%
San Diego County	11.0%	0.7%	1.1%	0.8%	0.3%
Riverside County	14.5%	0.3%	0.4%	0.4%	0.2%
San Bernardino County	15.5%	0.5%	0.4%	0.4%	0.3%
Southern California Region	16.0%	1.4%	0.7%	0.9%	0.9%
STATE OF CALIFORNIA	13.6%	1.6%	0.7%	0.9%	0.7%

3 Source: U.S. Census 2014f

1 **21.4 Impact Analysis**

2 This section describes the potential mechanisms for change in conditions and
3 analytical methods; results of impact analyses; potential mitigation measures; and
4 cumulative effects.

5 **21.4.1 Potential Mechanisms for Change and Analytical Methods**

6 As described in Chapter 4, Approach to Environmental Analysis, the impact
7 analysis considers changes in factors that affect environmental justice or minority
8 and low-income populations specifically related to changes in CVP and SWP
9 operations under the alternatives as compared to the No Action Alternative and
10 Second Basis of Comparison.

11 The Council of Environmental Quality (CEQ) and U.S. Environmental Protection
12 Agency (USEPA) established guidelines to assist federal agencies in the analysis
13 of environmental justice defines minority and low-income areas summarized in
14 Section 21.3, Affected Environment (CEQ, 1997). The following guidelines are
15 used to determine if minority populations are present in a study area:

- 16 • The minority population of the affected area exceeds 50 percent, or
- 17 • The population percentage of the affected area is meaningfully greater than
18 the minority population percentage in the general population or other
19 appropriate unit of geographical analysis.

20 The CEQ guidelines do not specifically state the percentage considered
21 meaningful in the case of low-income populations. For this analysis, the
22 assumptions set forth in the CEQ guidelines for identifying and evaluating
23 impacts on minority populations also are used to identify and evaluate impacts on
24 low-income populations, including a determination that a low-income population
25 is present if the project area if 50 percent or more of the population is living
26 below the poverty level.

27 The alternatives considered in this EIS do not include project-specific
28 construction activities. In most portions of the study area, the availability of CVP
29 and SWP water supplies directly or indirectly affects most of the population
30 within a county. Therefore, the entire population of each counties within the
31 study area is considered to determine whether minority or low-income areas could
32 be affected by implementation of the alternatives. In the study area, populations
33 below the poverty level do not include 50 percent or more of the population. The
34 highest proportion of populations below the poverty level occurs in Fresno and
35 Tulare counties in which approximately 23 percent of the populations are below
36 the poverty level. However, minority populations contribute more than
37 50 percent of the total county populations in 24 of the 35 counties. The following
38 counties have 50 percent or more of the total population as minority populations.

- 39 • Central Valley Region: Colusa, Sacramento, Solano, Sutter, Yolo, Fresno,
40 Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties

- 1 • Central Coast Region; Santa Barbara.
- 2 • Southern California Region: Los Angeles, Orange, Riverside, San Bernardino,
- 3 San Diego, and Ventura.

4 Although, the majority of the populations in the Trinity River Region counties are
5 not minority populations, these counties do include the Hoopa Valley Indian
6 Reservation, Yurok Indian Reservation, and Resighini Rancheria. Therefore, the
7 Trinity River Region counties are also included in the environmental justice
8 analysis.

9 The CEQ guidance provides the following three factors to be considered for
10 determination if disproportionately high and adverse impacts may accrue to
11 minority or low-income populations.

12 The following criteria were used to evaluate the impacts to minority and
13 low-income populations resulting from the operational changes following the
14 implementation of each of the alternatives as compared to the No Action
15 Alternative and the Second Basis of Comparison:

- 16 • Whether there is or would be an impact that results in a disproportionately
17 high and adverse human health and environmental impact, including social
18 and economic effects on environmental justice populations.
- 19 • Whether the environmental effects are significant and are, or may be, having
20 an adverse impact on environmental justice populations that appreciably
21 exceeds or is likely to appreciably exceed those on the general population or
22 other appropriate comparison group.
- 23 • Whether the environmental effects occur or would occur in an environmental
24 justice population affected by cumulative or multiple adverse exposures from
25 environmental hazards.

26 To determine whether the operational changes resulting from implementation of
27 each of the alternatives as compared to the No Action Alternative and the Second
28 Basis of Comparison will have a “disproportionately high and adverse impact” on
29 minority and low-income populations, various factors were considered, including
30 potential adverse impacts, mitigation, and enhancement measures that will be
31 incorporated into the alternatives; and offsetting benefits.

32 The environmental justice guidance documents do not specifically define
33 conditions that would result in “high and adverse human health and
34 environmental impact.” For this analysis, the potential changes in air quality,
35 cultural resources, public health, and socioeconomics were considered within the
36 counties that had a minority population of 50 percent or greater of the total
37 population.

38 The changes were then determined if the impacts would be disproportionately high
39 on the minority populations. Potential adverse impacts were evaluated with
40 regard to air quality, public health, and socioeconomics.

1 Changes in CVP and SWP operations under the alternatives as compared to the
2 No Action Alternative and Second Basis of Comparison could result in
3 disproportionately high effects on minority or tribal populations related to changes
4 in air quality, public health, and socioeconomics.

5 **21.4.1.1 Changes in Emissions of Criteria Air Pollutants and Precursors,**
6 **and/or Exposure of Sensitive Receptors to Substantial**
7 **Concentrations of Air Contaminants Related to Changes in**
8 **Groundwater Pumping**

9 Changes in CVP and SWP operations under the alternatives could change the use
10 of individual engines to operate groundwater wells. To evaluate the potential for
11 changes in emissions of criteria air pollutants and precursors, and/or exposure of
12 sensitive receptors to substantial concentrations of air contaminants, results from
13 the CVHM model that indicate changes in groundwater withdrawals due to
14 changes in CVP and SWP operations. However, it is not known how many of the
15 groundwater pumps use electricity and how many use diesel engines. The diesel
16 engines have the potential to emit criteria air pollutants and precursors, and toxic
17 air contaminants, as described in Chapter 16, Air Quality and Greenhouse Gas
18 Emissions.

19 Most of the groundwater wells in the Central Valley use electrical pumps. As
20 reported in a recent environmental assessment, approximately 14 to 15 percent of
21 the pumps used diesel fuel in 2003 (Reclamation 2013a). It is assumed for this
22 EIS, that the portion of groundwater pumps that use electricity would remain
23 approximately at 85 percent. Therefore, it is assumed that increases or decreases
24 in groundwater pumping would be indicative of an increase or decrease in the use
25 of diesel engines in the Central Valley as well as in the San Francisco Bay Area,
26 Central Coast, and Southern California regions. Changes in CVP and SWP
27 operations would not result in changes in groundwater pumping in the Trinity
28 River Region; therefore, this analysis does not address Trinity River Region.

