Long-Term Operation – Final Environmental Impact Statement

Appendix T – Environmental Justice Technical Appendix

November 2024

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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). New implementing regulations from the Council on Environmental Quality (CEQ), effective July 1, 2024, aim to facilitate more successful National Environmental Policy Act implementation and a more efficient environmental review process by setting clear deadlines for agencies to complete environmental reviews, establishing new requirements for lead and cooperating agencies, promoting early public engagement in project reviews, committing greater focus on environmental justice, promoting agency decision making grounded in science, and more (89 *Federal Register* 35442). This EIS's Notice of Intent was issued on February 28, 2022, prior to the issuance of these new implementing regulations (which were published on May 1, 2024). Therefore, the analysis in this EIS is conducted according to the previous CEQ implementing regulations (Council on Environmental Quality 1997) and relevant Executive Orders, as described in Section T.1.

T.1 Background Information

Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All, defines environmental justice as the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other federal activities that affect human health and the environment. Executive Order 14096 builds upon Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which 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 1997). Executive Order 12898 makes clear that its provisions apply fully to programs involving Native Americans.

CEQ established guidelines to assist federal agencies in the analysis of environmental justice (Council on Environmental Quality 1997). 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 U.S. Census Bureau designates geographical areas with poverty rates at and above 20% as "poverty areas" (Bishaw et al. 2020). This criterion is used in this evaluation 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 populations could be affected by implementation of the alternatives.

The availability of CVP and SWP water supplies also affects agricultural productivity and employment. The majority of crop workers in California are Spanish-speaking (approximately 92%) and are immigrants (approximately 90%) (Cha and Collins 2022).

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 Bureau 2017–2021 American Community Survey (ACS) 5-year population estimate, the Trinity River Region had a total population of 180,487 (U.S. Census Bureau 2023a). About 29% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-1 shows the minority population distribution for the individual counties within the Trinity River Region and for the State of California. Minority populations accounted for less than 50% of each county's total population, and of the total Trinity River Region population; thus, these counties do not meet the criteria for minority populations under CEQ guidance.

Table T-1. Minority Population Distribution in Trinity River Region in 2021

Area	Total Population (individuals)	Race							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	27,655	69.4%	3.0%	6.8%	3.0%	0.2%	8.0%	9.8%	20.5%	60.1%	39.9%
Humboldt County	137,014	76.3%	1.3%	4.3%	3.2%	0.3%	4.9%	9.7%	12.3%	72.1%	27.9%
Trinity County	15,818	82.4%	0.6%	3.2%	2.1%	0.2%	7.2%	4.3%	7.5%	79.6%	20.4%
Region Total	**180,487**	**75.8%**	**1.5%**	**4.5%**	**3.0%**	**0.3%**	**5.6%**	**9.3%**	**13.1%**	**70.9%**	**29.1%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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.1.1.2 Poverty Levels

Poverty levels in the Trinity River Region are presented in Table T-2. Within the Trinity River Region, poverty status was determined for 174,223 individuals. Of these individuals, 34,912 (or 20.0%) were below the poverty level based on the 2021 ACS 5-year dataset (U.S. Census Bureau 2023b). The U.S. Census Bureau defines geographical areas with more than 20% of the population below the poverty level as "poverty areas;" thus, Humboldt and Trinity counties are defined as "poverty areas" and are subject to environmental justice evaluations.

Table T-2. Population below Poverty Level in Trinity River Region, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Del Norte County	24,770	4,284	17.3%
Humboldt County	133,833	27,116	20.3%
Trinity County	15,620	3,512	22.5%
Region Total	**174,223**	**34,912**	**20.0%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.

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

T.1.2 Sacramento Valley Region

The Sacramento Valley Region includes Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Plumas, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties. Solano County is also located within the Sacramento Valley; however, Solano County is discussed in Section T.1.4 as part of the San Francisco Bay Area Region.

T.1.2.1 Minority Populations

According to the 2021 ACS five-year dataset, the Sacramento Valley Region had a total population of 3,196,192 in 2021 (U.S. Census Bureau 2023a). Approximately 45% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-3 shows the minority population distribution for the individual counties within the Sacramento Valley Region and for the State of California. Although the minority population in the region as a whole accounted for less than 50% of the total region population, minority populations accounted for 50% or more of the total county population in Colusa, Sacramento, Sutter, and Yolo counties. Thus, these counties are further evaluated for environmental justice impacts.

Table T-3. Minority Population Distribution in the Sacramento Valley Region in 2021

Area	Total Population (individuals)	Race							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	217,884	77.8%	1.8%	1.1%	5.0%	0.3%	5.4%	8.5%	17.4%	70.3%	29.7%
Colusa County	21,780	68.8%	1.7%	1.3%	0.9%	0.1%	13.1%	14.1%	60.5%	34.0%	66.0%
El Dorado County	190,568	84.7%	0.9%	0.6%	5.0%	0.2%	2.8%	6.0%	13.3%	76.3%	23.7%
Glenn County	28,675	75.0%	0.6%	2.4%	3.5%	0.1%	13.3%	5.1%	42.9%	50.1%	49.9%
Nevada County	102,090	90.5%	0.4%	0.5%	1.2%	0.1%	1.2%	6.1%	9.8%	83.8%	16.2%
Placer County	400,330	77.8%	1.6%	0.5%	8.5%	0.2%	3.4%	8.0%	14.6%	70.3%	29.7%
Plumas County	19,631	88.6%	1.7%	1.9%	0.7%	0.1%	0.8%	6.1%	9.6%	82.6%	17.4%
Sacramento County	1,571,767	52.1%	9.7%	0.7%	16.9%	1.1%	8.9%	10.6%	23.8%	42.9%	57.1%
Shasta County	181,935	83.3%	1.1%	2.3%	3.3%	0.1%	2.6%	7.3%	10.7%	78.0%	22.0%
Sutter County	99,080	58.5%	1.9%	1.4%	16.4%	0.6%	8.2%	13.1%	31.9%	44.1%	55.9%
Tehama County	65,345	80.6%	0.9%	1.3%	1.8%	0.1%	6.7%	8.5%	26.3%	66.4%	33.6%
Yolo County	216,703	63.3%	2.6%	0.7%	14.5%	0.5%	6.6%	11.9%	32.1%	45.2%	54.8%
Yuba County	80,404	69.2%	3.6%	1.5%	7.2%	0.4%	6.2%	12.0%	29.5%	52.6%	47.4%
Region Total	**3,196,192**	**64.5%**	**5.6%**	**0.8%**	**12.0%**	**0.7%**	**6.7%**	**9.7%**	**21.8%**	**54.7%**	**45.3%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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-4, 12.9% of the population in the Sacramento Valley Region was below the poverty level (U.S. Census Bureau 2023b). Neither the region as a whole nor any of the counties within it are considered "poverty areas."

Table T-4. Population below Poverty Level in the Sacramento Valley Region, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Butte County	212,593	37,731	17.7%
Colusa County	21,585	2,807	13.0%
El Dorado County	188,914	16,394	8.7%
Glenn County	28,368	4,272	15.1%
Nevada County	100,880	10,567	10.5%
Placer County	396,956	27,629	7.0%
Plumas County	19,293	2,287	11.9%
Sacramento County	1,550,537	205,590	13.3%
Shasta County	178,903	25,365	14.2%
Sutter County	98,017	12,383	12.6%
Tehama County	64,517	11,597	18.0%
Yolo County	209,165	36,036	17.2%
Yuba County	78,774	11,939	15.2%
Region Total	**3,148,502**	**404,597**	**12.9%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.
[a] Population 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, San Joaquin, Stanislaus, and Tulare Counties.

T.1.3.1 Minority Populations

The San Joaquin Valley Region had a total population of 4,289,382 in 2021 (U.S. Census Bureau 2023a). About 69% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-5 shows the minority population distribution for the individual counties within the San Joaquin Valley Region and for the State of California. Minority populations accounted for 50% or more of the total county populations in all San Joaquin Valley Region counties. Thus, all counties in this region are further evaluated for environmental justice impacts.

Table T-5. Minority Population Distribution in San Joaquin Valley Region in 2021

Area	Total Population (individuals)	Race							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			
Fresno County	1,003,150	54.3%	4.5%	1.2%	10.7%	0.2%	15.9%	13.3%	54.0%	27.9%	72.1%
Kern County	905,644	62.3%	5.4%	1.0%	4.8%	0.1%	13.8%	12.6%	54.7%	32.2%	67.8%
Kings County	151,887	56.9%	6.6%	1.5%	3.9%	0.2%	18.9%	12.1%	55.5%	30.9%	69.1%
Madera County	156,304	55.0%	3.0%	1.4%	2.3%	0.1%	27.1%	11.2%	59.1%	32.4%	67.6%
Merced County	279,150	46.2%	2.9%	1.2%	7.5%	0.3%	33.7%	8.3%	61.2%	25.9%	74.1%
San Joaquin County	771,406	46.5%	7.0%	0.8%	16.5%	0.6%	11.9%	16.7%	42.3%	29.6%	70.4%
Stanislaus County	550,842	64.8%	3.0%	1.1%	5.8%	0.6%	11.4%	13.4%	47.9%	39.6%	60.4%
Tulare County	470,999	59.3%	1.7%	1.2%	3.7%	0.2%	20.3%	13.7%	65.8%	27.0%	73.0%
Region Total	**4,289,382**	**56.1%**	**4.5%**	**1.1%**	**8.3%**	**0.3%**	**16.3%**	**13.4%**	**53.3%**	**30.7%**	**69.3%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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-6, 17.7% of the San Joaquin Valley Region population was below the poverty level (U.S. Census Bureau 2023b). Because the population below poverty level in Fresno County exceeds 20% of the total population, Fresno County is considered a "poverty area" and is further evaluated for environmental justice impacts.

Table T-6. Population below Poverty Level in San Joaquin Valley, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Fresno County	985,123	198,793	20.2%
Kern County	874,826	169,289	19.4%
Kings County	137,175	22,449	16.4%

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Madera County	147,824	28,921	19.6%
Merced County	272,659	52,771	19.4%
San Joaquin County	753,690	101,951	13.5%
Stanislaus County	546,308	74,272	13.6%
Tulare County	464,801	91,866	19.8%
Region Total	**4,182,406**	**740,312**	**17.7%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.
[a] Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals.

T.1.4 San Francisco Bay Area Region

The San Francisco Bay Area Region includes Alameda, Contra Costa, Napa, San Benito, Santa Clara, and Solano counties that are within the CVP and SWP service areas.

T.1.4.1 Minority Populations

The San Francisco Bay Area Region had a total population of 5,420,354 in 2021 (U.S. Census Bureau 2023a). About 67% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-7 shows the minority population distribution for the individual counties within the San Francisco Bay Area Region and for the State of California. Minority populations accounted for 50% or more of the total populations in Alameda, Contra Costa, San Benito, Santa Clara, and Solano counties. Thus, these counties are further evaluated for environmental justice impacts.

