

Appendix T Environmental Justice Technical Appendix

This appendix documents the environmental justice technical analysis to support the impact analysis in the environmental impact statement (EIS).

T.1 Background Information

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” (Council on Environmental Quality [CEQ] 1997) The Executive Order makes clear that its provisions apply fully to programs involving Native Americans.

The CEQ and U.S. Environmental Protection Agency (USEPA) established guidelines to assist federal agencies in the analysis of environmental justice. The following guidelines are used to determine if minority populations are present in a study area:

- The minority population of the affected area exceeds 50%, or
- The population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis.

The CEQ guidelines do not specifically state the percentage considered meaningful in the case of low-income populations. However, the United States Census Bureau (U.S. Census) designates geographical areas with poverty rates at and above 20% as poverty areas. This criterion is used to determine if a region or county is considered to be a poverty area.

In most portions of the study area, the availability of Central Valley Project (CVP) and State Water Project (SWP) water supplies directly or indirectly affects most of the population within a county. Therefore, the entire population of each county within the study area is considered to determine whether minority or low-income areas could be affected by implementation of the alternatives.

The availability of CVP and SWP water supplies also affects agricultural productivity and employment. The 2008–2012 National Agricultural Works Study data show that the vast majority of crop workers in California are Spanish-speaking (92.9%) and born in Mexico (91.4%) (Schenker et al. 2015). In addition, an estimated 21% of farmworker families in California live in poverty according to the federal poverty standard.

T.1.1 Trinity River Region

The Trinity River Region includes Del Norte, Humboldt, and Trinity Counties.

T.1.1.1 ***Minority Populations***

As recorded in the U.S. Census 2013–2017 American Community Survey (ACS) 5-year population estimate, the Trinity River Region had a total population of 177,019 (U.S. Census 2019a). About 26.4% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-1, *Minority Population Distribution in Trinity River Region in 2017*. The region and each county within it have less than 50% of total county populations as minority individuals and are not considered a minority population subject to environmental justice considerations of the alternatives.

T.1.1.2 ***Poverty Levels***

Poverty levels in the Trinity River Region are presented in Table T.1-2, *Population below Poverty Level in Trinity River Region, 2013–2017*. Of the Trinity River Region, 168,959 individuals (or 21.1%) were below the poverty level based on the 2017 ACS 5-year dataset (U.S. Census 2019b). The U.S. Census defines geographical areas with more than 20% of the population below the poverty level as poverty areas. Both Humboldt and Del Norte Counties are defined as poverty areas and subject to environmental justice evaluations.

T.1.2 **Sacramento Valley Region**

The Sacramento Valley Region includes Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Plumas, Shasta, Sutter, Tehama, and Yuba Counties. Sacramento, Yolo, and Solano Counties also are located within the Sacramento Valley; however, these counties are discussed as part of the Bay-Delta Region.

T.1.2.1 ***Minority Populations***

According to the 2017 ACS 5-year dataset, the Sacramento Valley Region had a total population of 1,364,576 in 2017. Table T.1-3, *Minority Population Distribution in the Sacramento Valley Region in 2017*, shows the minority population distribution for the individual counties and for the State of California. Specifically, minority populations accounted for 50% or more of the total county population in Colusa and Sutter Counties. These counties are further evaluated for environmental justice impacts.

Table T.1-1. Minority Population Distribution in Trinity River Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not Hispanic or Latino Origin	Total Minority ^{a,b}
		White	Black/African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races			
Del Norte County	27,442	76.8%	1.8%	7.9%	2.8%	0.1%	3.3%	7.3%	19.2%	62.8%	37.2%
Humboldt County	135,490	80.7%	1.2%	5.2%	2.9%	0.3%	3.9%	5.8%	11.1%	82.8%	25.1%
Trinity County	13,037	86.6%	0.8%	4.3%	1.2%	0.9%	3.2%	3.0%	7.2%	73.6%	17.2%
Trinity River Region	177,019	80.5%	1.3%	5.5%	2.8%	0.3%	3.8%	5.8%	12.0%	37.9%	26.4%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	62.8%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White Alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

Table T.1-2. Population below Poverty Level in Trinity River Region, 2013–2017

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Del Norte County	23,970	5,571	23.2%
Humboldt County	132,178	27,481	20.8%
Trinity County	12,811	2,545	19.9%
Trinity River Region	168,959	35,597	21.1%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