29 **21.4.1.2 Changes in Public Health Related to Changes in Potential**
30 **Exposure to Mercury in Fish Used in Human Consumption**

31 Changes in CVP and SWP operations under the alternatives could change public
32 health factors related to mercury concentrations in fish used for human
33 consumption as compared to the No Action Alternative and Second Basis of
34 Comparison, as described in Chapter 18, Public Health.

35 **21.4.1.3 Changes in Socioeconomics**

36 Changes in CVP and SWP operations under the alternatives could change
37 socioeconomic factors related to employment related to irrigated agriculture and
38 municipal and industrial (M&I) water supplies and tribal salmon harvest in the
39 Trinity River Region as compared to the No Action Alternative and Second Basis
40 of Comparison, as described in Chapter 19, Socioeconomics. However, changes
41 in employment related to irrigated agriculture and M&I water supplies would be
42 similar. Therefore, these changes are not analyzed in this EIS.

1 **21.4.1.4 Effects due to Cross Delta Water Transfers**

2 Historically water transfer programs have been developed on an annual basis.
3 The demand for water transfers is dependent upon the availability of water
4 supplies to meet water demands. Water transfer transactions have increased over
5 time as CVP and SWP water supply availability has decreased, especially during
6 drier water years.

7 Parties seeking water transfers generally acquire water from sellers who have
8 available surface water who can make the water available through releasing
9 previously stored water, pump groundwater instead of using surface water
10 (groundwater substitution); idle crops; or substitute crops that uses less water in
11 order to reduce normal consumptive use of surface water.

12 Water transfers using CVP and SWP Delta pumping plants and south of Delta
13 canals generally occur when there is unused capacity in these facilities. These
14 conditions generally occur drier water year types when the flows from upstream
15 reservoirs plus unregulated flows are adequate to meet the Sacramento Valley
16 water demands and the CVP and SWP export allocations. In non-wet years, the
17 CVP and SWP water allocations would be less than full contract amounts;
18 therefore, capacity may be available in the CVP and SWP conveyance facilities to
19 move water from other sources.

20 Projecting future environmental justice conditions related to water transfer
21 activities is difficult because specific water transfer actions required to make the
22 water available, convey the water, and/or use the water would change each year
23 due to changing hydrological conditions, CVP and SWP water availability,
24 specific local agency operations, and local cropping patterns. Reclamation
25 recently prepared a long-term regional water transfer environmental document
26 which evaluated potential changes in conditions related to water transfer actions
27 (Reclamation 2014c). Results from this analysis were used to inform the impact
28 assessment of potential effects of water transfers under the alternatives as
29 compared to the No Action Alternative and the Second Basis of Comparison.

30 **21.4.2 Conditions in Year 2030 without Implementation of** 31 **Alternatives 1 through 5**

32 This EIS includes two bases of comparison, as described in Chapter 3,
33 Description of Alternatives: the No Action Alternative and the Second Basis of
34 Comparison. Both of these bases are evaluated at 2030 conditions.

35 Changes that would occur over the next 15 years without implementation of the
36 alternatives are not analyzed in this EIS. However, the changes to environmental
37 justice factors that are assumed to occur by 2030 under the No Action Alternative
38 and the Second Basis of Comparison are summarized in this section. Many of the
39 changed conditions would occur in the same manner under both the No Action
40 Alternative and the Second Basis of Comparison.

1 **21.4.2.1 Common Changes in Conditions under the No Action Alternative**
2 **and Second Basis of Comparison**

3 Conditions in 2030 would be different than existing conditions due to:

- 4 • Climate change and sea level rise
- 5 • General plan development throughout California, including increased water
6 demands in portions of Sacramento Valley
- 7 • Implementation of reasonable and foreseeable water resources management
8 projects to provide water supplies

9 It is anticipated that climate change would result in more short-duration high-
10 rainfall events and less snowpack in the winter and early spring months. The
11 reservoirs would be full more frequently by the end of April or May by 2030 than
12 in recent historical conditions. However, as the water is released in the spring,
13 there would be less snowpack to refill the reservoirs. This condition would
14 reduce reservoir storage and available water supplies to downstream uses in the
15 summer. The reduced end of September storage also would reduce the ability to
16 release stored water to downstream regional reservoirs. These conditions would
17 occur for all reservoirs in the California foothills and mountains, including non-
18 CVP and SWP reservoirs.

19 These changes would result in a decline of the long-term average CVP and SWP
20 water supply deliveries by 2030 as compared to recent historical long-term
21 average deliveries under the No Action Alternative and the Second Basis of
22 Comparison. However, the CVP and SWP water deliveries would be less under
23 the No Action Alternative as compared to the Second Basis of Comparison, as
24 described in Chapter 5, Surface Water Resources and Water Supplies. Due to
25 climate change and related lower snowfall, end of September low reservoir
26 storage would be lower in critical dry years by 2030 as compared to recent
27 historical conditions in Shasta Lake, Lake Oroville, Folsom Lake, New Melones
28 Reservoir, and San Luis Reservoir. Therefore, the potential for reduced reservoir
29 water supplies for wildland firefighting would be greater under the No Action
30 Alternative and Second Basis of Comparison as compared to recent historical
31 conditions.

32 Under the No Action Alternative and the Second Basis of Comparison, land uses
33 in 2030 would occur in accordance with adopted general plans.

34 The No Action Alternative and the Second Basis of Comparison assumes
35 completion of water resources management and environmental restoration
36 projects that would have occurred without implementation of Alternatives 1
37 through 5, including regional and local recycling projects, surface water and
38 groundwater storage projects, conveyance improvement projects, and desalination
39 projects, as described in Chapter 3, Description of Alternatives. The No Action
40 Alternative and the Second Basis of Comparison also assumes implementation of
41 actions included in the 2008 U.S. Fish and Wildlife Service (USFWS) Biological
42 Opinion (BO) and 2009 National Marine Fisheries Service (NMFS) BO that

1 would have been implemented without the BOs by 2030, as described in
2 Chapter 3, Description of Alternatives.

3 Under the No Action Alternative and Second Basis of Comparison, it is
4 anticipated that concentrations in fish tissue within the Delta will be either similar
5 or greater than recent historical conditions. Phase 1 of the Delta Mercury
6 Program mandated by the Central Valley Regional Water Quality Control Board
7 (RWQCB) is currently being completed to protect people eating one meal per
8 week of larger fish from the Delta, including Largemouth Bass. Phase 1 is
9 focused on studies and pilot projects to develop and evaluate management
10 practices to control methylmercury from mercury sources in the Delta and Yolo
11 Bypass; and to reduce total mercury loading to the San Francisco Bay. Following
12 completion of Phase 1 in 2019, Phase 2 will be implemented through 2030.
13 Phase 2 will focus on methylmercury control programs and reduction programs
14 for total inorganic mercury. Due to the extent of these studies, it is not anticipated
15 that changes in methylmercury or total mercury concentrations in fish tissue will
16 be reduced by 2030. Future mercury reduction and control programs will reduce
17 mercury sources and related fish tissue concentrations; however, that will occur
18 after 2030.