Table T-7. Minority Population Distribution in the San Francisco Bay Area Region in 2021

Area	Total Population (individuals)	Race							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			
Alameda County	1,673,133	35.9%	10.2%	0.7%	31.6%	0.8%	11.8%	8.9%	22.4%	29.9%	70.1%
Contra Costa County	1,161,643	50.0%	8.6%	0.7%	17.8%	0.5%	11.7%	10.7%	26.2%	41.6%	58.4%
Napa County	138,795	67.0%	2.1%	0.8%	7.8%	0.2%	12.5%	9.7%	34.7%	51.0%	49.0%
San Benito County	63,329	62.7%	1.0%	1.3%	3.1%	0.2%	12.3%	19.5%	60.9%	32.3%	67.7%

Area	Total Population (individuals)	Race							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			
Santa Clara County	1,932,022	39.0%	2.5%	0.6%	38.1%	0.3%	9.8%	9.6%	25.1%	29.9%	70.1%
Solano County	451,432	48.5%	13.4%	0.7%	15.6%	0.9%	9.9%	10.9%	27.5%	36.3%	63.7%
Region Total	**5,420,354**	**42.2%**	**7.1%**	**0.7%**	**28.7%**	**0.6%**	**10.9%**	**9.9%**	**25.4%**	**33.5%**	**66.5%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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-8, 2017–2021, 7.9% of the San Francisco Bay Area Region population was below the poverty level (U.S. Census Bureau 2023b). None of the counties in the San Francisco Bay Area Region are defined as "poverty areas."

Table T-8. Population below Poverty Level in the San Francisco Bay Area Region, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Alameda County	1,646,476	146,763	8.9%
Contra Costa County	1,152,417	94,523	8.2%
Napa County	135,811	10,394	7.7%
San Benito County	62,921	4,875	7.7%
Santa Clara County	1,901,844	126,551	6.7%
Solano County	440,522	39,020	8.9%
Region Total	**5,339,991**	**422,126**	**7.9%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.

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

T.1.5 Central Coast Region

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

T.1.5.1 Minority Populations

The Central Coast Region had a total population of 730,422 in 2021 (U.S. Census Bureau 2023a). 47.6% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-9 shows the minority population distribution for the individual counties within the Central Coast Region and for the State of California. Specifically, minority populations accounted for 50% or more of the total population of Santa Barbara County; thus, Santa Barbara County is further evaluated for environmental justice impacts.

Table T-9. Minority Population Distribution in the Central Coast Region in 2021

Area	Total Population (individuals)	Race							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			
San Luis Obispo County	282,771	79.9%	1.5%	0.8%	3.6%	0.1%	4.5%	9.6%	23.2%	67.3%	32.7%
Santa Barbara County	447,651	65.9%	1.9%	1.2%	5.5%	0.1%	11.3%	14.1%	46.4%	43.0%	57.0%
Region Total	**730,422**	**71.3%**	**1.7%**	**1.1%**	**4.8%**	**0.1%**	**8.7%**	**12.3%**	**37.4%**	**52.4%**	**47.6%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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.1.5.2 Poverty Levels

As shown in Table T-10, 12.9% of the Central Coast Region population was below the poverty level (U.S. Census Bureau 2023b). None of the counties in the Central Coast Region are considered “poverty areas.”

Table T-10. Population below Poverty Level in the Central Coast Region, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
San Luis Obispo County	267,267	32,077	12.0%
Santa Barbara County	426,632	57,269	13.4%
Region Total	**693,899**	**89,346**	**12.9%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.
[a] Population numbers are only those for whom poverty status was determined and exclude institutionalized individuals.

T.1.6 South Coast Region

The South Coast Region includes Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties, portions of which are served by the SWP.

T.1.6.1 Minority Populations

The South Coast Region had a total population of 21,924,532 in 2021 (U.S. Census Bureau 2023a). About 68% of this population identified themselves as a racial minority and/or of Hispanic or Latino origin, regardless of race. Table T-11 shows the minority population distribution for the individual counties within the South Coast Region and for the State of California. Minority populations accounted for 50% or more of the total county populations in all six counties of this region. Thus, all counties within the South Coast Region are further evaluated for environmental justice impacts.

Table T-11. Minority Population Distribution in the South Coast Region in 2021

Area	Total Population (individuals)	Race							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			
Los Angeles County	10,019,635	43.7%	7.9%	1.0%	14.8%	0.2%	22.0%	10.4%	48.7%	25.5%	74.5%
Orange County	3,182,923	53.6%	1.7%	0.6%	21.3%	0.3%	12.9%	9.5%	34.0%	39.0%	61.0%
Riverside County	2,409,331	51.2%	6.5%	0.8%	6.8%	0.3%	23.1%	11.3%	50.3%	33.2%	66.8%
San Bernardino County	2,171,071	50.7%	8.0%	1.1%	7.5%	0.3%	19.9%	12.4%	54.6%	26.6%	73.4%

Area	Total Population (individuals)	Race							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			
San Diego County	3,296,317	62.0%	4.9%	0.8%	12.0%	0.4%	8.1%	11.9%	34.3%	44.1%	55.9%
Ventura County	845,255	70.1%	1.8%	1.1%	7.3%	0.2%	6.9%	12.5%	43.3%	44.1%	55.9%
Region Total	**21,924,532**	**50.4%**	**6.2%**	**0.9%**	**13.4%**	**0.3%**	**17.9%**	**10.8%**	**45.0%**	**31.9%**	**68.1%**
State Total	**39,455,353**	**52.1%**	**5.7%**	**0.9%**	**14.9%**	**0.4%**	**15.3%**	**10.7%**	**39.5%**	**35.8%**	**64.2%**

Source: U.S. Census Bureau 2023a.

[a] Total Minority is the aggregation of all non-white racial groups with the addition of all Hispanics, regardless of race, not counting people who are white and not Hispanic or Latino. The calculation is performed by subtracting the White, not Hispanic or Latino Origin group 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.1.6.2 Poverty Levels

As shown in Table T-12, 12.5% of the South Coast Region population was below the poverty level (U.S. Census Bureau 2023b). None of the counties in the South Coast Region are considered "poverty areas."

Table T-12. Population below Poverty Level in the South Coast Region, 2017–2021

Area	Total Population [a]	Population Below Poverty Level	
		Total	Percentage
Los Angeles County	9,861,892	1,366,544	13.9%
Orange County	3,145,848	311,294	9.9%
Riverside County	2,369,118	283,249	12.0%
San Bernardino County	2,117,955	302,798	14.3%
San Diego County	3,213,232	344,458	10.7%
Ventura County	832,745	73,740	8.9%
Region Total	**21,540,790**	**2,682,083**	**12.5%**
State Total	**38,701,352**	**4,741,175**	**12.3%**

Source: U.S. Census Bureau 2023b.

[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 conditions forecast under the No Action Alternative. This section details methods and tools used to evaluate these effects.

The CEQ guidance provides the following three factors to be considered for determination of whether disproportionately high and adverse impacts may occur to minority or low-income populations. These three factors 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 when 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 exceed or are 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.

This analysis evaluates if the effects identified 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. Generally, potential changes in water supply under each alternative were determined using the CalSim 3 reservoir-river basin planning model. Regional economic effects were evaluated using the California Water Economics Spreadsheet Tool (CWEST), Statewide Agricultural Production (SWAP), and Impact Planning and Analysis (IMPLAN) modeling. More detailed descriptions of the methods and tools used to evaluate water supply and economic impacts are provided in Appendix H, *Water Supply Technical Appendix,* and Appendix Q, *Regional Economics Technical Appendix,* respectively. As described in more detail in Appendix Q, *Regional Economics Technical Appendix,* the CWEST modeling was completed using the regions described in Section T.1 (i.e., Sacramento Valley, San Joaquin Valley, San Francisco Bay Area, Central Coast, and South Coast Regions). The regions analyzed in the SWAP modeling are the same as those described in Section T.1, with one exception: Solano County was included in the Sacramento Valley Region in the SWAP modeling instead of in the San Francisco Bay Region, as presented in Section T.1.4.

T.2.2 No Action Alternative

Under the No Action Alternative, the U.S. Department of the Interior (DOI), Bureau of Reclamation (Reclamation) would continue with current operation of the CVP, as described in the 2020 Record of Decision and subject to the 2019 Biological Opinions. The 2020 Record of Decision for the CVP and the 2020 Incidental Take Permit for the SWP represent current management direction or intensity pursuant to 43 Code of Federal Regulations § 46.30. The 2020 Record of Decision did not identify environmental justice impacts.

The No Action Alternative is based on 2040 conditions. Changes that would occur over that time frame without implementation of the action alternatives are not analyzed in this technical appendix. However, the impacts on environmental justice that are assumed to occur by 2040 under the No Action Alternative are summarized in this section.

Conditions in 2040 would be different than existing conditions because of the following factors:

- Climate change and sea-level rise
- General plan development throughout California, including increased water demands in portions of the Sacramento Valley

By the end of September, the surface water elevations at CVP reservoirs generally decline, It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack in the winter and early spring months. The reservoirs would be full more frequently by the end of April or May by 2040 than in recent historical conditions. However, as the water is released in the spring, there would be less snowpack to refill the reservoirs. This condition would reduce reservoir storage, which may result in reduced water availability and subsequent impacts on the industries and minority and/or low-income populations that rely on the water.

Under the No Action Alternative, land uses in 2040 would occur in accordance with adopted general plans. Development under the general plans could affect the availability of jobs associated with agriculture and M&I water uses and groundwater resources, depending on the type and location of development.

The No Action Alternative would also rely upon increased use of Livingston-Stone National Fish Hatchery during droughts to increase production of winter-run Chinook salmon. However, this component requires no physical changes to the facility nor operational changes to water supply that could affect minority and/or low-income populations.

T.2.3 Alternative 1

T.2.3.1 Potential Disproportionate Economic Effects on Minority or Low-Income Populations

Trinity River Region

There are no municipal and industrial (M&I) CVP or SWP water service contractors in the Trinity River Region; therefore, there would be no changes to CVP and SWP M&I water supply deliveries and no associated impacts on water cost for water users in the region. Similarly, there

are no agricultural lands within this region that are irrigated with CVP and SWP water; thus, there would be no changes in irrigated lands and no economic impacts on the agriculture industry in the region from the implementation of Alternative 1. As described in Appendix S*, Recreation Technical Appendix*, changes to water elevation in Trinity Lake compared to the No Action Alternative are expected to be negligible. Thus, Alternative 1 would not result in adverse effects on recreational visitation and recreational revenue and would not be expected to result in adverse effects on the regional economy or employment opportunities associated with the recreation industry in the Trinity River region.

Sacramento Valley Region

Changes in CVP and SWP operations under Alternative 1 would increase water supplies delivered to M&I water contractors within the region. As described in more detail in Appendix Q*, Regional Economics Technical Appendix,* the increase in M&I water supplies is expected to reduce the average annual water supply costs by $115,000 compared to the No Action Alternative. It is expected that the reduced water supply costs would be passed on, at least in part, to water users; therefore, water rates could be slightly lower under Alternative 1 than under the No Action Alternative. As detailed in Appendix Q, *Regional Economics Technical Appendix*, the reduction in water rates in this region would result in a negligible increase in disposable income and discretionary spending. Alternative 1 may result in a $23,923 increase in labor income, with $18,384 of that increase occurring in the services sector. Less than one job would be created within the region, spread between two sectors (trade and service). Service jobs are not considered to be held primarily by minority and/or low-income populations. As described in Section T.1.2.2, none of the counties within the Sacramento Valley region are considered "poverty areas." Because the potential for effects of Alternative 1 on water rates and discretionary spending are expected to be negligible, this alternative would have no effect on minority/low-income populations.