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

Table T.1-3. Minority Population Distribution in the Sacramento Valley Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not Hispanic or Latino Origin	Total Minority ^{a,b}
		White	Black/African American	American Indian and Native Alaskan	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races			
Butte County	225,207	82.2%	1.5%	1.2%	4.5%	0.2%	4.3%	6.1%	15.7%	72.9%	27.1%
Colusa County	21,479	88.3%	0.9%	1.1%	1.5%	0.1%	5.4%	2.6%	58.4%	36.3%	63.7%
El Dorado County	185,015	87.5%	1.0%	0.7%	4.3%	0.2%	2.7%	3.7%	12.6%	78.5%	21.5%
Glenn County	27,935	83.0%	0.8%	1.9%	2.6%	0.4%	9.1%	2.1%	40.8%	52.5%	47.5%
Nevada County	98,838	92.1%	0.6%	0.9%	1.1%	0.1%	1.8%	3.3%	9.2%	85.4%	14.6%
Placer County	374,985	82.7%	1.5%	0.5%	6.9%	0.2%	3.1%	4.9%	13.6%	73.8%	26.2%
Plumas County	18,724	89.6%	0.9%	2.1%	0.8%	0.3%	2.0%	4.3%	8.5%	83.5%	16.5%
Shasta County	178,919	86.9%	1.1%	2.5%	3.0%	0.1%	2.1%	4.4%	9.6%	80.4%	19.6%
Sutter County	95,583	70.3%	2.1%	0.9%	15.2%	0.6%	4.4%	6.5%	30.2%	47.3%	52.7%
Tehama County	63,247	86.0%	0.6%	2.4%	1.4%	0.0%	5.5%	4.0%	24.2%	69.2%	30.8%
Yuba County	74,644	73.1%	3.3%	1.4%	6.5%	0.4%	7.1%	8.2%	27.4%	56.3%	43.7%
Sacramento Valley Region	1,364,576	83.5%	1.4%	1.2%	5.3%	0.2%	3.6%	4.9%	16.6%	72.1%	27.9%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White Alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

T.1.2.2 Poverty Levels

As shown in Table T.1-4, Population below Poverty Level in the Sacramento Valley Region, 2013–2017, 14.2% of the population in the Sacramento Valley Region was below the poverty level (U.S. Census 2019b). Butte and Tehama Counties are considered poverty areas and are further evaluated for environmental justice impacts.

Table T.1-4. Population below Poverty Level in the Sacramento Valley Region, 2013–2017

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Butte County	219,529	44,977	20.5%
Colusa County	21,284	2,979	14.0%
El Dorado County	183,319	17,996	9.8%
Glenn County	27,542	5,404	19.6%
Nevada County	97,837	11,861	12.1%
Placer County	371,667	30,473	8.2%
Plumas County	18,377	2,439	13.3%
Shasta County	176,173	31,967	18.1%

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Sutter County	94,446	15,805	16.7%
Tehama County	62,327	13,009	20.9%
Yuba County	73,350	13,598	18.5%
Sacramento Valley Region	1,345,851	190,508	14.2%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

^aPopulation numbers are only those for whom poverty status was determined and exclude institutionalized individuals.

T.1.3 San Joaquin Valley Region

The San Joaquin Valley Region includes Fresno, Kern, Kings, Madera, Merced, Stanislaus, and Tulare Counties. San Joaquin County also is located within the San Joaquin Valley; however, this county is discussed as part of the Bay-Delta Region.

T.1.3.1 Minority Populations

The San Joaquin Valley Region had a total population of 3,416,866 in 2017 (U.S. Census 2019a). About 66.3% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-5, Minority Population Distribution in San Joaquin Valley Region in 2017. Minority populations accounted for 50% or more of the total county population in all San Joaquin Valley Region counties. These counties are further evaluated for environmental justice impacts.

Table T.1-5. Minority Population Distribution in San Joaquin Valley Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not 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			
Fresno County	971,616	63.5%	4.9%	1.0%	10.1%	0.2%	16.3%	4.0%	52.4%	30.2%	69.8%
Kern County	878,744	75.1%	5.5%	1.1%	4.7%	0.2%	10.1%	3.4%	52.2%	35.4%	64.6%
Kings County	150,183	66.0%	6.4%	1.5%	3.8%	0.2%	17.9%	4.2%	53.7%	33.1%	66.9%
Madera County	154,440	76.7%	3.2%	1.7%	2.1%	0.1%	13.0%	3.2%	56.9%	35.1%	64.9%
Merced County	267,390	57.5%	3.2%	0.7%	7.6%	0.2%	26.4%	4.5%	58.2%	28.8%	71.2%
Stanislaus County	535,684	74.8%	2.8%	0.7%	5.5%	0.7%	11.2%	4.3%	45.0%	43.4%	56.6%
Tulare County	458,809	78.9%	1.6%	1.3%	3.5%	0.1%	11.5%	3.1%	63.6%	29.5%	70.5%
San Joaquin Valley Region	3,416,866	70.6%	4.1%	1.0%	6.3%	0.3%	14.0%	3.8%	53.4%	33.7%	66.3%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White Alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