19 **21.4.3 Evaluation of Alternatives**

20 Alternatives 1 through 5 have been compared to the No Action Alternative; and
21 the No Action Alternative and Alternatives 1 through 5 have been compared to
22 the Second Basis of Comparison.

23 During review of the numerical modeling analyses used in this EIS, an error was
24 determined in the CalSim II model assumptions related to the Stanislaus River
25 operations for the Second Basis of Comparison, Alternative 1, and Alternative 4
26 model runs. Appendix 5C includes a comparison of the CalSim II model run
27 results presented in this chapter and CalSim II model run results with the error
28 corrected. Appendix 5C also includes a discussion of changes in the comparison
29 of groundwater conditions for the following alternative analyses.

- 30 • No Action Alternative compared to the Second Basis of Comparison
- 31 • Alternative 1 compared to the No Action Alternative
- 32 • Alternative 3 compared to the Second Basis of Comparison
- 33 • Alternative 5 compared to the Second Basis of Comparison.

34 **21.4.3.1 No Action Alternative**

35 The No Action Alternative is compared to the Second Basis of Comparison.

36 **21.4.3.1.1 Central Valley Region**

37 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or Exposure*
38 *of Sensitive Receptors to Substantial Concentrations of Air Contaminants Related*
39 *to Changes in Groundwater Pumping*

40 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
41 Region would increase by 8 percent under the No Action Alternative as compared
42 to the Second Basis of Comparison. It is not known if the additional groundwater

1 pumping would rely upon electricity or diesel to drive the pump engines. Under
2 the worst case analysis, it is assumed that the increased use of diesel engines
3 would be proportional to the increased use of groundwater. Therefore, under the
4 No Action Alternative, there would be a potential increase in emissions of criteria
5 air pollutants and precursors, and/or exposure of sensitive receptors to substantial
6 concentrations of air contaminants as compared to the Second Basis of
7 Comparison.

8 *Changes in Public Health Factors Related to Mercury in Fish used for Human*
9 *Consumption*

10 Mercury concentrations in Largemouth Bass would be similar (within 5 percent
11 change) in most locations in the Delta, except for Rock Slough, San Joaquin River
12 near Antioch, and Montezuma Slough in Suisun Marsh. In these areas, the
13 mercury concentrations would increase by 7 percent over long-term conditions
14 under the No Action Alternative as compared to the Second Basis of Comparison.
15 Under dry and critical dry years, mercury concentrations would increase by 7 to
16 8 percent at Rock Slough, intakes of the Banks and Jones pumping plants, and
17 Victoria Canal. All values exceed the threshold of 0.24 mg/kg ww for mercury.

18 *Effects Related to Cross Delta Water Transfers*

19 Potential effects to environmental justice factors could be similar to those
20 identified in a recent environmental analysis conducted by Reclamation for long-
21 term water transfers from the Sacramento to San Joaquin valleys (Reclamation
22 2014c). Potential effects to environmental justice were identified as loss of
23 employment in the seller's service area if crop idling was used to provide transfer
24 water. The analysis indicated that the proportion of crop idled acreage would be
25 small as compared to the overall regional irrigated acreage, and that this change
26 would not result in in disproportionately high or adverse effects. In addition,
27 beneficial effects could occur in the purchaser's service area if more acreage was
28 cultivated with the water transfer program than without the water transfer
29 program.

30 Under the No Action Alternative, the timing of cross Delta water transfers would
31 be limited to July through September and include annual volumetric limits, in
32 accordance with the 2008 USFWS BO and 2009 NMFS BO. Under the Second
33 Basis of Comparison, water could be transferred throughout the year without an
34 annual volumetric limit. Overall, the potential for cross Delta water transfers
35 would be less under the No Action Alternative than under the Second Basis of
36 Comparison.

37 **21.4.3.1.2 San Francisco Bay Area, Central Coast, and Southern**
38 **California Regions**

39 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or Exposure*
40 *of Sensitive Receptors to Substantial Concentrations of Air Contaminants Related*
41 *to Changes in Groundwater Pumping*

42 It is anticipated that CVP and SWP water supplies would be decreased by
43 10 percent and 18 percent, respectively, in the San Francisco Bay Area, Central

1 Coast, and Southern California regions under No Action Alternative as compared
 2 to the Second Basis of Comparison. The decrease in surface water supplies could
 3 result in additional use of groundwater pumps and emissions of air pollutants and
 4 contaminants if the use of diesel engines is also increased.

5 **21.4.3.2 Alternative 1**

6 As described in Chapter 3, Description of Alternatives, Alternative 1 is identical
 7 to the Second Basis of Comparison. As described in Chapter 4, Approach to
 8 Environmental Analysis, Alternative 1 is compared to the No Action Alternative
 9 and the Second Basis of Comparison. However, because CVP and SWP
 10 operations under Alternative 1 are identical to conditions under the Second Basis
 11 of Comparison; Alternative 1 is only compared to the No Action Alternative.

12 **21.4.3.2.1 Alternative 1 Compared to the No Action Alternative**

13 *Central Valley Region*

14 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or* 15 *Exposure of Sensitive Receptors to Substantial Concentrations of Air* 16 *Contaminants Related to Changes in Groundwater Pumping*

17 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
 18 Region would decrease by 8 percent under Alternative 1 as compared to the No
 19 Action Alternative. It is not known if the reduction in groundwater pumping
 20 would result in a reduction of the use of electricity or diesel to drive the pump
 21 engines. For this analysis, it is assumed that the decreased use of diesel engines
 22 would be proportional to the decreased use of groundwater. Therefore, under
 23 Alternative 1, there would be a potential decrease in emissions of criteria air
 24 pollutants and precursors, and/or exposure of sensitive receptors to substantial
 25 concentrations of air contaminants as compared to the No Action Alternative.

26 *Changes in Public Health Factors Related to Mercury in Fish used for Human* 27 *Consumption*

28 Mercury concentrations in Largemouth Bass would be similar in most locations in
 29 the Delta, except for Rock Slough, San Joaquin River near Antioch, and
 30 Montezuma Slough in Suisun Marsh. In these areas, the mercury concentrations
 31 would decrease by 6 percent over the long-term conditions under Alternative 1 as
 32 compared to the No Action Alternative. Under dry and critical dry years, mercury
 33 concentrations would decrease by 6 to 8 percent at Rock Slough, intakes of the
 34 Banks and Jones pumping plants, and Victoria Canal. All values exceed the
 35 threshold of 0.24 mg/kg ww for mercury.