Changes in CVP and SWP operations under Alternative 1 would increase the average annual agricultural water supply delivered to the region, which would increase the irrigated acreage under average and dry conditions. However, as detailed in Appendix Q*, Regional Economics Technical Appendix,* Alternative 1 could increase grain farming but reduce fruit and vegetable farming, resulting in a reduction in gross agricultural revenue despite the increased water supply during average conditions. IMPLAN modeling shows that this decrease in gross revenue would result in a loss of approximately 79 agricultural jobs and 8 jobs across seven other job sectors (mining; construction; manufacturing; transportation, information, power, and utilities [TIPU]; trade; service; and government) during average conditions. However, during dry conditions, approximately 49 agricultural jobs and 13 jobs across six other job sectors (construction, manufacturing, TIPU, trade, service, and government) are expected to be created. While the jobs that would be lost or gained in the other sectors (not including agriculture) are primarily within the services sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. Within the Sacramento Valley Region, minority populations account for 50% or more of the total county

populations in Colusa, Sacramento, Solano[1], Sutter, and Yolo Counties. Thus, the loss of agricultural jobs caused by changes in the CVP and SWP operations during average conditions could disproportionately affect minority communities in these counties. However, according to the California Employment Development Department (EDD), there were 4,900 farm worker positions held in the Sacramento Valley region[2] in March 2023 (California Employment Development Department 2023a). Therefore, the loss of agricultural jobs under this alternative would only represent approximately 1.6% of the total farm worker labor force during average conditions. Because jobs could be created during dry conditions, there is potential for an approximately 1.0% increase in the total farm worker labor force during dry conditions. Overall, these labor force changes would be expected to have a limited overall effect on minority and/or low-income populations in the region that would not be disproportionate.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 1 is expected to result in minor (+/- 0 to 2 feet) changes in groundwater elevations in portions of the Sacramento Valley. It is possible that even a minor decrease in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the Sacramento Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. Because this alternative would not require significant additional groundwater pumping, it is unlikely that Alternative 1 would cause additional subsidence compared to the No Action Alternative, as described further in Appendix I, Groundwater Technical Appendix.

San Joaquin Valley Region

Changes to CVP and SWP operations under Alternative 1 would increase the water supply delivered to M&I water contractors in the San Joaquin Valley Region. As described in Appendix Q*, Regional Economics Technical Appendix,* this increase in M&I water supply is expected to reduce the average annual water supply costs by approximately $12.5 million compared to the No Action Alternative. Consequently, water rates are expected to be lower than under the No Action Alternative, which may result in increased disposable income and discretionary spending. Reduced water rates would benefit all water users within the region; however, water users in Fresno County, a "poverty area," may benefit even more from a reduction in their water costs. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Alternative 1 may result in the creation of approximately 41 jobs, with the majority (approximately 30) of those jobs being created in the services sector. Alternative 1 may also result in a total increase in labor income of approximately $1.9 million, with over $1.4 million of that increase occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations,

[1] Although Solano County is presented as part of the San Joaquin Valley Region (Section T.1.3), SWAP modeling includes Solano County in the Sacramento Valley since Solano County's contribution to the agricultural industry is more similar to the Sacramento Valley Region counties than to the San Joaquin Valley Region counties.

[2] The EDD considers the Sacramento Valley Region to include the following counties in California: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Yolo, and Yuba (California Employment Development Department 2023a).

the expected minor increase in jobs and/or labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) has the potential to have minor beneficial effects on workers in those sectors within the region.

Alternative 1 is expected to increase average annual agricultural water supply deliveries within the San Joaquin Valley Region, which would increase the irrigated acreage within the region during average and dry conditions. These increases in irrigated acreage are expected to increase the gross agricultural revenue in the region, benefiting businesses and individuals that support farming activities. IMPLAN modeling shows that this increase in irrigated farmlands and productivity would result in the creation of approximately 3,280 agricultural jobs and 671 jobs across seven other job sectors (mining, construction/utilities, manufacturing, TIPU, trade, service, and government) during average conditions and approximately 2,940 agricultural jobs and 783 jobs across seven other sectors (same as those mentioned previously) during dry conditions. As described in Section T.1, most agricultural jobs are held by minority and/or low-income populations. As described in Section T.1.3.1, minority populations occur within all counties within the San Joaquin Valley Region. Thus, the creation of agricultural jobs under this alternative may have minor beneficial effects on the populations within these counties. According to the EDD, there were 70,200 farm worker positions held in the San Joaquin Valley region[3] in March 2023 (California Employment Development Department 2023b). Therefore, Alternative 1 would result in a 4.7% increase in the total farm worker labor force during average conditions and a 4.2% increase in the total farm worker labor force during dry conditions.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 1 is expected to result in minor (+/- 0 to 2 feet) changes in groundwater elevations throughout most of the San Joaquin Valley Region, and larger (up to 50-foot) increases in groundwater elevations in the western portions of Fresno and Kings counties. It is possible that even a minor decrease (i.e., 0 to 2 feet) in groundwater elevation throughout portions of the San Joaquin Valley could reduce water availability at certain private wells; however, the locations and depths of existing wells in the San Joaquin Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. Because this alternative would not require significant additional groundwater pumping, it is unlikely that Alternative 1 would cause additional subsidence compared to the No Action Alternative, as described further in Appendix I, *Groundwater Technical Appendix.* The larger increases in groundwater elevations within Fresno and Kings counties would increase access to groundwater through private wells in those areas, which could have minor benefits for the well owners, including minority and/or low-income well owners.

[3] The EDD considers the San Joaquin Valley Region to include the following counties in California: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne (California Employment Development Department 2023b).

San Francisco Bay Area Region

Changes in CVP and SWP operations under Alternative 1 would increase the water supply delivered to M&I water contractors in the San Francisco Bay Area Region. As described in Appendix Q*, Regional Economics Technical Appendix*, this increase in M&I water supply is expected to reduce the average annual water supply costs by approximately $34.1 million compared to the No Action Alternative. Consequently, water rates are expected to be lower than under the No Action Alternative, which may result in increased disposable income and discretionary spending. As described in Section T.1.4.2, none of the counties within the San Francisco Bay Area region are considered "poverty areas." Nonetheless, a reduction in water costs within the region would benefit all water users, especially localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Alternative 1 may result in the creation of approximately 105 jobs, with the majority (approximately 81) of those jobs being created in the services sector. Alternative 1 may also result in a total increase in labor income of approximately $7.4 million, with over $5.8 million of that increase occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increase in labor income within other sectors (agriculture, construction, TIPU, manufacturing, trade, and government) has the potential to benefit any workers in those sectors within the region and would not result in a disproportionately adverse effect on minority/low-income populations.

Alternative 1 is expected to increase average annual agricultural water supply deliveries in the San Francisco Bay Area Region, which could increase the irrigated acreage and agricultural revenues in this region. This could have a beneficial effect on the region's economy, resulting in an increase in agricultural jobs and/or the income of agricultural workers, which could have minor beneficial effects on minority and/or low-income populations.

Central Coast Region

Changes in CVP and SWP operations under Alternative 1 would increase the water supply delivered to M&I water contractors in the Central Coast Region. As described in Appendix Q, *Regional Economics Technical Appendix*, this increase in M&I water supply is expected to reduce the average annual water supply costs by approximately $2.2 million compared to the No Action Alternative. Consequently, water rates are expected to be lower than under the No Action Alternative, which may result in increased disposable income and discretionary spending. As described in Section T.1.5.2, none of the counties within the Central Coast Region are considered "poverty areas." Nonetheless, a reduction in water costs within the region would benefit all water users, especially localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Alternative 1 may result in a total increase in labor income of $437,018, with $345,144 of that increase occurring in the services sector. This alternative may result in the creation of up to 9 jobs, with 7 of them being created in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority and/or low-income populations, this expected minor increase in jobs and labor income within other sectors (agriculture, construction, TIPU, trade, and government) has the potential to benefit workers within those sectors in the region and would not result in a disproportionately adverse effect on minority/low-income populations.

CVP and SWP water supplies affected by Alternative 1 are predominantly delivered to M&I water contractors in this region. Therefore, there would be no changes in irrigated lands under Alternative 1 and no effects on the regional economy or employment opportunities associated with the agricultural industry in the Central Coast Region.

As described in Appendix I, *Groundwater Technical Appendix,* Alternative 1 may result in increases in groundwater pumping, which could reduce groundwater levels. Decreases in groundwater elevation could adversely affect groundwater pumping wells, including domestic wells owned by minority and/or low-income populations; however, the exact location and depth of all domestic wells throughout the Central Coast Region is not known, and therefore this impact cannot be quantified. As described in Appendix W, *Geology and Soils Technical Appendix,* the Central Coast Region is not known to be susceptible to subsidence.

South Coast Region

Changes in CVP and SWP operations under Alternative 1 would increase the water supply delivered to M&I water contractors in the South Coast Region. As described in Appendix Q Regional Economics Technical Appendix, this increase in M&I water supply is expected to reduce the average annual water supply costs by approximately $274.3 million compared to the No Action Alternative. Consequently, water rates are expected to be lower than under the No Action Alternative, which may result in increased disposable income and discretionary spending. As described in Section T.1.6.2, none of the counties within the South Coast Region are considered "poverty areas." Nonetheless, a reduction in water costs within the region would benefit all water users, especially localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. As detailed in Appendix Q, Regional Economics Technical Appendix, Alternative 1 may result in the creation of approximately 1,353 jobs, with the majority (approximately 1,046) of those jobs being created in the services sector. Alternative 1 may also result in a total increase in labor income of approximately $76 million, with over $59 million of that increase occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in job availability and labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to benefit any workers in those sectors within the region.

Implementation of Alternative 1 is expected to increase average annual agricultural water supply deliveries within the South Coast Region, which could result in an increase in irrigated acreage and agricultural revenues in the region. This could have a beneficial effect on the region's economy, resulting in an increase in agricultural jobs and/or the income of agricultural workers, which could result in negligible to minor benefit to minority populations.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 1 is expected to increase groundwater pumping and therefore decrease groundwater levels. However, any decreases in groundwater levels are expected to be minor. It is possible that even a minor decrease in groundwater elevation throughout portions of the South Coast Region could reduce water availability at certain private wells; however, the locations and depths of existing wells in the South Coast Region are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated

changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. The South Coast Region is not known to be susceptible to subsidence, as described in Appendix I, *Groundwater Technical Appendix,* and Appendix W, *Geology and Soils Technical Appendix.*

T.2.3.2 Potential Disproportionate Effects on Health of Minority or Low-Income Populations

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 use hazardous materials (e.g., fuels, lubricants, solvents) could create a hazard to the public and environment through the accidental release of those hazardous materials. No additional construction work is required under Alternative 1. Thus, no adverse effects related to human health, including minority and low-income populations, from construction or operations and maintenance work are expected to occur under Alternative 1.

As described in Appendix V, *Hazards and Hazardous Materials Technical Appendix,* Alternative 1 would require chemical weed control and algae treatments involving the use of toxic herbicides at Clifton Court Forebay. However, these weed control and algae treatments would comply with relevant conditions required in the General Pesticide Permit issued for the work, and the same activities would be implemented under the No Action Alternative. Thus, no adverse effects related to human health, including minority and low-income populations, would result from these treatments under Alternative 1.

As detailed in Appendix S, *Recreation Technical Appendix*, and Appendix V, *Hazards and Hazardous Materials Technical Appendix,* Alternative 1 is not expected to substantially reduce reservoir levels in the study area. Alternative 1 is not expected to impair firefighting abilities in the study area; therefore, there would be no adverse effects on the population, including minority and low-income populations, within the study area.