T.1.3.2 *Poverty Levels*

As shown in Table T.1-6, Population below Poverty Level in the San Joaquin Valley Region, 2013–2017, 23.1% of the San Joaquin Valley Region population was below the poverty level (U.S. Census 2019b). Fresno, Kern, King, Madera, Merced, and Tulare Counties are defined as poverty areas and are further evaluated for environmental justice impacts.

Table T.1-6. Population below Poverty Level in San Joaquin Valley, 2013–2017

Areas	Total Population^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Fresno County	955,509	243,040	25.4%
Kern County	847,040	191,123	22.6%
Kings County	134,201	28,013	20.9%
Madera County	146,174	32,244	22.1%
Merced County	261,023	60,861	23.3%
Stanislaus County	530,072	91,210	17.2%
Tulare County	453,042	122,724	27.1%
San Joaquin Valley Subtotal	3,327,061	769,215	23.1%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

Note:

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

T.1.4 *Bay-Delta Region*

The Bay-Delta Region includes Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties.

T.1.4.1 *Minority Populations*

The Bay-Delta Region had a total population of 3,990,817 in 2017 (U.S. Census 2019a). About 57.4 percent of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-7, Minority Population Distribution in the Bay-Delta Region in 2017. Specifically, minority populations accounted for 50% or more of the total populations in Contra Costa, Sacramento, Solano, and Yolo Counties. These counties are further evaluated for environmental justice impacts.

Table T.1-7. Minority Population Distribution in the Bay-Delta Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not 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			
Contra Costa County	1,123,678	58.6%	8.6%	0.5%	16.0%	0.5%	9.2%	6.7%	25.3%	44.9%	55.1%
Sacramento County	1,495,400	58.7%	9.9%	0.7%	15.3%	1.1%	7.3%	7.0%	22.8%	45.7%	54.3%
San Joaquin County	724,153	55.9%	7.0%	0.6%	15.1%	0.6%	11.1%	9.7%	40.8%	33.2%	66.8%
Solano County	434,981	52.7%	14.2%	0.5%	15.3%	0.9%	9.1%	7.4%	25.8%	39.0%	61.0%
Yolo County	212,605	67.2%	2.5%	0.6%	13.7%	0.4%	9.3%	6.2%	31.4%	47.5%	52.5%
Total Delta and Suisun Marsh Valley	3,990,817	58.0%	9.1%	0.6%	15.4%	0.8%	8.8%	7.4%	27.5%	42.6%	57.4%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

T.1.4.2 Poverty Levels

As shown in Table T.1.-8, Population below Poverty Level in the Bay-Delta Region, 2006–2010, 14.1% of the Bay-Delta Region was below the poverty level (U.S. Census 2019b). None of the counties in this area are defined as poverty areas.

Table T.1-8. Population below Poverty Level in the Bay-Delta Region, 2006–2010

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Contra Costa County	1,114,128	108,630	9.8%
Sacramento County	1,474,566	246,203	16.7%
San Joaquin County	710,481	121,296	17.1%
Solano County	424,465	48,623	11.5%
Yolo County	204,615	39,686	19.4%
Total Delta and Suisun Marsh Valley	3,928,255	564,438	14.4%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

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

T.1.5 San Francisco Bay Area Region

The San Francisco Bay Area Region includes portions of Alameda, Napa, San Benito, and Santa Clara Counties that are within the CVP and SWP service areas. Contra Costa County also is part of the general San Francisco Bay Area; however, in this technical appendix, Contra Costa County is discussed under the Bay-Delta Region.

T.1.5.1 Minority Populations

The San Francisco Bay Area Region had a total population of 3,740,517 in 2017 (U.S. Census 2019a). About 66.8% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-9, Minority Population Distribution in the San Francisco Bay Area Region in 2017. Minority populations accounted for 50% or more of the total population in all four counties of this region. These counties are further evaluated for environmental justice impacts.