36 *Effects Related to Cross Delta Water Transfers*

37 Potential effects to environmental justice conditions could be similar to those
 38 identified in a recent environmental analysis conducted by Reclamation for long-
 39 term water transfers from the Sacramento to San Joaquin valleys (Reclamation
 40 2014c) as described above under the No Action Alternative compared to the
 41 Second Basis of Comparison. For the purposes of this EIS, it is anticipated that
 42 similar conditions would occur during implementation of cross Delta water
 43 transfers under Alternative 1 and the No Action Alternative, and that impacts on

1 environmental justice factors would not be substantial due to implementation
2 requirements of the transfer programs.

3 Under Alternative 1, water could be transferred throughout the year without an
4 annual volumetric limit. Under the No Action Alternative, the timing of cross
5 Delta water transfers would be limited to July through September and include
6 annual volumetric limits, in accordance with the 2008 USFWS BO and 2009
7 NMFS BO. Overall, the potential for cross Delta water transfers would be
8 increased under Alternative 1 as compared to the No Action Alternative.

9 *San Francisco Bay Area, Central Coast, and Southern California Regions*
10 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
11 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
12 *Contaminants Related to Changes in Groundwater Pumping*

13 It is anticipated that CVP and SWP water supplies would be increased by
14 11 percent and 21 percent, respectively, in the San Francisco Bay Area, Central
15 Coast, and Southern California regions under Alternative 1 as compared to the No
16 Action Alternative. The increase in surface water supplies could result in the
17 reduction in use of groundwater pumps and emissions of air pollutants and
18 contaminants if the use of diesel engines is also decreased.

19 **21.4.3.2 Alternative 1 Compared to the Second Basis of Comparison**

20 Alternative 1 is identical to the Second Basis of Comparison.

21 **21.4.3.3 Alternative 2**

22 The CVP and SWP operations under Alternative 2 are identical to the CVP and
23 SWP operations under the No Action Alternative, as described in Chapter 3,
24 Description of Alternatives; therefore Alternative 2 is only compared to the
25 Second Basis of Comparison.

26 **21.4.3.3.1 Alternative 2 Compared to the Second Basis of Comparison**

27 The CVP and SWP operations under Alternative 2 are identical to the CVP and
28 SWP operations under the No Action Alternative. Therefore, changes to
29 environmental justice factors under Alternatives 2 as compared to the Second
30 Basis of Comparison would be the same as the impacts described in
31 Section 18.4.3.1, No Action Alternative.

32 **21.4.3.4 Alternative 3**

33 As described in Chapter 3, Description of Alternatives, CVP and SWP operations
34 under Alternative 3 are similar to the Second Basis of Comparison with modified
35 Old and Middle River flow criteria and New Melones Reservoir operations. As
36 described in Chapter 4, Approach to Environmental Analysis, Alternative 3 is
37 compared to the No Action Alternative and the Second Basis of Comparison.

1 **21.4.3.4.1 Alternative 3 Compared to the No Action Alternative**

2 *Central Valley Region*

3 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
 4 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
 5 *Contaminants Related to Changes in Groundwater Pumping*

6 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
 7 Region would decrease by 6 percent under Alternative 3 as compared to the No
 8 Action Alternative. It is not known if the reduction in groundwater pumping
 9 would result in a reduction of the use of electricity or diesel to drive the pump
 10 engines. For this analysis, it is assumed that the decreased use of diesel engines
 11 would be proportional to the decreased use of groundwater. Therefore, under
 12 Alternative 3, there would be a potential decrease in emissions of criteria air
 13 pollutants and precursors, and/or exposure of sensitive receptors to substantial
 14 concentrations of air contaminants as compared to the No Action Alternative.

15 *Changes in Public Health Factors Related to Mercury in Fish used for Human*
 16 *Consumption*

17 Mercury concentrations in Largemouth Bass would be similar (within 5 percent
 18 change) in most locations in the Delta, except for San Joaquin River near Antioch
 19 and Montezuma Slough in Suisun Marsh. In these areas, the mercury
 20 concentrations would decrease by 6 percent over the long-term conditions under
 21 Alternative 3 as compared to the No Action Alternative. Mercury concentrations
 22 under the dry and critical dry years would be similar throughout the Delta. All
 23 values exceed the threshold of 0.24 mg/kg ww for mercury.

24 *Effects Related to Cross Delta Water Transfers*

25 Potential effects to environmental justice factors could be similar to those
 26 identified in a recent environmental analysis conducted by Reclamation for long-
 27 term water transfers from the Sacramento to San Joaquin valleys (Reclamation
 28 2014c) as described above under the No Action Alternative compared to the
 29 Second Basis of Comparison. For the purposes of this EIS, it is anticipated that
 30 similar conditions would occur during implementation of cross Delta water
 31 transfers under Alternative 3 and the No Action Alternative, and that impacts on
 32 environmental justice factors would not be substantial due to implementation
 33 requirements of the transfer programs.

34 Under Alternative 3, water could be transferred throughout the year without an
 35 annual volumetric limit. Under the No Action Alternative, the timing of cross
 36 Delta water transfers would be limited to July through September and include
 37 annual volumetric limits, in accordance with the 2008 USFWS BO and 2009
 38 NMFS BO. Overall, the potential for cross Delta water transfers would be
 39 increased under Alternative 3 as compared to the No Action Alternative.

1 *San Francisco Bay Area, Central Coast, and Southern California Regions*

2 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
3 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
4 *Contaminants Related to Changes in Groundwater Pumping*

5 It is anticipated that CVP and SWP water supplies would be increased by
6 9 percent and 17 percent, respectively, in the San Francisco Bay Area, Central
7 Coast, and Southern California regions under Alternative 3 as compared to the No
8 Action Alternative. The increase in surface water supplies could result in the
9 reduction in use of groundwater pumps and emissions of air pollutants and
10 contaminants if the use of diesel engines is also decreased.

11 **21.4.3.4.2 Alternative 3 Compared to the Second Basis of Comparison**

12 *Central Valley Region*

13 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
14 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
15 *Contaminants Related to Changes in Groundwater Pumping*

16 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
17 Region would be similar (within a 5 percent change) under Alternative 3 as
18 compared to the Second Basis of Comparison. Therefore, the emissions of
19 criteria air pollutants and precursors, and/or exposure of sensitive receptors to
20 substantial concentrations of air contaminants would be similar under
21 Alternative 3 as compared to the Second Basis of Comparison.