T.2.4 Alternative 2

Multiple phases make up Alternative 2: the Without Temporary Urgency Change Petition (TUCP) Delta Voluntary Agreements (VA) phase, the Without TUCP and Without VA phase, the Without TUCP and With Systemwide VA phase, and the With TUCP and Without VA phase. Alternative 2 may include a combination of these phases, although the With TUCP and Without VA phase would only be implemented as a safeguard during drought. The effects analysis presented in this section reports as a range, the potential impacts (maximum and minimum) that could result from the implementation of the different phases included in this alternative.

T.2.4.1 Potential Disproportionate Economic Effects on Minority or Low-Income Populations

Trinity River Region

As described in the *Trinity River Region* subsection under Section T.2.3.1, there are no M&I or agricultural CVP or SWP water service contractors in the Trinity River Region; therefore, there would be no impacts on the region's economy related to changes in M&I or agricultural water supply deliveries. However, as described in Appendix S, *Recreation Technical Appendix*, and

Appendix Q, *Regional Economic Technical Appendix*, the average elevation of Trinity Reservoir would range from slightly lower to slightly higher compared to the No Action Alternative by approximately one foot throughout the year. The minimum elevations of Trinity Reservoir, under all phases of Alternative 2 would remain similar to the No Action Alternative from January through March. From April through November, all phases of Alternative 2 would have a lower minimum elevation compared to the No Action Alternative, except for Alternative 2 With TUCP Without VA, which would have higher minimum water levels by up to eleven feet. In December, Alternative 2 With TUCP Without VA and Alternative 2 Without TUCP Systemwide VA would have higher minimum elevations compared to the No Action Alternative, while the other Alternative 2 phases would be similar to or slightly higher than the No Action Alternative. Under all Alternative 2 phases, minimum water elevations from September through November would be at or below 2,170, making the Minersville boat ramp unusable. In August, the minimum water elevation under Alternative 2 Without TUCP and With Delta VA, would be four feet below the No Action Alternative and may be less than 2,170 feet, making the Minersville boat ramp unusable.

When Trinity Reservoir falls below 2,170 feet and boat ramps on the lake become unusable, recreational visitation is expected to be reduced by up to 27%. A closure of recreational facilities at Trinity Reservoir and the associated reduction in recreational visitation to Trinity National Forest could have adverse effects on the County's economy by reducing the County's revenue. Reduced revenue resulting from decreased recreation visitation could result in a reduction in labor income or jobs. Affected jobs would likely include park staff, retail workers, hotel staff, and more. As described in Section T.1.1.2, Trinity County is considered a "poverty area." Therefore, a reduction in jobs and/or labor income within the tourism industry in the county could have disproportionately high and adverse effects on low-income populations.

Sacramento Valley Region

Changes in CVP and SWP operations under Alternative 2 range from a decrease in water supplies delivered to M&I water contractors within the region under with TUCP without VA, to no change under Alternative 2 without TUCP without VA, to increases under Alternative 2 without TUCP with Delta and Systemwide VA, As described in more detail in Appendix Q, *Regional Economics Technical Appendix*, there would be a reduction in water supply costs under all four Alternative 2 phases except TUCP with Systemwide VA, ranging from a reduction of $4.5 million (under the without TUCP with Delta VA phase) to an increase of approximately $1.6 million (under the without TUCP with Systemwide VA phase) compared to the No Action Alternative. It is expected that the reduced water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 2 than under the No Action Alternative. The reduction in water rates in this region may result in increased disposable income and discretionary spending. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. New jobs would be created under Alternative 2, ranging from a minimum of 6 jobs lost (under the without TUCP and with systemwide VA phase) and a maximum of 17 jobs created (under the without TUCP and without Delta VA phase). At least 75% of the new jobs created (under any phase) would be in the services industry. Additionally, Alternative 2 would result in increases in labor income, ranging from a minimum loss of 328,263 (under the without TUCP and without VA phase) to a maximum increase of $930,911 (under the without TUCP and with Delta VA phase). At least 75% of the total labor income (under any phase) would occur in the services industry. Although jobs within

the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in job availability and labor income within other sectors (agriculture, construction, manufacturing, TIPU, trade, and government) have the potential to have minor beneficial effects for all workers in those sectors within the region.

Changes in CVP and SWP operations under Alternative 2 would decrease the average annual agricultural water supply delivered to the region under all four phases, which would decrease the irrigated acreage under average and dry conditions. Changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities, such as farm workers, fertilizer and chemical dealers, wholesale and agricultural service providers, truck transport, and others involved in crop production and processing. As presented in Appendix Q, *Regional Economic Technical Appendix*, IMPLAN modeling shows that the decrease in gross revenue expected under Alternative 2 during long-term average conditions would result in the loss of up to 110 agricultural jobs and up to 14 jobs across six other job sectors (construction/utilities, manufacturing, TIPU, trade, service, and government) under the Without TUCP Systemwide VA phase, or an increase in up to 15 agricultural jobs and up to 8 jobs across the six other job sectors (same as those previously listed) under the With TUCP Without VA phase. During dry conditions, a minimum of approximately 47 agricultural jobs would be lost (under the Without TUCP and with Delta VA phase) and a maximum of approximately 102 agricultural jobs would be lost (under the Without TUCP and Without VA phase). During those dry conditions, a minimum of approximately 7 jobs across the six other job sectors (same as those mentioned previously) would be lost (under the Without TUCP and with Delta VA phase) and a maximum of 16 jobs across those other sectors would be lost (under the Without TUCP and Without Delta VA phase). As described in the *Sacramento Valley Region* subsection under Section T.2.3.1, there were 4,900 farm worker positions held in the Sacramento Valley region[4] in March 2023 (California Employment Development Department 2023a). Therefore, in long-term average conditions, this alternative could result in an approximately 0.3% increase in the total farm worker labor force, under the With TUCP Without VA phase, or an up to approximately 2.2% decrease in the total farm worker labor force during average conditions under the Without TUCP Systemwide VA phase. During dry conditions Alternative 2 would generate, at a minimum, an approximately 1.0% decrease in the total farm worker labor force under the Without TUCP and with Delta VA phase and a maximum decrease of 2.1% under the Without TUCP and Without VA phase. While the jobs that would be lost or gained in the other sectors (not including agriculture) are primarily within the services sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. Within the Sacramento Valley Region, minority populations account for 50% or more of the total county populations in Colusa, Sacramento, Solano[5], Sutter, and Yolo Counties. Thus, the loss of agricultural jobs and, to a lesser degree, the jobs within other sectors, caused by changes in the CVP and SWP operations under all phases of

[4] The EDD considers the Sacramento Valley Region to include the following counties in California: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Yolo, and Yuba (California Employment Development Department 2023a).

[5] Although Solano County is presented as part of the San Joaquin Valley Region (Section T.1.3), SWAP modeling includes Solano County in the Sacramento Valley since Solano County's contribution to the agricultural industry is more similar to the Sacramento Valley Region counties than to the San Joaquin Valley Region counties.

Alternative 2 could have disproportionately high and adverse effects on minority populations and localized populations of low-income people in these counties and throughout the region.

As described in Appendix I, *Groundwater Technical Appendix*, most phases of Alternative 2 are expected to result in minor increases (up to 2 feet) and minor decreases (up to 10 feet) in groundwater elevations in portions of the Sacramento Valley. Larger decreases (up to 25 feet) in groundwater elevation may occur in Glenn and Colusa counties under the Without TUCP Without VA phase, Without TUCP with Delta VA and Without TUCP and with Systemwide VA, as shown in Section I.2.4 in Appendix I. It is possible that these potential decreases in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the Sacramento Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Colusa County contains a minority population. Because the greatest risk of decreased water availability occurs within Colusa County, this alternative could have disproportionately high and adverse effects on the minority population in Colusa County, as they may be required to take on additional economic burdens to deepen their existing wells or pay for water from a different source. The areas in the Sacramento Valley that may experience groundwater elevation decreases are known to be susceptible to subsidence, and further reductions in groundwater levels may cause additional subsidence. As described in Appendix I, *Groundwater Technical Appendix,* and Appendix W, *Geology and Soils Technical Appendix,* the location and amount of subsidence are highly dependent on local soil conditions and historical low groundwater levels. If localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure, imparting a financial burden on homeowners to pay for repairs. However, since it is not possible to predict the exact location and amount of subsidence, it is not possible to quantify this impact.

San Joaquin Valley Region

Changes in CVP and SWP operations under Alternative 2 would increase M&I water supplies delivered to contractors in the San Joaquin Valley Region under all phases. As described in more detail in Appendix Q, *Regional Economics Technical Appendix*, there would be a reduction in water supply costs under all four Alternative 2 phases except TUCP with Systemwide VA, ranging from a reduction of $3.7 million (under the with TUCP without VA phase) to an increase of approximately $3.6 million (under the without TUCP with Systemwide VA phase) compared to the No Action Alternative. It is expected that the reduced water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 2 than under the No Action Alternative. Reduced water rates would benefit all water users within the region; however, water users in Fresno County, a "poverty area," may benefit even more from a reduction in their water costs. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. The change in jobs under Alternative 2 will range from 12 jobs lost (under the without TUCP and with systemwide VA phase) to a maximum of 124 jobs created (under the with TUCP and VA phase). Approximately 70% of the new jobs created (under any phase) would be in the services industry. Additionally, Alternative 2 would result in changes in labor income, ranging from a minimum loss of $559,090 (under the without TUCP and with systemwide VA phase) to a maximum increase of $571,300 (under the with TUCP and VA phase). At least 70% of the total labor income (under any phase) would occur in the services industry. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in

labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to have negligible to minor beneficial effects for all workers in those sectors within the region.

Changes in CVP and SWP operations under Alternative 2 would decrease the average annual agricultural water supply to the region under all four phases, which would decrease the irrigated acreage under average and dry conditions. Changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities. As presented in Appendix Q, *Regional Economic Technical Appendix*, IMPLAN modeling shows that the four phases of Alternative 2 would have a wide range of impacts on employment, especially in the agricultural sector. Alternative 2 could result in the loss of up to 1,322 agricultural jobs and up to 431 jobs across six other job sectors (construction/utilities, manufacturing, TIPU, trade, service, and government) under the Without TUCP and with Delta VA phase, or an increase of up to 379 agricultural jobs and up to 54 jobs across the six other job sectors (same as those previously listed) under the With TUCP and Without VA phase. During dry conditions, a minimum of 566 agricultural jobs would be lost (under the With TUCP and Without VA phase) and a maximum of approximately 1,369 agricultural jobs would be lost (under the Without TUCP and with Delta VA phase). During those dry conditions, a minimum of approximately 214 across the six other job sectors (same as those mentioned previously) would be lost (under the With TUCP and Without Delta VA phase) and a maximum of 485 across those other sectors would be lost (under the Without TUCP and with Delta VA phase). As described in the *San Joaquin Valley Region* subsection under Section T.2.3.1, there were 70,200 farm worker positions held in the San Joaquin Valley region[6] in March 2023 (California Employment Development Department 2023b). Therefore, in average conditions, this alternative may result in a decrease of up to 1.9% in the total farm worker labor force under the Without TUCP and with Delta VA phase, or an up to approximately 0.5% increase in the total farm worker labor force under the With TUCP and Without Delta VA phase. During dry conditions Alternative 2 would generate, at a minimum, an approximately 0.8% decrease in the total farm worker labor force under the under the With TUCP and Without VA phase and a maximum decrease of 2.0% under the Without TUCP and with Delta VA phase. While the jobs that would be lost or gained in the other sectors (not including agriculture) are primarily within the services sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. As described in Section T.1.3.1, the populations within all counties in the San Joaquin Valley Region are at least 50% minority populations, and Fresno County is considered a "poverty area." Thus, the loss of agricultural jobs and, to a lesser degree, the jobs within other sectors, caused by changes in the CVP and SWP operations under all phases of Alternative 2 could have disproportionately high and adverse effects on minority and low-income populations throughout the region.