T.1.5.2 Poverty Levels

As shown in Table T.1-10, Population below Poverty Level in the San Francisco Bay Area Region, 2013–2017, 9.8% of the San Francisco Bay Area Region population was below the poverty level (U.S. Census 2019b). None of the counties in the San Francisco Bay Area Region are defined as poverty areas.

Table T.1-9. Minority Population Distribution in the San Francisco Bay Area Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not 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	1,629,615	42.6%	11.1%	0.6%	28.9%	0.8%	9.5%	6.4%	22.5%	32.2%	67.8%
Napa County	141,005	72.6%	2.1%	0.9%	7.9%	0.2%	12.5%	3.8%	33.7%	53.2%	46.8%
San Benito County	58,671	82.0%	0.8%	0.7%	2.8%	0.2%	8.8%	4.6%	58.9%	35.6%	64.4%
Santa Clara County	1,911,226	45.5%	2.5%	0.5%	35.1%	0.4%	11.0%	4.9%	26.1%	32.6%	67.4%
San Francisco Bay Area Region	3,740,517	45.8%	6.2%	0.6%	30.9%	0.6%	10.4%	5.5%	25.3%	33.2%	66.8%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White Alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

Table T.1-10. Population below Poverty Level in the San Francisco Bay Area Region, 2013–2017

Areas	Total Population^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Alameda County	1,602,357	181,194	11.3%
Napa County	137,415	11,285	8.2%
San Benito County	58,318	5,670	9.7%
Santa Clara County	1,881,436	162,525	8.6%
San Francisco Bay Area Region	3,679,526	360,674	9.8%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

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

T.1.6 Central Coast Region

The Central Coast Region includes portions of San Luis Obispo and Santa Barbara Counties served by the SWP.

T.1.6.1 Minority Populations

The Central Coast Region had a total population of 723,115 in 2017 (U.S. Census 2019a). About 45.4% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-11, Minority Population Distribution in the Central Coast Region in 2017. Specifically, minority populations accounted for 50% or more of the total county population in Santa Barbara County and are further evaluated for environmental justice impacts.

T.1.6.2 Poverty Levels

As shown in Table T.1-12, Population below Poverty Level in the Central Coast Region, 2013–2017, 14.8% of the Central Coast Region population was below the poverty level (U.S. Census 2019b). None of the counties in the Central Coast Region are defined as poverty areas.

Table T.1-11. Minority Population Distribution in the Central Coast Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not 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	280,119	85.9%	1.9%	0.7%	3.7%	0.1%	4.2%	3.5%	22.2%	69.4%	30.6%
Santa Barbara County	442,996	74.7%	1.9%	0.9%	5.4%	0.2%	12.6%	4.4%	44.8%	45.3%	54.7%
Central Coast Region	723,115	79.0%	1.9%	0.8%	4.7%	0.1%	9.4%	4.0%	36.1%	54.6%	45.4%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for *White Alone, Not Hispanic* subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

Table T.1-12. Population below Poverty Level in the Central Coast Region, 2013–2017

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
San Luis Obispo County	264,128	36,420	13.8%
Santa Barbara County	424,090	65,493	15.4%
Central Coast Region	688,218	101,913	14.8%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

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

T.1.7 Southern California Region

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

T.1.7.1 Minority Populations

The Southern California Region had a total population of 21,869,259 in 2017 (U.S. Census 2019a). About 64.7% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race, as presented in Table T.1-13, Minority Population Distribution in the Southern California Region in 2017. Specifically, minority populations accounted for 50 percent or more of the total county population in all six counties of this region. These counties are further evaluated for environmental justice impacts.

T.1.7.2 Poverty Levels

Of the total population for whom poverty status is determined within the Southern California Region, 21,496,111 individuals, 15.4%, were below the poverty level (U.S. Census 2019b). None of the counties in the Southern California Region are defined as poverty areas. Poverty levels are presented in Table T.1-14, Population below Poverty Level in the Southern California Region, 2013–2017.