22 *Changes in Public Health Factors Related to Mercury in Fish Used for*
23 *Human Consumption*

24 Mercury concentrations in Largemouth Bass would be similar throughout the
25 Delta under Alternative 3 as compared to the Second Basis of Comparison, as
26 summarized in Chapter 6, Surface Water Quality. All values exceed the threshold
27 of 0.24 mg/kg ww for mercury.

28 *Effects Related to Cross Delta Water Transfers*

29 Potential effects to environmental justice factors could be similar to those
30 identified in a recent environmental analysis conducted by Reclamation for
31 long-term water transfers from the Sacramento to San Joaquin valleys
32 (Reclamation 2014c) as described above under the No Action Alternative
33 compared to the Second Basis of Comparison. For the purposes of this EIS, it is
34 anticipated that similar conditions would occur during implementation of cross
35 Delta water transfers under Alternative 3 and the Second Basis of Comparison,
36 and that impacts on environmental justice factors would not be substantial in the
37 seller's service area due to implementation requirements of the transfer programs.

38 Under Alternative 3 and the Second Basis of Comparison, water could be
39 transferred throughout the year without an annual volumetric limit. Overall, the
40 potential for cross Delta water transfers would be similar under Alternative 3 and
41 the Second Basis of Comparison.

1 *San Francisco Bay Area, Central Coast, and Southern California Regions*
 2 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
 3 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
 4 *Contaminants Related to Changes in Groundwater Pumping*

5 It is anticipated that CVP and SWP water supplies and emissions from diesel
 6 engines used for groundwater pumping would be similar in the San Francisco Bay
 7 Area, Central Coast, and Southern California regions under Alternative 3 as
 8 compared to the Second Basis of Comparison.

9 **21.4.3.5 Alternative 4**

10 The environmental justice conditions under Alternative 4 would be identical to
 11 the conditions under the Second Basis of Comparison; therefore, Alternative 4 is
 12 only compared to the No Action Alternative.

13 **21.4.3.5.1 Alternative 4 Compared to the No Action Alternative**

14 The CVP and SWP operations under Alternative 4 are identical to the CVP and
 15 SWP operations under the Second Basis of Comparison and Alternative 1.
 16 Therefore, changes in environmental justice conditions under Alternative 4 as
 17 compared to the No Action Alternative would be the same as the impacts
 18 described in Section 12.4.3.2.1, Alternative 1 Compared to the No Action
 19 Alternative.

20 **21.4.3.6 Alternative 5**

21 As described in Chapter 3, Description of Alternatives, CVP and SWP operations
 22 under Alternative 5 are similar to the No Action Alternative with modified Old
 23 and Middle River flow criteria and New Melones Reservoir operations. As
 24 described in Chapter 4, Approach to Environmental Analysis, Alternative 5 is
 25 compared to the No Action Alternative and the Second Basis of Comparison.

26 **21.4.3.6.1 Alternative 5 Compared to the No Action Alternative**

27 *Central Valley Region*

28 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
 29 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
 30 *Contaminants Related to Changes in Groundwater Pumping*

31 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
 32 Region would be similar under Alternative 5 as compared to the No Action
 33 Alternative. Therefore, the emissions of criteria air pollutants and precursors,
 34 and/or exposure of sensitive receptors to substantial concentrations of air
 35 contaminants would be similar under Alternative 5 as compared to the No Action
 36 Alternative.

37 *Changes in Public Health Factors Related to Mercury in Fish used for Human*
 38 *Consumption*

39 Mercury concentrations in Largemouth Bass would be similar throughout the
 40 Delta under Alternative 5 as compared to the No Action Alternative, as

1 summarized in Chapter 6, Surface Water Quality. All values exceed the threshold
2 of 0.24 mg/kg ww for mercury.

3 *Effects Related to Cross Delta Water Transfers*

4 Potential effects to environmental justice factors could be similar to those
5 identified in a recent environmental analysis conducted by Reclamation for long-
6 term water transfers from the Sacramento to San Joaquin valleys (Reclamation
7 2014c) as described above under the No Action Alternative compared to the
8 Second Basis of Comparison. For the purposes of this EIS, it is anticipated that
9 similar conditions would occur during implementation of cross Delta water
10 transfers under Alternative 5 and the No Action Alternative, and that impacts on
11 environmental justice factors would not be substantial in the seller's service area
12 due to implementation requirements of the transfer programs.

13 Under Alternative 5 and the No Action Alternative, the timing of cross Delta
14 water transfers would be limited to July through September and include annual
15 volumetric limits, in accordance with the 2008 USFWS BO and 2009 NMFS BO.
16 Overall, the potential for cross Delta water transfers would be similar under
17 Alternative 5 and the No Action Alternative.

18 *San Francisco Bay Area, Central Coast, and Southern California Regions*

19 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
20 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
21 *Contaminants Related to Changes in Groundwater Pumping*

22 It is anticipated that CVP and SWP water supplies and emissions from diesel
23 engines used for groundwater pumping would be similar in the San Francisco Bay
24 Area, Central Coast, and Southern California regions under Alternative 5 as
25 compared to the No Action Alternative.

26 **21.4.3.6.2 Alternative 5 Compared to the Second Basis of Comparison**

27 *Central Valley Region*

28 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
29 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
30 *Contaminants Related to Changes in Groundwater Pumping*

31 Groundwater pumping in the San Joaquin Valley portion of the Central Valley
32 Region would increase by 8 percent under Alternative 5 as compared to the
33 Second Basis of Comparison. It is not known if the additional groundwater
34 pumping would rely upon electricity or diesel to drive the pump engines. Under
35 the worst case analysis, it is assumed that the increased use of diesel engines
36 would be proportional to the increased use of groundwater. Therefore, under
37 Alternative 5, there would be a potential increase in emissions of criteria air
38 pollutants and precursors, and/or exposure of sensitive receptors to substantial
39 concentrations of air contaminants as compared to the Second Basis of
40 Comparison.

1 *Changes in Public Health Factors Related to Mercury in Fish used for Human*
 2 *Consumption*

3 Mercury concentrations in Largemouth Bass would be similar in most locations in
 4 the Delta, except for Rock Slough, San Joaquin River near Antioch, and
 5 Montezuma Slough in Suisun Marsh. In these areas, the mercury concentrations
 6 would increase by 7 to 8 percent over long-term conditions under Alternative 5 as
 7 compared to the Second Basis of Comparison. During dry and critical dry years,
 8 mercury concentrations also would increase by 7 percent at intakes to Banks
 9 Pumping Plant and Jones Pumping Plant; and 13 percent at Rock Slough. All
 10 values exceed the threshold of 0.24 mg/kg ww for mercury.