As described in Appendix I, *Groundwater Technical Appendix*, most phases of Alternative 2 are expected to result in minor increases (up to two feet) and minor decreases (up to ten feet) in groundwater elevations in portions of the San Joaquin Valley. Larger decreases (up to 25 feet) in

[6] The EDD considers the San Joaquin Valley Region to include the following counties in California: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne (California Employment Development Department 2023b).

groundwater elevation may occur in Fresno, Merced, and Kings counties under the Without TUCP Without VA, Without TUCP Delta VA phase, and Without TUCP Systemwide VA as shown in Section I.2.4 in Appendix I. It is possible that these potential decreases in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the San Joaquin Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. All three of these counties contain minority and/or low-income populations. Because the greatest risk of decreased water availability occurs within these counties, this alternative could have disproportionately high and adverse effects on minority and/or low-income populations, as they may be required to take on additional economic burdens to deepen their existing wells or pay for water from a different source. The areas in the San Joaquin Valley that may experience groundwater elevation decreases are known to be susceptible to subsidence, and further reductions in groundwater levels may cause additional subsidence. As described in Appendix I, *Groundwater Technical Appendix,* and Appendix W, *Geology and Soils Technical Appendix,* the location and amount of subsidence are highly dependent on local soil conditions and historical low groundwater levels. If localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure, imparting a financial burden on homeowners to pay for repairs. However, since it is not possible to predict the exact location and amount of subsidence, it is not possible to quantify this impact.

San Francisco Bay Area Region

Changes in CVP and SWP operations under Alternative 2 would increase M&I water supplies delivered to contractors in the San Francisco Bay Area Region under all phases. As described in more detail in Appendix Q, *Regional Economics Technical Appendix*, there would be a reduction in water supply costs under two of the Alternative 2 phases except TUCP with Systemwide VA, and without TUCP and without VA, ranging from a reduction of $5.7 million (under the without TUCP with Delta VA phase) to an increase of approximately $4.2 million (under the without TUCP with Systemwide VA phase) compared to the No Action Alternative. It is expected that the reductions or increases in water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower or higher under Alternative 2 than under the No Action Alternative. As described in Section T.1.4.2, none of the counties within the San Francisco Bay Area Region are considered “poverty areas.” Nonetheless, changes in water costs within the region would benefit or impact all water users, including localized populations of low-income water users within the region. The four phases of Alternative 2 could result in a range of impacts on labor income and employment. A maximum of 18 jobs could be created under the without TUCP Delta VA phase; however, a maximum of 13 jobs could be lost under the without TUCP Systemwide VA phase. Similarly, total labor income could increase by a maximum of approximately $1.2 million under the without TUCP Delta VA phase; however, total labor income could decrease by a maximum of $908,750 under the without TUCP and with systemwide VA. Most of the potential for employment and labor income decreases and increases identified with these changes in M&I water supply deliveries would occur in the services sector. The expected minor increases in labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to have small effects on any workers in those sectors within the region. Although job losses could adversely affect minority and/or low-income individuals, these effects are not expected to be

disproportionately high and adverse since the majority of individuals that would be affected by job losses are workers in the service sector.

Implementation of the Alternative 2 phases is expected to decrease average annual agricultural water supply deliveries in the San Francisco Bay Area region, as described in Appendix Q, *Regional Economics Technical Appendix*. This reduction in water supply deliveries could decrease the irrigated acreage and agricultural revenues in the region, resulting in a loss of agricultural jobs and/or a decrease in the income of agricultural workers, which could result in disproportionately high and adverse effects on minority and/or low-income populations.

Central Coast Region

Changes in CVP and SWP operations under Alternative 2 would increase M&I water supplies delivered to contractors in the Central Coast Region under all phases. As described in more detail in Appendix Q, *Regional Economics Technical Appendix*, there would be a reduction in water supply costs under all four Alternative 2 phases except without TUCP with Systemwide VA, ranging from a reduction of $373,000 (under the without TUCP with Delta VA phase) to an increase of approximately $281,000 (under the without TUCP with Systemwide VA phase) compared to the No Action Alternative. It is expected that the reduced water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 2 than under the No Action Alternative. The reduction in water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.5.2, none of the counties within the Central Coast Region are considered "poverty areas." Nonetheless, a reduction in water costs within the region would benefit all water users, especially localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Approximately one job would be created in the services sector under all phases of Alternative 2 except for Alternative 2 without TUCP systemwide VA where one service job would be lost. The four phases of Alternative 2 could result in a range of impacts on labor income which could increase by a maximum of approximately $74,160 under the without TUCP and without VA phase; however, total labor income could decrease by a maximum of $55,870 under the without TUCP and with systemwide VA. These increases would primarily affect the services sector. The expected minor increases in labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to have negligible to minor beneficial effects for all workers within the region.

As described in the *Central Coast Region* subsection under Section T.2.3.1, there are no agricultural lands with CVP and SWP water supplies in the Central Coast Region. Therefore, there would be no changes in irrigated lands under Alternative 2 and no effects on the regional economy or employment opportunities associated with the agricultural industry in the Central Coast Region.

As described in Appendix I, *Groundwater Technical Appendix,* Alternative 2 may result in increases in groundwater pumping, which could reduce groundwater levels. Decreases in groundwater elevation could adversely affect groundwater pumping wells, including domestic wells owned by minority and/or low-income populations; however, the exact location and depth of all domestic wells throughout the Central Coast Region is not known, and therefore this

impact cannot be quantified. As described in Appendix W, *Geology and Soils Technical Appendix,* the Central Coast Region is not known to be susceptible to subsidence.

South Coast Region

Changes in CVP and SWP operations under Alternative 2 would increase M&I water supplies delivered to contractors in the South Coast Region under all phases. As described in more detail in Appendix Q, *Regional Economics Technical Appendix*, there would be a reduction in water supply costs under all four Alternative 2 phases except TUCP with Systemwide VA, ranging from a reduction of $30.3 million (under the without TUCP with Delta VA phase) to an increase of approximately $28.2 million (under the without TUCP with Systemwide VA phase) compared to the No Action Alternative. It is expected that the reduced water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 2 than under the No Action Alternative. The reduction in water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.6.2, none of the counties within the Central Coast Region are considered "poverty areas." Nonetheless, a reduction in water costs within the region would benefit all water users, including localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. The four phases of Alternative 2 could result in a range of impacts on labor income and employment. A maximum of 149 jobs could be created under the without TUCP Delta VA phase; however, a maximum of 139 jobs could be lost under the without TUCP Systemwide VA phase. Similarly, total labor income could increase by a maximum of approximately $8.4 million under the without TUCP Delta VA phase; however, total labor income could decrease by a maximum of $7.8 million under the without TUCP and with systemwide VA The largest increases in labor income (under any phase) would occur in the services industry. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, The expected minor increases in labor income within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to have minor beneficial effects for all workers in those sectors within the region.

All four phases of Alternative 2 are expected to have negligible effects on average annual agricultural deliveries in the South Coast Region. Therefore, effects of Alternative 2 on the agricultural economy or job availability would be negligible.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 2 is may result in increases in groundwater pumping and therefore decrease groundwater levels. However, decreases in groundwater levels are expected to be minor. It is possible that even a minor decrease in groundwater elevation throughout portions of the South Coast Region could reduce water availability at certain private wells; however, the locations and depths of existing wells in the South Coast Region are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. As described in Appendix W, *Geology and Soils Technical Appendix,* the South Coast Region is not known to be susceptible to subsidence.

T.2.4.2 Potential Disproportionate Effects on Health of Minority or Low-Income Populations

As described in Section T.2.3.2 for Alternative 1, no construction work is required under Alternative 2. Thus, no adverse effects related to human health, including minority and low-income populations, from construction or operations and maintenance work are expected to occur under Alternative 2.

As described in Section T.2.3.2 for Alternative 1, any chemical weed control and algae treatments conducted under Alternative 2 would comply with relevant conditions required in the General Pesticide Permit issued for the work, and the same activities would be implemented under the No Action Alternative. Thus, no adverse effects related to human health, including minority and low-income populations, would result from these treatments under Alternative 2.

As described in Section T.2.3.2 for Alternative 1, Alternative 2 is not expected to substantially reduce reservoir levels in the study area or impair firefighting abilities in the study area; therefore, there would be no adverse effects on the population, including minority and low-income populations, within the study area.

T.2.5 Alternative 3

T.2.5.1 Potential Disproportionate Economic Effects on Minority or Low-Income Populations

Trinity River Region

As described in the *Trinity River Region* subsection under Section T.2.3.1, there are no M&I or agricultural CVP or SWP water service contractors in the Trinity River Region; therefore, there would be no impacts on the region's economy related to changes in M&I or agricultural water supply deliveries. As described in Appendix S, *Recreation Technical Appendix*, average water elevations in Trinity Reservoir would be slightly higher (by two to four feet) under Alternative 3 than under the No Action Alternative. Thus, Alternative 3 could have minor benefits on camping, day-use opportunities at the campground surrounding Trinity Reservoir, and recreational fishing access.

Sacramento Valley Region

Changes in CVP and SWP operations under Alternative 3 would reduce water supplies delivered to M&I water contractors within the region. As described in more detail in Appendix Q*, Regional Economics Technical Appendix,* the decrease in M&I water supplies delivered is expected to increase the average annual water supply costs by $7.1 million compared to the No Action Alternative. It is expected that the higher water supply costs would be passed on, at least in part, to water users; therefore, water rates could be higher under Alternative 3 than under the No Action Alternative. The increased water rates in this region may result in decreased disposable income and discretionary spending. As described in Section T.1.2.2, none of the counties within the Sacramento Valley region are considered "poverty areas." Nonetheless, an increase in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, decreases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 3 may result in an approximately $1.5 million decrease in labor income, with over $1.1 million of that

decrease occurring in the services sector. Alternative 3 may also result in the loss of approximately 27 jobs, approximately 19 of which would be lost from the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, construction, TIPU, manufacturing, trade, and government) have the potential to result in minor impacts for workers in those sectors within the region. No disproportionately high and adverse effects on minority and/or low-income populations are expected.