Table T.1-13. Minority Population Distribution in the Southern California Region in 2017

Areas	Total Population	Races							Hispanic or Latino Origin	White, Not 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			
Los Angeles County	10,105,722	51.8%	8.2%	0.7%	14.5%	0.3%	20.8%	3.8%	48.4%	26.5%	73.5%
Orange County	3,155,816	62.1%	1.7%	0.5%	19.7%	0.3%	11.8%	3.9%	34.2%	41.4%	58.6%
Riverside County	2,355,002	61.6%	6.3%	0.8%	6.3%	0.3%	20.2%	4.5%	48.0%	36.6%	63.4%
San Bernardino County	2,121,220	61.9%	8.4%	0.8%	6.9%	0.3%	17.0%	4.7%	52.3%	29.8%	70.2%
San Diego County	3,283,665	70.8%	5.0%	0.6%	11.7%	0.4%	6.3%	5.1%	33.4%	46.2%	53.8%
Ventura County	847,834	79.9%	1.7%	0.8%	7.2%	0.2%	5.8%	4.4%	42.3%	46.1%	53.9%
Southern California Region	21,869,259	61.9%	6.6%	0.7%	13.5%	0.3%	17.0%	4.4%	46.1%	35.3%	64.7%
STATE OF CALIFORNIA	37,982,847	60.6%	5.8%	0.7%	14.1%	0.4%	13.7%	4.7%	38.8%	37.9%	62.1%

Source: U.S. Census 2019a.

^a Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, with the total for White Alone, Not Hispanic subtracted from the total population.

^b The potential of double counting exists as there may be individuals who identify as of Hispanic and Latino origin and of a certain race.

Table T.1-14. Population below Poverty Level in the Southern California Region, 2013–2017

Areas	Total Population ^a	Population Below Poverty Level	Percent of Population Below Poverty Level
Los Angeles County	9,955,473	1,688,505	17.0%
Orange County	3,118,517	378,459	12.1%
Riverside County	2,319,994	362,215	15.6%
San Bernardino County	2,062,499	374,810	18.2%
San Diego County	3,203,134	427,031	13.3%
Ventura County	836,494	85,816	10.3%
Southern California Region	21,496,111	3,316,836	15.4%
STATE OF CALIFORNIA	38,242,946	5,773,408	15.1%

Source: U.S. Census 2019b.

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

T.2 Evaluation of Alternatives

This section describes the technical background for the evaluation of environmental consequences associated with the No Action Alternative and the action alternatives.

T.2.1 Methods and Tools

This analysis considers changes in factors that affect environmental justice or minority and low-income populations, specifically, related to changes in CVP and SWP operations under the action alternatives compared to the No Action Alternative.

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

The following criteria were used to evaluate the impacts to minority and low-income populations resulting from the operational changes following the implementation of each of the alternatives compared to the No Action Alternative:

- Whether there is or would be an impact that results in a disproportionately high and adverse human health and environmental impact, including social and economic effects, on environmental justice populations.
- Whether the environmental effects may have an adverse impact on environmental justice populations that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group.
- Whether the environmental effects occur or would occur in an environmental justice population affected by cumulative or multiple adverse exposures from environmental hazards.

Adverse impacts to other environmental resources may have disproportionate effects on minority or low-income populations and are analyzed in this technical appendix. Impacts found to have beneficial effects or no adverse effects on minority or low-income populations are not discussed.

This analysis evaluates if the effects would be disproportionately high on the minority and low-income populations. Potential adverse effects were evaluated with regard to water supply and regional economics, particularly agricultural employment. Program-level effects, including habitat restoration effects and construction effects, are also considered.

T.2.2 No Action Alternative

Under the No Action Alternative, current CVP and SWP operations would continue and there would be no construction or health-related effects, changes to CVP and SWP water supply, or changes to agricultural employment as a result of CVP and SWP water supply in minority or low-income areas.

T.2.3 Alternative 1

T.2.3.1 *Project-Level Effects*

T.2.3.1.1 Potential Disproportionate Effects to Employment of Minority or Low-Income Populations

Alternative 1 would only have the potential to affect minority/low-income populations in the Central Coast Region. The other regions would have beneficial effects or be neutral.

Central Coast Region

Changes in CVP and SWP operations under Alternative 1 would increase water supply to municipal and industrial (M&I) users (including residents, businesses, and industries) in this region. However, the increase in water supply could result in a slight increase of water cost due to a minor increase in delivery and transfer costs for the additional CVP and SWP supply. As discussed in more detail in Appendix Q, *Regional Economics Technical Appendix*, the total M&I water cost for the region would increase by approximately \$37,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water cost would result in a decrease in spending. The decrease in spending, when distributed over regional industries, would result in a loss of one job in the service sector within the region.

Although Santa Barbara County is considered a minority area (minority populations accounting for more than 50% of the total county population), the loss of one job in the region would not be a disproportionate effect on minority/low-income populations.