11 *Effects Related to Cross Delta Water Transfers*

12 Potential effects to environmental justice factors could be similar to those
 13 identified in a recent environmental analysis conducted by Reclamation for long-
 14 term water transfers from the Sacramento to San Joaquin valleys (Reclamation
 15 2014c) as described above under the No Action Alternative compared to the
 16 Second Basis of Comparison. For the purposes of this EIS, it is anticipated that
 17 similar conditions would occur during implementation of cross Delta water
 18 transfers under Alternative 5 and the Second Basis of Comparison, and that
 19 impacts on environmental justice factors would not be substantial in the seller's
 20 service area due to implementation requirements of the transfer programs.

21 Under Alternative 5, the timing of cross Delta water transfers would be limited to
 22 July through September and include annual volumetric limits, in accordance with
 23 the 2008 USFWS BO and 2009 NMFS BO. Under the Second Basis of
 24 Comparison, water could be transferred throughout the year without an annual
 25 volumetric limit. Overall, the potential for cross Delta water transfers would be
 26 reduced under Alternative 5 as compared to the Second Basis of Comparison.

27 *San Francisco Bay Area, Central Coast, and Southern California Regions*

28 *Changes in Emissions of Criteria Air Pollutants and Precursors, and/or*
 29 *Exposure of Sensitive Receptors to Substantial Concentrations of Air*
 30 *Contaminants Related to Changes in Groundwater Pumping*

31 It is anticipated that CVP and SWP water supplies would be decreased by
 32 10 percent and 18 percent, respectively, in the San Francisco Bay Area, Central
 33 Coast, and Southern California regions under Alternative 5 as compared to the
 34 Second Basis of Comparison. The decrease in surface water supplies could result
 35 in increased use of groundwater pumps and emissions of air pollutants and
 36 contaminants if the use of diesel engines is also increased.

37 **21.4.3.7 Summary of Environmental Consequences**

38 The results of the environmental consequences of implementation of
 39 Alternatives 1 through 5 as compared to the No Action Alternative and the
 40 Second Basis of Comparison are presented in Tables 21.38 and 21.39.

1

Table 21.38 Comparison of Alternatives 1 through 5 to No Action Alternative

Alternative	Potential Change	Consideration for Mitigation Measures
Alternative 1	Decrease potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants by 8 percent in the Central Valley, 11 to 21 percent in the San Francisco Bay Area Region, and by 21 percent in the Central Coast and Southern California regions. Similar mercury concentrations in Largemouth Bass in the most of the Delta; and a 6 percent decrease near Rock Slough, San Joaquin River at Antioch, and Montezuma Slough over the long-term conditions.	None needed
Alternative 2	No effects on environmental justice factors.	None needed
Alternative 3	Decrease potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants by 6 percent in the Central Valley, 9 to 17 percent in the San Francisco Bay Area Region, and by 17 percent in the Central Coast and Southern California regions. Similar mercury concentrations in Largemouth Bass in the most of the Delta; and a 6 percent decrease near San Joaquin River at Antioch and Montezuma Slough over the long-term conditions.	None needed
Alternative 4	Same effects as described for Alternative 1 compared to the No Action Alternative.	None needed
Alternative 5	Similar potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants in the Central Valley, San Francisco Bay Area, Central Coast, and Southern California regions. Similar mercury concentrations in Largemouth Bass throughout the Delta.	None needed

2
3

Table 21.39 Comparison of Alternatives 1 through 5 to Second Basis of Comparison

Alternative	Potential Change	Consideration for Mitigation Measures
No Action Alternative	Increase potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants by 8 percent in the Central Valley, 10 to 18 percent in the San Francisco Bay Area Region, and by 18 percent in the Central Coast and Southern California regions. Similar mercury concentrations in Largemouth Bass in the most of the Delta; and a 7 percent increase near Rock Slough, San Joaquin River at Antioch, and Montezuma Slough over the long-term conditions.	Not considered for this comparison.
Alternative 1	No effects on environmental justice factors.	Not considered for this comparison.
Alternative 2	Same effects as described for No Action Alternative as compared to the Second Basis of Comparison.	Not considered for this comparison.

Alternative	Potential Change	Consideration for Mitigation Measures
Alternative 3	Similar potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants in the Central Valley, San Francisco Bay Area, Central Coast, and Southern California regions. Similar mercury concentrations in Largemouth Bass throughout the Delta.	Not considered for this comparison.
Alternative 4	No effects on environmental justice factors.	Not considered for this comparison.
Alternative 5	Increase potential for emissions of criteria air pollutants and precursors, and/or exposure of sensitive receptors to substantial concentrations of air contaminants by 8 percent in the Central Valley, 10 to 18 percent in the San Francisco Bay Area Region, and by 18 percent in the Central Coast and Southern California regions. Similar mercury concentrations in Largemouth Bass in the most of the Delta; and a 7 percent increase near Rock Slough, San Joaquin River at Antioch, and Montezuma Slough over the long-term conditions.	Not considered for this comparison.

1 **21.4.3.8 Potential Mitigation Measures**

2 Changes in CVP and SWP operations under Alternatives 1 through 5 as compared
 3 to the No Action Alternative would not result in changes in air quality or public
 4 health that are related to environmental justice factors. Therefore, there would be
 5 no disproportionately high or adverse environmental justice effects; and no
 6 mitigation measures are required.

7 **21.4.3.9 Cumulative Effects Analysis**

8 As described in Chapter 3, the cumulative effects analysis considers projects,
 9 programs, and policies that are not speculative; and are based upon known or
 10 reasonably foreseeable long-range plans, regulations, operating agreements, or
 11 other information that establishes them as reasonably foreseeable.

12 The No Action Alternative, Alternatives 1 through 5, and Second Basis of
 13 Comparison include climate change and sea level rise, implementation of general
 14 plans, and completion of ongoing projects and programs (see Chapter 3,
 15 Description of Alternatives). The effects of these items were analyzed
 16 quantitatively and qualitatively, as described in the Impact Analysis of this
 17 chapter. The discussion below focuses on the qualitative effects of the
 18 alternatives and other past, present, and reasonably foreseeable future projects
 19 identified for consideration of cumulative effects (see Chapter 3, Description of
 20 Alternatives).

21 **21.4.3.9.1 No Action Alternative and Alternatives 1 through 5**

22 Continued coordinated long-term operation of the CVP and SWP under the No
 23 Action Alternative would result in reduced CVP and SWP water supply

1 availability as compared to recent conditions due to climate change and sea level
2 rise by 2030. These conditions are included in the analysis presented above.