Changes in CVP and SWP operations under Alternative 3 would decrease the average annual agricultural water supply delivered to the region, which would decrease the irrigated acreage under average and dry conditions. As detailed in Appendix Q*, Regional Economics Technical Appendix,* changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities. IMPLAN modeling shows that Alternative 3 is expected to result in a loss of approximately 543 agricultural jobs and 60 jobs across seven other job sectors (mining, construction/utilities, manufacturing, TIPU, trade, service, and government) during average conditions. During dry conditions, approximately 684 agricultural jobs and 101 jobs across seven other job sectors (same as those mentioned previously) are expected to be lost. While the jobs that would be lost or gained in the other sectors (not including agriculture) are primarily within the services sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. According to the EDD, there were 4,900 farm worker positions held in the Sacramento Valley region[7] in March 2023 (California Employment Development Department 2023a). Therefore, the loss of agricultural jobs under this alternative would represent approximately 11.1% of the total farm worker labor force during average conditions and approximately 14.0% of the total farm worker labor force during dry conditions. Within the Sacramento Valley Region, minority populations account for 50% or more of the total county populations in Colusa, Sacramento, Solano[8], Sutter, and Yolo Counties. Thus, the loss of agricultural jobs caused by changes in the CVP and SWP operations could have disproportionately high and adverse effects on minority populations and localized populations of low-income people in these counties and throughout the region.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 3 is expected to result in minor decreases (up to 10 feet) in groundwater elevations in most of the Sacramento Valley. Larger decreases (up to 50 feet) in groundwater elevation may occur in Glenn and Colusa counties, as shown in Section I.2.5 in Appendix I. It is possible that these potential decreases in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the Sacramento Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Colusa County contains a minority population. Because the greatest risk of decreased water availability

[7] The EDD considers the Sacramento Valley Region to include the following counties in California: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Yolo, and Yuba (California Employment Development Department 2023a).

[8] Although Solano County is presented as part of the San Joaquin Valley Region (Section T.1.3), SWAP modeling includes Solano County in the Sacramento Valley since Solano County's contribution to the agricultural industry is more similar to the Sacramento Valley Region counties than to the San Joaquin Valley Region counties.

occurs within Colusa County, this alternative could have disproportionately high and adverse effects on the minority population in Colusa County, as they may be required to take on additional economic burdens to deepen their existing wells or pay for water from a different source. The areas in the Sacramento Valley that may experience groundwater elevation decreases are known to be susceptible to subsidence, and further reductions in groundwater levels may cause additional subsidence. As described in Appendix I, Groundwater Technical Appendix, and Appendix W, Geology and Soils Technical Appendix, the location and amount of subsidence are highly dependent on local soil conditions and historical low groundwater levels. If localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure, imparting a financial burden on homeowners to pay for repairs. However, since it is not possible to predict the exact location and amount of subsidence, it is not possible to quantify this impact.

San Joaquin Valley Region

Changes in CVP and SWP operations under Alternative 3 would reduce water supplies delivered to M&I water contractors within the San Joaquin Valley Region. As described in more detail in Appendix Q*, Regional Economics Technical Appendix,* the decrease in M&I water supplies delivered is expected to increase the average annual water supply costs by approximately $17.3 million compared to the No Action Alternative. It is expected that the higher water supply costs would be passed on, at least in part, to water users; therefore, water rates could be higher under Alternative 3 than under the No Action Alternative. Increased water rates would adversely affect all water users within the region; however, water users in Fresno County, a "poverty area," may experience disproportionately high and adverse effects from the increased water rates, since even small rate increases are expected to infringe on a higher percentage of these users' incomes compared to other users' incomes. The increased water rates in this region may also result in decreased disposable income and discretionary spending. Decreases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 3 may result in an approximately $2.6 million decrease in labor income, with over $1.9 million of that decrease occurring in the services sector. Alternative 3 may also result in the loss of approximately 57 jobs, approximately 41 of which would be lost from the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in minor impacts for any workers in those sectors within the region. No disproportionately high and adverse effects on minority and/or low-income populations are expected.

Changes in CVP and SWP operations under Alternative 3 would decrease the average annual agricultural water supply delivered to the region, which would decrease the irrigated acreage and gross revenue under average and dry conditions. As detailed in Appendix Q*, Regional Economics Technical Appendix,* changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities. IMPLAN modeling shows that Alternative 3 is expected to result in a loss of 11,366 agricultural jobs and approximately 3,038 jobs across seven other job sectors (mining, construction/utilities, manufacturing, TIPU, trade, service, and government) during average conditions. During dry conditions, approximately 8,215 agricultural jobs and 2,457 jobs across seven other job sectors (same as those mentioned previously) are expected to be lost. While the jobs that would be lost in the seven other sectors

are primarily within the service sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. According to the EDD, there were 70,200 farm worker positions held in the San Joaquin Valley region[9] in March 2023 (California Employment Development Department 2023b). Therefore, Alternative 3 would result in an approximately 16.2% reduction in the total farm worker labor force during average conditions and an approximately 11.7% reduction in the total farm worker labor force during dry conditions. As described in Section T.1.3.1, minority populations are present within all counties within the San Joaquin Valley Region. Thus, the loss of agricultural jobs caused by changes in the CVP and SWP operations could have disproportionately high and adverse effects on minority populations and localized populations of low-income people in these counties and throughout the region.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 3 is expected to result in minor decreases (up to 10 feet) in groundwater elevations in the eastern portions of the San Joaquin Valley. Larger decreases (up to 200 feet) in groundwater elevation may occur in the western portions of Fresno, Merced, and Kings counties, and decreases of up to 50 feet may occur in Stanislaus, San Joaquin, and Kern counties, as shown in Section I.2.5 in Appendix I. It is possible that these potential decreases in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the San Joaquin Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Minority and/or low-income populations are present throughout the entire San Joaquin Valley Region. Because the risk of decreased water availability within most of the region is significant under this alternative, this alternative could have disproportionately high and adverse effects on minority and/or low-income populations, as they may be required to take on additional economic burdens to deepen their existing wells or pay for water from a different source. The areas in the San Joaquin Valley that may experience groundwater elevation decreases are known to be susceptible to subsidence, and further reductions in groundwater levels may cause additional subsidence. As described in Appendix I, *Groundwater Technical Appendix,* and Appendix W, *Geology and Soils Technical Appendix,* the location and amount of subsidence are highly dependent on local soil conditions and historical low groundwater levels. If localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure, imparting a financial burden on homeowners to pay for repairs. However, since it is not possible to predict the exact location and amount of subsidence, it is not possible to quantify this impact.

San Francisco Bay Area Region

Changes in CVP and SWP operations under Alternative 3 would reduce water supply delivered to M&I water contractors in the San Francisco Bay Area Region. As described in Appendix Q, *Regional Economics Technical Appendix*, this decrease in M&I water supply is expected to increase the average annual water supply costs by approximately $26.5 million compared to the No Action Alternative. It is expected that the higher water supply costs would be passed on, at least in part, to water users; therefore, water rates could be higher under Alternative 3 than under

[9] The EDD considers the San Joaquin Valley Region to include the following counties in California: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne (California Employment Development Department 2023b).

the No Action Alternative. The increased water rates in this region may result in decreased disposable income and discretionary spending. As described in Section T.1.4.2, none of the counties within the San Francisco Bay Area region are considered "poverty areas." Nonetheless, an increase in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, decreases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 3 may result in the loss of approximately 82 jobs, with the majority (approximately 63) of those jobs being lost from the services sector. Alternative 3 may also result in a total decrease in labor income of approximately $5.8 million, with over $4.4 million of that decrease occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in minor impacts for all workers within the region. No disproportionately high and adverse effects on minority and/or low-income populations are expected.

Alternative 3 is expected to decrease average annual agricultural water supply deliveries in the San Francisco Bay Area Region, which could decrease the irrigated acreage and agricultural revenues in this region, resulting in a loss of agricultural jobs and/or a decrease in the income of agricultural workers, which could result in disproportionately high and adverse effects on minority and/or low-income populations.

Central Coast Region

Changes in CVP and SWP operations under Alternative 3 would reduce water supply delivered to M&I water contractors in the Central Coast Region. As described in Appendix Q*, Regional Economics Technical Appendix*, this decrease in M&I water supply is expected to increase the average annual water supply costs by approximately $4.3 million compared to the No Action Alternative. It is expected that the higher water supply costs would be passed on, at least in part, to water users; therefore, water rates could be higher under Alternative 3 than under the No Action Alternative. The increased water rates in this region may result in decreased disposable income and discretionary spending. As described in Section T.1.5.2, none of the counties within the Central Coast region are considered "poverty areas." Nonetheless, an increase in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, decreases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 3 may result in the loss of approximately 18 jobs, with the majority (approximately 14) of those jobs being lost from the services sector. Alternative 3 may also result in a total decrease in labor income of $852,150, with over $673,000 of that decrease occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in minor impacts for all workers in those sectors within the region. No disproportionately high and adverse effects on minority and/or low-income populations are expected.

As described in the *Central Coast Region* subsection under Section T.2.3.1, there are no agricultural lands with CVP and SWP water supplies in the Central Coast Region. Therefore,

there would be no changes in irrigated lands under Alternative 3, and no effects on the regional economy or employment opportunities associated with the agricultural industry in the Central Coast Region.

As described in Appendix I, *Groundwater Technical Appendix,* Alternative 3 may result in increases in groundwater pumping, which could reduce groundwater levels. Decreases in groundwater elevation could adversely affect groundwater pumping wells, including domestic wells owned by minority and/or low-income populations; however, the exact location and depth of all domestic wells throughout the Central Coast Region is not known, and therefore this impact cannot be quantified. As described in Appendix W, *Geology and Soils Technical Appendix,* the Central Coast Region is not known to be susceptible to subsidence.

South Coast Region

Changes in CVP and SWP operations under Alternative 3 would reduce water supply delivered to M&I water contractors in the South Coast Region. As described in Appendix Q*, Regional Economics Technical Appendix*, this decrease in M&I water supply is expected to increase the average annual water supply costs by approximately $1.1 billion compared to the No Action Alternative. It is expected that the higher water supply costs would be passed on, at least in part, to water users; therefore, water rates could be higher under Alternative 3 than under the No Action Alternative. The increased water rates in this region may result in decreased disposable income and discretionary spending. As described in Section T.1.6.2, none of the counties within the South Coast Region are considered "poverty areas." Nonetheless, an increase in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, decreases in disposable income and discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 3 may also result in a total decrease in labor income of approximately $308 million, with over $239 million of that decrease occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in minor impacts for all workers in those sectors within the region. No disproportionately high and adverse effects on minority and/or low-income populations are expected.

Alternative 3 is expected to decrease average annual agricultural water supply deliveries in the South Coast Region, which could decrease the irrigated acreage and agricultural revenues in this region. This could decrease the irrigated acreage and agricultural revenues in the region, resulting in a loss of agricultural jobs and/or a decrease in the income of agricultural workers, which could result in disproportionately high and adverse effects on minority and/or low-income populations.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 3 is expected to increase groundwater pumping and therefore decrease groundwater levels. However, decreases in groundwater levels are expected to be minor. It is possible that even a minor decrease in groundwater elevation throughout portions of the South Coast Region could reduce water availability at certain private wells; however, the locations and depths of existing wells in the South Coast Region are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in

groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. As described in Appendix W, *Geology and Soils Technical Appendix,* the South Coast Region is not known to be susceptible to subsidence.

T.2.5.2 Potential Disproportionate Effects on Health of Minority or Low-Income Populations

As described in Section T.2.3.2 for Alternative 1, no construction work is required under Alternative 3. Thus, no adverse effects related to human health, including minority and low-income populations, from construction or operations and maintenance work are expected to occur under Alternative 3.

As described in Section T.2.3.2 for Alternative 1, any chemical weed control and algae treatments conducted under Alternative 3 would comply with relevant conditions required in the General Pesticide Permit issued for the work, and the same activities would be implemented under the No Action Alternative. Thus, no adverse effects related to human health, including minority and low-income populations, would result from these treatments under Alternative 3.