T.2.3.2 Program-Level Effects

Habit restoration under Alternative 1 potentially could have health effects-related construction hazards and mosquito-borne diseases from increased habitat. Construction or operation and maintenance of any planned or underway CVP or SWP projects or any ongoing operations and maintenance activities requiring heavy equipment (e.g., front loaders, dump trucks, excavators, cranes) that uses hazardous materials (e.g., fuels, lubricants, solvents) could create a hazard to the public and environment through the accidental release of those hazardous materials.

In addition, the wetland and floodplain habitats restored under Alternative 1 could have the potential to create mosquito-breeding habitat. Tidal wetlands and floodplains provide habitat for mosquito breeding, especially in tidally influenced wetlands with slow moving water and floodplains after most of the water recedes. Depending on the areas in which these effects occur, minority or low-income populations who live or work near these areas might be disproportionately affected. However, as discussed in more detail in Appendix W, *Hazards and Hazardous Materials Technical Appendix*, applicable regulations and construction best management practices are in place to reduce potential effects.

T.2.4 Alternative 2

T.2.4.1 Project-Level Effects

Alternative 2 would not have project-level effects related to water supply and employment that would disproportionately affect minority/low-income populations.

T.2.4.2 Program-Level Effects

There are no program-level actions proposed under Alternative 2.

T.2.5 Alternative 3

T.2.5.1 Project-Level Effects

Alternative 3 would not have project-level effects related to water supply and employment that would disproportionately affect minority/low-income populations.

T.2.5.2 *Program-Level Effects*

Habit restoration under Alternative 3 could potentially have health effects related construction hazards and mosquito-borne diseases from increased habitat. Construction or operation and maintenance of any planned or underway CVP or SWP projects or any ongoing operations and maintenance activities requiring heavy equipment (e.g., front loaders, dump trucks, excavators, cranes) that uses hazardous materials (e.g., fuels, lubricants, solvents) could create a hazard to the public and environment through the accidental release of those hazardous materials.

In addition, the wetland and floodplain habitats restored under Alternative 3 could have the potential to create mosquito-breeding habitat. Tidal wetlands and floodplains provide habitat for mosquito breeding, especially in tidally influenced wetlands with slow moving water and floodplains after most of the water recedes. Depending on the areas in which these effects occur, minority or low-income populations who live or work near these areas might be disproportionately affected. However, as discussed in more detail in Appendix W, applicable regulations and construction best management practices are in place to reduce impacts to existing levels.

T.2.6 *Alternative 4*

T.2.6.1 *Project-Level Effects*

T.2.6.1.1 *Potential Disproportionate Effects to Employment of Minority or Low-Income Populations*

Sacramento Valley Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to municipal and industrial (M&I) and agricultural users in this region. As discussed in more detail in Appendix Q, decrease in M&I water supply to the region is expected to increase the total M&I water cost for the region by approximately \$137,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water rates would result in a decrease in spending. The decrease in spending, when distributed over regional industries, would result in a loss of less than one job across three job sectors (trade, service, and government). The loss of less than one job in the region would not be a disproportionate effect on minority/low-income populations.

Reduction in agricultural water supply to the region would result in a decrease of irrigated farmland and a decrease in productivity under dry and critical dry year types. This decrease in irrigated farmlands would affect individuals and businesses that support farming. IMPLAN modeling shows that this decrease in productivity would result in a loss of 75 agricultural jobs and 11 jobs across seven job sectors (mining, construction, manufacturing, transportation, information, power and utilities (TIPU), trade, service, and government). While the 11 jobs lost are not jobs predominately held by low-income/minority populations, most agricultural jobs are held by minority or low-income populations. Within the Sacramento Valley region, minority populations accounted for 50% or more of the total county population in Colusa and Sutter Counties, and Butte and Tehama Counties are considered poverty areas. Thus, the loss of agricultural jobs caused by changes in CVP and SWP operations could disproportionately affect minority or low-income communities in these counties. However, according to the U.S. Bureau of Labor Statistics, there were 4,960 farm workers in the Sacramento Valley Region in 2017 (U.S. Bureau of Labor Statistics 2019a). Therefore, the loss of 75 jobs would only represent approximately 1.51% of the total farm worker labor force.

San Joaquin Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to M&I and agricultural users in this region. As discussed in more detail in Appendix Q, decrease in M&I water supply to the region is expected to increase the total M&I water cost for the region by approximately \$1,211,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water rates could result in a decrease in spending. The decrease in spending, when distributed over regional industries, would result in a loss of five jobs across four job sectors (TIPU, trade, service, and government). However, jobs in these sectors are not predominantly held by minority/low-income populations. The loss of five jobs in the region would not be a disproportionate effect on minority/low-income populations.