3 Future water resource management projects considered in cumulative effects
4 analysis could increase water supply availability, as described in Chapter 5,
5 Surface Water Resources and Water Supplies; and reduce environmental justice
6 factor impacts in the San Francisco Bay Area, Central Coast, and Southern
7 California regions by providing additional water supplies that could be stored in
8 existing reservoirs.

9 There also are several ongoing programs that could result in reductions in CVP
10 and SWP water supply availability due to changes in flow patterns in the
11 Sacramento and San Joaquin rivers watersheds and the Delta that could reduce
12 availability of CVP and SWP water deliveries as well as local and regional water
13 supplies, as described in Chapter 5, Surface Water Resources and Water Supplies.
14 Reduction in available surface water supplies as compared to projected water
15 supplies under the No Action Alternative and Alternatives 1 through 5 could
16 result in adverse environmental justice factors and related environmental justice
17 adverse impacts if groundwater pumping is increased as surface water availability
18 is reduced.

19 There would be no adverse air quality or public health impacts related to
20 environmental justice factors associated with implementation of the alternatives
21 as compared to the No Action Alternative or the Second Basis of Comparison.
22 Therefore, Alternatives 1 through 5 would not contribute cumulative impacts to
23 disproportionately high or adverse environmental justice effects.

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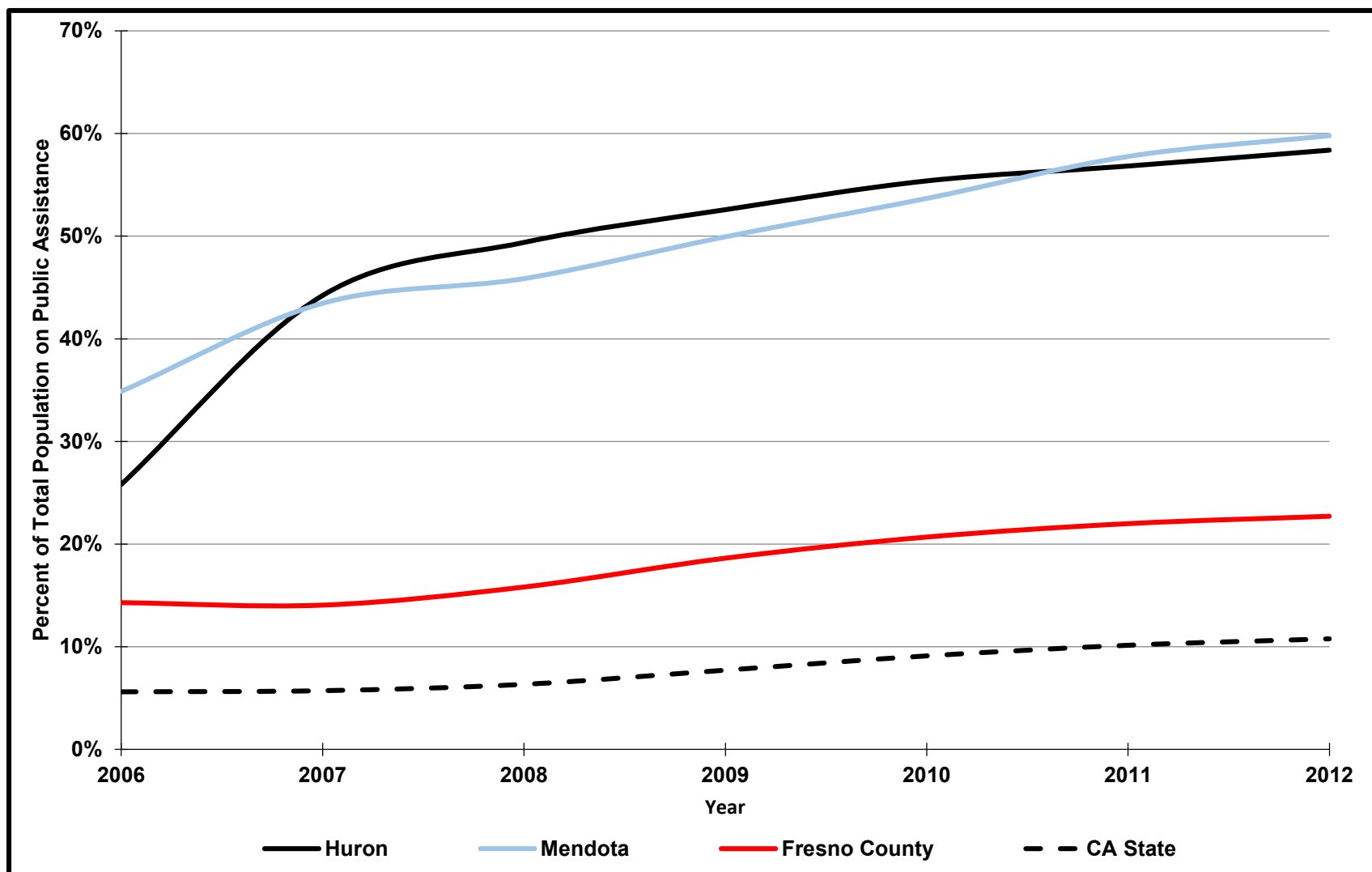


Figure 21.1 Population on CalFresh Program and CalWORKs Program in Huron and Mendota in 2006 through 2012

Source: CDSS 2008a –2008y, 2009a – 2009n, 2012a -2012a, 2013a – 2013i; Fresno County 2013