As described in Section T.2.3.2 for Alternative 1, Alternative 3 is not expected to substantially reduce reservoir levels in the study area or impair firefighting abilities in the study area; therefore, there would be no adverse effects on the population, including minority and low-income populations, within the study area.

T.2.6 Alternative 4

T.2.6.1 Potential Disproportionate Economic Effects on Minority or Low-Income Populations

Trinity River Region

As described in the *Trinity River Region* subsection under Section T.2.3.1, there are no M&I or agricultural CVP or SWP water service contractors in the Trinity River Region; therefore, there would be no impacts on the region's economy related to changes in M&I or agricultural water supply deliveries. As described in Appendix S, *Recreation Technical Appendix*, average water elevations in Trinity Reservoir would be similar to or slightly higher (by up to two feet) under Alternative 4 than under the No Action Alternative. Thus, Alternative 4 could have negligible impacts on camping, day-use opportunities at the campground surrounding Trinity Reservoir, and recreational fishing access. These negligible impacts would not result in adverse effects on recreational visitation and recreational revenue; therefore, there would be no adverse effects on the regional economy or employment opportunities associated with the recreation industry in the Trinity River region.

Sacramento Valley Region

Changes in CVP and SWP operations under Alternative 4 would reduce water supplies delivered to M&I water contractors within the region. As described in more detail in Appendix Q*, Regional Economics Technical Appendix,* M&I water supplies deliveries are expected to remain the same, and average annual water supply costs are expected to decrease by $137,000 compared to the No Action Alternative. It is expected that the lower water supply costs would be passed on, at least

in part, to water users; therefore, water rates could be lower under Alternative 4 than under the No Action Alternative. The decreased water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.2.2, none of the counties within the Sacramento Valley region are considered "poverty areas." Nonetheless, a decrease in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 4 may result in a $28,500 increase in labor income, with over $21,900 of that increase occurring in the services sector. Alternative 4 may also result in the gain of less than 1 services sector job and less than 1 job spread across seven other job sectors (agriculture, mining, construction, manufacturing, TIPU, trade, and government). Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor decreases in job availability and labor income within other sectors have the potential to result in negligible to minor benefits for all workers in those sectors within the region.

Changes in CVP and SWP operations under Alternative 4 would increase the average annual agricultural water supply delivered to the region under average conditions and decrease the average annual deliveries under dry conditions. Thus, Alternative 4 is expected to result in increases in irrigated acreage and gross revenue under average conditions and a decrease in irrigated acreage and gross revenue under dry conditions. As detailed in Appendix Q*, Regional Economics Technical Appendix,* changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities. IMPLAN modeling shows that Alternative 4 is expected to result in the creation of approximately 102 agricultural jobs and 20 jobs across six other job sectors (construction/utilities, manufacturing, TIPU, trade, service, and government) during average conditions. During dry conditions, approximately 104 agricultural jobs and 28 jobs across six other job sectors (same as those mentioned previously) are expected to be created. While the jobs that would be created in the six other sectors are primarily within the service sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. According to the EDD, there were 4,900 farm worker positions held in the Sacramento Valley region[10] in March 2023 (California Employment Development Department 2023a). Therefore, Alternative 4 would result in an approximately 2.0% increase in the total farm worker labor force during average conditions and an approximately 2.1% increase in the total farm worker labor force during dry conditions. Within the Sacramento Valley Region, minority populations account for 50% or more of the total county populations in Colusa, Sacramento, Solano[11], Sutter, and Yolo Counties. Thus, the creation of agricultural jobs caused by changes in the CVP and SWP operations could have minor beneficial effects on minority populations and localized populations of low-income people in these counties and throughout the region.

[10] The EDD considers the Sacramento Valley Region to include the following counties in California: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Yolo, and Yuba (California Employment Development Department 2023a).

[11] Although Solano County is presented as part of the San Joaquin Valley Region (Section T.1.3), SWAP modeling includes Solano County in the Sacramento Valley since Solano County's contribution to the agricultural industry is more similar to the Sacramento Valley Region counties than to the San Joaquin Valley Region counties.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 4 is expected to result in minor (up to 2 feet) increases and minor (up to 10 feet) decreases in groundwater elevations in portions of the Sacramento Valley. It is possible that even a minor decrease in groundwater elevation could reduce water availability at certain private wells; however, the locations and depths of existing wells in the Sacramento Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. These relatively small decreases in groundwater levels are not expected to cause large amounts of additional subsidence compared to the No Action Alternative. However, if localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure. This would impart a financial burden on homeowners to pay for repairs.

San Joaquin Valley Region

Changes in CVP and SWP operations under Alternative 4 would increase water supplies delivered to M&I water contractors within the San Joaquin Valley Region. As described in more detail in Appendix Q*, Regional Economics Technical Appendix,* the increase in M&I water supplies delivered is expected to decrease the average annual water supply costs by approximately $1.4 million compared to the No Action Alternative. It is expected that the lower water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 4 than under the No Action Alternative. Decreased water rates would benefit all water users within the region; water users in Fresno County, a "poverty area," may benefit even more from a reduction in their water costs. The decreased water rates in this region may also result in increased disposable income and discretionary spending. Increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Alternative 4 may result in a $207,400 increase in labor income, with over $153,430 of that increase occurring in the services sector. Alternative 4 may also result in the creation of approximately 5 jobs, approximately 3 of which would be gained in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to result in negligible to minor benefits for all workers in those sectors within the region.

Under Alternative 4, the average annual agricultural water supply delivered in the region is expected to increase during average conditions and decrease during dry conditions. As detailed in Appendix Q*, Regional Economics Technical Appendix,* changes to irrigated acreage and agricultural revenue would affect businesses and individuals who support farming activities. IMPLAN modeling shows that Alternative 4 is expected to result in the creation of approximately 996 agricultural jobs and 189 jobs across seven other job sectors (mining, construction/utilities, manufacturing, TIPU, trade, service, and government) during average conditions. During dry conditions, approximately 62 agricultural jobs and 14 jobs across seven other job sectors (same as those mentioned previously) are expected to be lost. While the jobs that would be gained or lost in the seven other sectors are primarily within the service sector, which includes jobs that are not predominantly held by low-income/minority populations, most agricultural jobs are held by minority and/or low-income populations. According to the EDD,

there were 70,200 farm worker positions held in the San Joaquin Valley region[12] in March 2023 (California Employment Development Department 2023b). Therefore, Alternative 4 would result in an approximately 1.4% increase in the total farm worker labor force during average conditions and an less than 0.1% decrease in the total farm worker labor force during dry conditions. As described in Section T.1.3.1, minority populations are present within all counties within the San Joaquin Valley Region. Thus, the loss of agricultural jobs caused by changes in the CVP and SWP operations could have disproportionately high and adverse effects on minority populations and localized populations of low-income people in these counties and throughout the region.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 4 is expected to result in minor (+/- 0 to 10 feet) changes in groundwater elevations in portions of the San Joaquin Valley. It is possible that even a minor decrease in groundwater elevation throughout portions of the San Joaquin Valley could reduce water availability at certain private wells; however, the locations and depths of existing wells in the San Joaquin Valley are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. The minor increases in groundwater elevations that may occur could increase access to groundwater through private wells, which could have negligible benefits for the well owners, including minority and/or low-income well owners. The relatively small changes in groundwater levels anticipated under Alternative 4 are not expected to cause large amounts of additional subsidence compared to the No Action Alternative. However, if localized subsidence were to occur on properties owned by minority and/or low-income individuals, their homes and related infrastructure could be susceptible to damage or structural failure. This would impart a financial burden on homeowners to pay for repairs.

San Francisco Bay Area Region

Changes in CVP and SWP operations under Alternative 4 would increase the water supply delivered to M&I water contractors in the San Francisco Bay Area Region. As described further in Appendix Q*, Regional Economics Technical Appendix*, Alternative 4 is expected to decrease the average annual water supply costs by approximately $275,000 compared to the No Action Alternative. It is expected that the lower water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 4 than under the No Action Alternative. The decreased water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.4.2, none of the counties within the San Francisco Bay Area region are considered "poverty areas." Nonetheless, a decrease in water costs within the region would affect all water users, including localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced impacts within the region, primarily in the services sector. Alternative 4 may result in the gain of approximately 1 job, mostly in the services sector. Alternative 4 may also result in a total increase in labor income of $59,740, with over $46,500 of that increase occurring in the services sector. Although jobs within the services sector are not considered to be

[12] The EDD considers the San Joaquin Valley Region to include the following counties in California: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne (California Employment Development Department 2023b).

predominantly held by minority/low-income populations, the expected minor decreases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in negligible to minor benefits for all workers in those sectors within the region.

Alternative 4 is expected to increase average annual agricultural water supply deliveries in the San Francisco Bay Area Region, which could increase the irrigated acreage and agricultural revenues in this region, resulting in a gain of agricultural jobs and/or a gain in the income of agricultural workers, which could result in disproportionately high and beneficial effects on minority and/or low-income populations.

Central Coast Region

Changes in CVP and SWP operations under Alternative 4 would increase the water supply delivered to M&I water contractors in the Central Coast Region. As described in Appendix Q*, Regional Economics Technical Appendix*, this increase in M&I water supply is expected to decrease the average annual water supply costs by $617,000 compared to the No Action Alternative. It is expected that the lower water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 4 than under the No Action Alternative. The decreased water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.5.2, none of the counties within the Central Coast region are considered "poverty areas." Nonetheless, a decrease in water costs within the region would benefit all water users, including localized populations of low-income water users within the region. Additionally, increases in discretionary spending would result in induced benefits within the region, primarily in the services sector. Alternative 4 may result in the creation of approximately 3 jobs, mostly in the services sector. Alternative 4 may also result in a total increase in labor income of $122,680, with over $96,890 of that increase occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and construction) have the potential to result in negligible to minor benefits for all workers in those sectors within the region.

As described in the *Central Coast Region* subsection under Section T.2.3.1, there are no agricultural lands with CVP and SWP water supplies in the Central Coast Region. Therefore, there would be no changes in irrigated lands under Alternative 3 and no effects on the regional economy or employment opportunities associated with the agricultural industry in the Central Coast Region.

As described in Appendix I, *Groundwater Technical Appendix,* Alternative 4 may result in increases in groundwater pumping, which could reduce groundwater levels. Decreases in groundwater elevation could adversely affect groundwater pumping wells, including domestic wells owned by minority and/or low-income populations; however, the exact location and depth of all domestic wells throughout the Central Coast Region is not known, and therefore this impact cannot be quantified. As described in Appendix W, *Geology and Soils Technical Appendix,* the Central Coast Region is not known to be susceptible to subsidence.

South Coast Region

Changes in CVP and SWP operations under Alternative 4 would increase the water supply delivered to M&I water contractors in the South Coast Region. As described in Appendix Q, *Regional Economics Technical Appendix*, this increase in M&I water supply is expected to decrease the average annual water supply costs by approximately $89.8 million compared to the No Action Alternative. It is expected that the lower water supply costs would be passed on, at least in part, to water users; therefore, water rates could be lower under Alternative 4 than under the No Action Alternative. The decreased water rates in this region may result in increased disposable income and discretionary spending. As described in Section T.1.6.2, none of the counties within the South Coast Region are considered "poverty areas." Nonetheless, a decrease in water costs within the region would benefit all water users, especially localized populations of low-income water users within the region. Additionally, increases in disposable income and spending would result in induced benefits within the region, primarily in the services sector. Alternative 4 may result in the creation of approximately 443 jobs, with the majority (approximately 343) of those jobs being gained in the services sector. Alternative 4 may also result in a total increase in labor income of approximately $24.8 million, with over $19.3 million of that increase occurring in the services sector. Although jobs within the services sector are not considered to be predominantly held by minority/low-income populations, the expected minor increases in labor income or job availability within other sectors (agriculture, mining, construction, TIPU, manufacturing, trade, and government) have the potential to result in minor benefits for all workers within the region.