Reduction in agricultural water supply to the region would result in a decrease of irrigated farmland in average and dry conditions (Average conditions refers to an average of all year types in the 81-year simulation period; dry conditions refer to an average of dry years only, using Sacramento River Index). This decrease in irrigated farmlands would affect individuals and businesses that support farming. IMPLAN modeling shows that this decrease irrigated farmlands and productivity would result in a loss of 125 agricultural jobs under average conditions and 271 under dry conditions. Minority populations accounted for 50% or more of the total county population in all San Joaquin Region counties. And Fresno, Kern, King, Madera, Merced, and Tulare Counties are defined as poverty areas. Since most agricultural jobs are held by minority or low-income populations, the loss of agricultural jobs caused by changes in CVP and SWP operations could disproportionately affect minority or low-income communities in these counties. However, according to the U.S. Bureau of Labor Statistics, there were 108,140 farm workers in the San Joaquin Valley Region in 2017 (U.S. Bureau of Labor Statistics 2019b). Therefore, the loss of 125 and 271 jobs would only represent approximately 0.12% and 0.25% of the total farm worker labor force.

Bay-Delta Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to M&I and agricultural users in this region. As discussed in more detail in Appendix Q, decrease in M&I water supply to the region is expected to increase the total M&I water cost for the region by approximately \$1,509,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water cost would result in a decrease in spending. The decrease in spending, when distributed over regional industries, would result in a loss of six jobs across four job sectors (trade, service, government, and TIPU). However, jobs in these sectors are not predominantly held by minority/low-income populations. Therefore, the loss of six jobs in the region would not be a disproportionate effect on minority/low-income populations.

Impacts to agricultural contractors in the Bay-Delta Region are included in the Sacramento and San Joaquin River Region analysis.

San Francisco Bay Area Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to M&I and agricultural users in this region. As discussed in more detail in Appendix Q, decrease in M&I water supply to the region is expected to increase the total M&I water cost for the region by approximately

\$3,242,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water cost would result in a decrease in spending. The decrease in spending, when distributed over region industries, would result in a loss of 13 jobs across six job sectors (construction, manufacturing, TIPU, trade, service, and government). However, jobs in these sectors are not predominantly held by minority/low-income populations. Therefore, the loss of 13 jobs in the region would not be a disproportionate effect on minority/low-income populations.

Under Alternative 4, average annual agricultural water supply deliveries are expected to decrease by 2,000 acre-feet per year (AFY) under average conditions and by 4,000 AFY under dry conditions in the San Francisco Bay Area Region. The decrease in agricultural water supply would result in a decrease in irrigated acreage and agricultural revenue in the region. This would have an adverse effect to agricultural jobs, which would disproportionately affect minority or low-income populations as agricultural jobs are mostly held by minority or low-income populations.

Central Coast Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to M&I users in this region. The decrease in M&I water supply to the region is expected to increase total M&I water cost for the region by approximately \$184,000. This increase in water supply costs could be passed on to water users through water rate increases. Water rate increases would be passed on to water users across the entire region and would not result in disproportionate effects to minority/low income populations. Furthermore, an increase in water cost would result in a decrease in spending. The decrease in spending, when distributed over region industries, would result in a loss of less than one job across three job sectors (trade, service, and government). However, jobs in these sectors are not predominantly held by minority/low-income populations. Therefore, the loss of less than one job in the region would not be a disproportionate effect on minority/low-income populations. The Central Coast Region does not have agricultural users.

Southern California Region

Changes in CVP and SWP operations under Alternative 4 would decrease water supply to M&I and agricultural users in this region. The decrease in M&I water supply to the region is expected to increase total M&I water cost for the region by approximately \$16,278,000. Furthermore, an increase in water cost would result in a decrease in spending. The decrease in spending, when distributed over region industries, would result in a loss of 51 jobs across six job sectors (construction, manufacturing, TIPU, trade, service, and government). However, jobs in these sectors are not predominantly held by minority/low-income populations. Therefore, the loss of 51 jobs in the region would not be a disproportionate effect on minority/low-income populations.

Under Alternative 4, average annual agricultural water supply deliveries are expected to decrease by 300 AFY under average conditions and by 500 AFY under dry conditions in the Southern California Region. The decrease in agricultural water supply would result in a decrease in irrigated acreage and agricultural revenue in the region. This would also have an adverse effect to agricultural jobs, which would disproportionately affect minority or low-income populations as agricultural jobs are mostly held by minority or low-income populations.