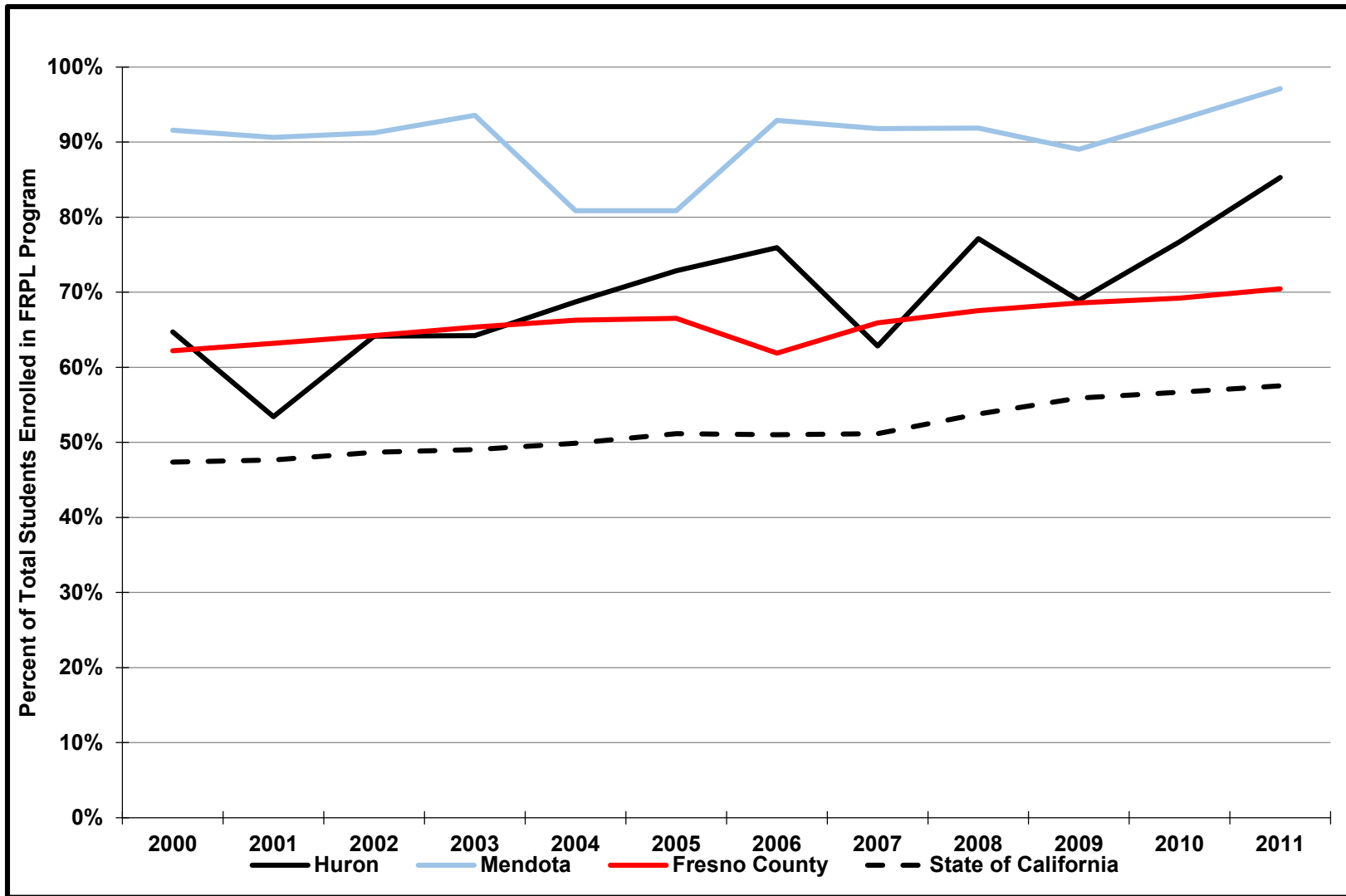


Figure 21.2 Enrollment in Free or Reduced Price Meals Program in Huron and Mendota in 2000 through 2011

Source: CDE 2013

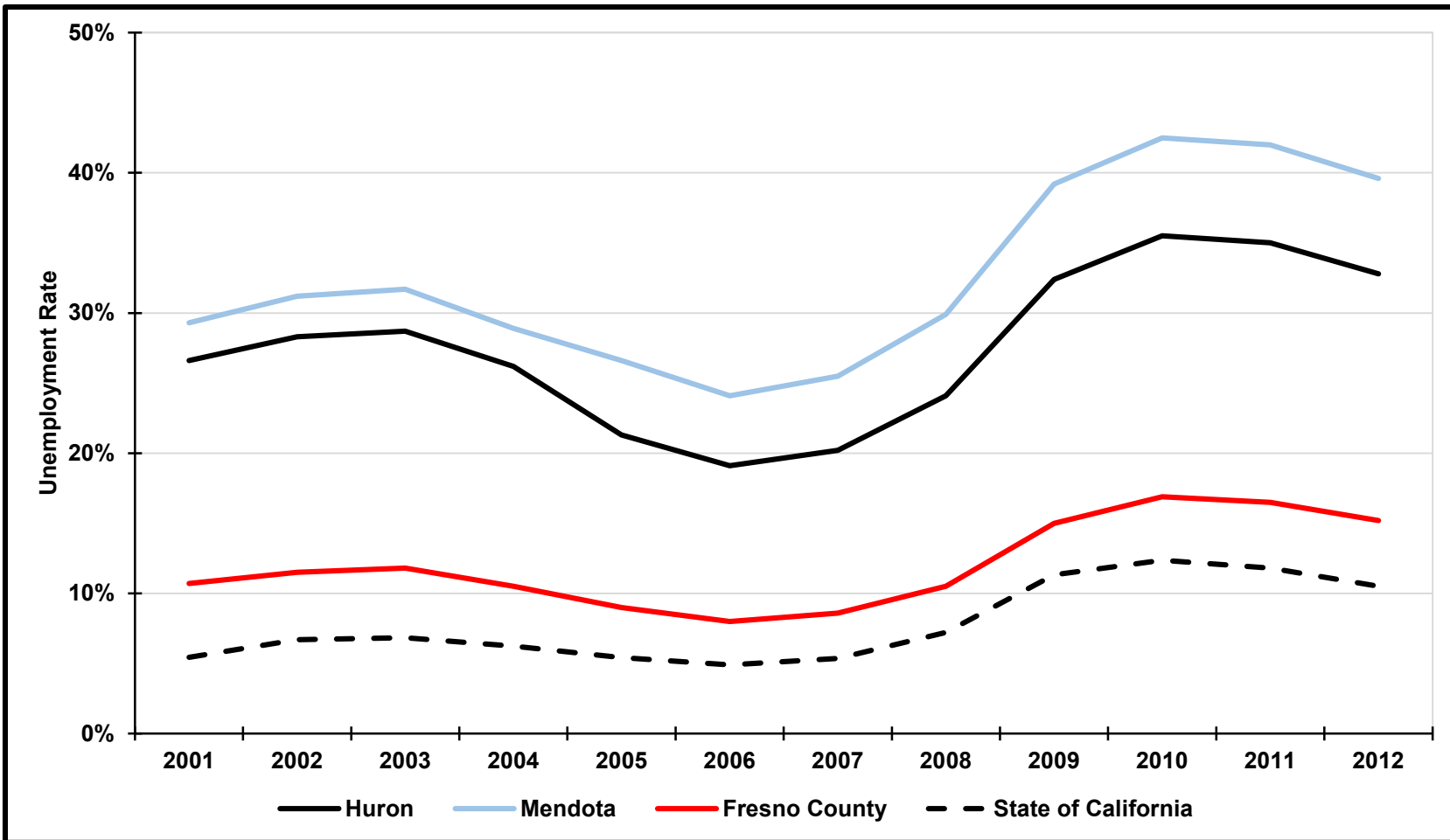


Figure 21.3 Unemployment in Huron and Mendota in 2001 through 2012

Source: BLS 2014; CEDD 2014

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