T.2.6.2 Program-Level Effects

Construction of water efficiency systems under Alternative 4 could potentially have health-related construction hazards. Construction or operation and maintenance of any planned or underway projects or any ongoing operations and maintenance activities requiring heavy equipment (e.g., front loaders, dump trucks, excavators, cranes) that uses hazardous materials (e.g., fuels, lubricants, solvents) could create a hazard to the public and environment through the accidental release of those hazardous materials. Depending on the areas in which these effects occur, minority or low-income populations who live or work near these areas might be disproportionately affected. However, as discussed in more detail in Appendix W, applicable regulations and construction best management practices are in place to reduce impacts to existing levels.

T.2.7 Mitigation Measures

No mitigation measures have been identified for the effects identified in this EIS.

T.2.8 Summary of Impacts

Table T.2-1, Impact Summary, includes a summary of impacts, the magnitude and direction of those impacts, and potential mitigation measures for consideration.

Table T.2-1. Impact Summary

Impact	Alternative	Magnitude and Direction of Impacts	Potential Mitigation Measures
Potential Disproportionate Effects to Minority or Low-Income Populations (Project-Level)	No Action	No overall impact on environmental justice	–
	1	No overall impact on environmental justice	–
	2	No overall impact on environmental justice	–
	3	No overall impact on environmental justice	–
	4	Potential disproportionate impact on minority or low-income populations in the Sacramento Valley Region, San Joaquin Region, San Francisco Bay Area Region and Southern California Region due to loss of agricultural jobs	–
Potential health effects related to construction hazards and mosquito-borne diseases (Program-Level)	No Action	No overall effect on environmental justice	–
	1	Potential disproportionate effect on minority or low-income populations that reside or work near habitat restoration areas in the Sacramento River Region,	–

Impact	Alternative	Magnitude and Direction of Impacts	Potential Mitigation Measures
		San Joaquin River Region, and Bay-Delta Region	
	2	No program-level actions proposed	–
	3	Potential disproportionate effect on minority or low-income populations that reside or work near habitat restoration areas in the Sacramento River Region, San Joaquin River Region, and Bay-Delta Region	–
	4	Potential disproportionate effect on minority or low-income populations that reside or work near water efficiency construction areas in the South of Delta Water Contractor Areas	–

T.2.9 Cumulative Effects

The No Action Alternative would not change CVP and SWP operations and would not affect minority or low-income populations by causing a reduction in agricultural employment or an increase in M&I water costs. Alternative 2 would not have project-level effects related to water supply and employment that would disproportionately affect minority/low-income populations. As such, the No Action Alternative and Alternative 2 are not evaluated further in this section.

Alternative 1 would also lead to a slight increase in M&I water costs and consequently service sector employment in the Central Coast Region and would affect communities with minority or low-income populations. Alternative 4 could lead to a reduction in agricultural employment in the San Joaquin Valley, Sacramento Valley, San Francisco Bay Area, and Southern California regions, which would affect minority or low-income populations.

The past, present, and reasonably foreseeable projects, described in Appendix Y, *Cumulative Methodology*, may have effects on minority or low-income populations. The cumulative projects include actions across California to develop new water storage capacity, new water conveyance infrastructure, new water recycling capacity, and the reoperation of existing water supply infrastructure, including surface water reservoirs and conveyance infrastructure. The cumulative projects also include ecosystem improvement and habitat restoration actions to improve conditions for special status species whose special status in many cases constrains water supply delivery operations.

In the short-term, the implementation of Alternatives 1, 3, and 4, resource management plans, restoration measures, and water efficiency measures could have cumulative construction impacts on minority or low-income populations in the surrounding area, especially if construction of multiple projects occur at the same time and in the same general area where minority or low-income population reside or work. Construction impacts could include air quality, noise, increased heavy vehicle traffic, and road and area closures, among other effects.

Collectively these cumulative projects would both benefit minority or low-income populations by improving water supply reliability or increasing agricultural productivity and jobs. These cumulative

projects could potentially adversely affect agriculture by increasing water flows for fish or acquiring agricultural land for habitat restoration, simultaneously decreasing water availability for agriculture. Since most agricultural jobs are held by minority or low-income populations, these projects could have cumulative impacts on minority or low-income populations; however, when compared to the land that would be affected by the other projects considered in this assessment, the contribution made by Alternatives 1 and 3 would not be considerable because few acres of farmland would be converted and those conversions would not be concentrated in any single portion of the study area. The action alternatives' contribution would not be substantial.

T.3 References

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