Alternative 4 is expected to have negligible effects on average annual agricultural deliveries in the South Coast Region. Therefore, effects of Alternative 4 on the agricultural economy or job availability would be negligible.

As described in Appendix I, *Groundwater Technical Appendix*, Alternative 4 may result in increases in groundwater pumping and, therefore, decrease groundwater levels. However, decreases in groundwater levels are expected to be minor. It is possible that even a minor decrease in groundwater elevation throughout portions of the South Coast Region could reduce water availability at certain private wells; however, the locations and depths of existing wells in the South Coast Region are unknown, so it is not possible to predict which, if any, existing private wells would be affected by minor decreases. Given the small magnitude of anticipated changes in groundwater levels, this alternative is not expected to result in adverse effects on minority and/or low-income populations' access to groundwater. As described in Appendix W, *Geology and Soils Technical Appendix,* the South Coast Region is not known to be susceptible to subsidence.

T.2.6.2 Potential Disproportionate Effects on Health of Minority or Low-Income Populations

As described in Section T.2.3.2 for Alternative 1, no construction work is required under Alternative 4. Thus, no adverse effects related to human health, including minority and low-income populations, from construction or operations and maintenance work are expected to occur under Alternative 4.

As described in Section T.2.3.2 for Alternative 1, any chemical weed control and algae treatments conducted under Alternative 4 would comply with relevant conditions required in the General Pesticide Permit issued for the work, and the same activities would be implemented under the No Action Alternative. Thus, no adverse effects related to human health, including minority and low-income populations, would result from these treatments under Alternative 4.

As described in Section T.2.3.2 for Alternative 1, Alternative 4 is not expected to substantially reduce reservoir levels in the study area or impair firefighting abilities in the study area; therefore, there would be no adverse effects on the population, including minority and low-income populations, within the study area.

T.2.7 Consideration of Potential Effects on Minority or Low-Income Populations Resulting from Greenhouse Gas Emissions

California is home to significant numbers of emission producing power plants, despite its status as a world leader in renewable and emission free energy development and goals. These emissions include, but are not limited to Carbon Dioxide, Methane, NOx, and fine particulate matter such as PM 2.5, along with other point source pollutants. Emission producing power plants tends to disproportionally affect minority and low-income populations, because of their proximity to the localities of these populations. As described in Appendix M, *Greenhouse Gas Emissions*, under alternatives 1, 2 (all four phases), and 4, net energy generation for CVP and SWP combined would decrease compared to the No Action Alternative, and as a result greenhouse gas (GHG) emissions would increase. The increases would be largest with Alternative 1, less Alternative 4, and least with Alternative 2 (all four phases). With Alternative 3, net energy would increase compared to the No Action Alternative and as a result GHG emissions would decrease. The relatively low magnitudes of changes in emissions suggest that any potential disproportionate effect on minority or low-income populations would be minimal.

T.2.8 Mitigation Measures

Following is a description of mitigation measures identified for environmental justice resources per alternative. These mitigation measures include avoidance and minimization measures that are part of each alternative and, where appropriate, additional mitigation to lessen impacts of the alternatives.

T.2.8.1 Avoidance and Minimization Measures

No avoidance and minimization measures have been identified.

T.2.8.2 Additional Mitigation Measures

Mitigation Measure EJ-1: Increasing Participation with Tribal, Minority, and Low-Income Populations

During any ongoing coordination regarding long-term operation, Reclamation will, consistent with the Bipartisan Permitting Reform Implementation Rule, 89 Fed. Reg. 35,442 (May 1, 2024); DOI Equity Action Plan (April 14, 2022); and Reclamation's Manual, Directives and Standard on Public Involvement in Bureau of Reclamation Activities (updated July 28, 2023):

- Treat Indigenous Knowledge as high-quality information.

- Consider the ability of affected persons and agencies to access electronic media and the primary language of affected persons when conducting research.
- Support priority actions in the DOI Equity Action Plan, Action 4, related to increasing opportunities to access public lands and prioritizing access to recreation areas and services in urban communities.
- Strive to reach and involve minority, low-income, reluctant or unknown publics who may be affected, using minority or special media, translated materials, or other means, as appropriate.

Reclamation will identify opportunities to gather Tribal Indigenous Knowledge for consideration in future Reclamation projects. Additionally, Reclamation will identify opportunities to include tribal interests and low-income/minority advocacy groups in affected communities to review and provide input on compliance documentation. For projects occurring in areas with a high proportion of Spanish speaking residents, Reclamation will continue to provide materials and resources in Spanish for a higher likelihood of participation from the affected population.

Mitigation Measure EJ-2: Reduce Effects of Employment Loss

To assist in offsetting job losses in the agricultural sector, Reclamation will 1) identify opportunities to assist and support vocational training at schools in affected communities, and 2) develop internship program(s) and advertise in affected communities near the Reclamation offices.

Mitigation Measure EJ-3: Increasing Participation with Trinity River Parties.

Reclamation will hold a public meeting in Trinity County to hear from local interests on Trinity River-specific alternatives and potential impacts.

T.2.9 Summary of Impacts

Table T-13 Impact Summary, includes a summary of impacts, the magnitude and direction of those impacts, and potential mitigation measures for consideration.

Table T-13. Impact Summary

Impact	Alternative	Magnitude and Direction of Impacts [a]	Potential Mitigation Measures
Potential Disproportionate Economic Effects on Minority or Low-Income Populations	No Action	Continuation of existing economic conditions on minority or low-income populations [b]	—
	Alternative 1	• **Trinity River Region:** No impacts • **Sacramento Valley Region:** Potential negligible adverse impacts on minority and low-income populations from the loss of agricultural jobs during long-term average conditions. These impacts would not be disproportionately high or adverse. Potential minor beneficial effects on minority and low-income	MM EJ-1, MM EJ-2, MM EJ-3

Impact	Alternative	Magnitude and Direction of Impacts [a]	Potential Mitigation Measures
		populations resulting from an increase in job availability during dry conditions and labor income. • **San Joaquin Valley Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability, and labor income, and groundwater availability. • **San Francisco Bay Area Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income. • **Central Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income. • **South Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income.	
	Alternative 2	• **Trinity River Region:** Potential disproportionately high and adverse impacts on low-income populations in Trinity County from the loss of jobs in the tourism industry. • **Sacramento Valley Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs, reduced access to groundwater, and potential property damage from subsidence. • **San Joaquin Valley Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs, reduced access to groundwater, and potential property damage from subsidence. • **San Francisco Bay Area Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs. • **Central Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income. • **South Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income.	MM EJ-1, MM EJ-2, MM EJ-3
	Alternative 3	• **Trinity River Region:** No impacts. • **Sacramento Valley Region:** Potential disproportionately high and adverse impacts on minority and low-income	MM EJ-1, MM EJ-2, MM EJ-3

Impact	Alternative	Magnitude and Direction of Impacts [a]	Potential Mitigation Measures
		populations from the loss of agricultural and other jobs, reduced access to groundwater, and potential property damage from subsidence. • **San Joaquin Valley Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs, reduced access to groundwater, and potential property damage from subsidence. • **San Francisco Bay Area Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs. • **Central Coast Region:** Potential minor adverse effects from the loss of jobs in the region; however, these effects are not expected to be disproportionately high and adverse to minority and low-income populations. • **South Coast Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs.	
	Alternative 4	• **Trinity River Region:** No impacts. • **Sacramento Valley Region:** Potential minor beneficial effects on minority and low-income populations from an increase in agricultural job availability and labor income. • **San Joaquin Valley Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs. Potential negligible benefits from increased access to groundwater. • **San Francisco Bay Area Region:** Potential disproportionately high and adverse impacts on minority and low-income populations from the loss of agricultural and other jobs. • **Central Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income. • **South Coast Region:** Potential minor beneficial effects on minority and low-income populations resulting from increased job availability and labor income.	MM EJ-1, MM EJ-2, MM EJ-3
	No Action	Continuation of existing health effects on minority or low-income populations	—
	Alternative 1	No impacts	—
	Alternative 2	No impacts	—

Impact	Alternative	Magnitude and Direction of Impacts [a]	Potential Mitigation Measures
Potential Disproportionate Effects on Health of Minority or Low-Income Populations	Alternative 3	No impacts	—
	Alternative 4	No impacts	—

[a] For the evaluation of alternatives, operation of the action alternatives are compared to the No Action Alternative.
[b] Under the No Action Alternative, Reclamation would operate the CVP consistent with the 2020 Record of Decision implementing the Proposed Action consulted upon for the 2019 Biological Opinions and the reasonable and prudent measures in the incidental take statements. The California Department of Water Resources (DWR) would operate the SWP consistent with the 2020 Record of Decision and the 2020 Incidental Take Permit for the SWP. Reclamation and DWR would operate consistent with authorizing legislation, water rights, contracts, and agreements as described by common components. The evaluation under the No Action Alternative is compared to existing conditions.

T.2.10 Cumulative Impacts

Past, present, and reasonably foreseeable projects, described in Appendix Y, *Cumulative Impacts Technical Appendix*, may have cumulative effects on environmental justice, to the extent that they could affect minority and/or low-income populations.

Past and present actions contribute to the existing condition of the affected environment in the project area while reasonably foreseeable actions are those that are likely to occur in the future that are not speculative. Past, present, and reasonably foreseeable projects include actions to develop water storage capacity, water conveyance infrastructure, water recycling capacity, the reoperation of existing water supply infrastructure, including surface water reservoirs and conveyance infrastructure, and habitat restoration actions. The projects identified in Appendix Y that have the most potential to contribute to cumulative impact on environmental justice are related to:

- Water supply (e.g., Sites Reservoir, B.F. Sisk Dam Raise and Reservoir Expansion Project, Bay-Delta Water Quality Control Plan Update)
- Habitat restoration (e.g., Cache Slough Area Restoration)
- Recreation (e.g., Prospect Island Tidal Habitat Restoration Project)

The No Action Alternative would continue with the current operation of the CVP and, as described in the 2020 Record of Decision, would not result in potential changes to disproportionate economic and health effects on minority or low-income populations.

Alternative 1 may have negligible adverse impacts and/or beneficial effects on minority and/or low-income populations; however, these effects would not be disproportionately high or adverse. Alternatives 2, 3, and 4 have potential to result in disproportionately high impacts on minority and/or low-income populations, with Alternative 3 having the potential to result in the largest impact resulting from changes in agricultural water supply and groundwater elevation decreases.

Appendix Y lists past, present, and reasonably foreseeable projects, described in Appendix Y, may have or could potentially result in effects on minority and/or low-income populations. Cumulatively, the reasonably foreseeable water supply projects are expected to benefit minority and low-income populations by improving water supply reliability and/or increasing agricultural productivity and jobs. The reasonably foreseeable projects also include ecosystem improvement and habitat restoration actions, which could provide recreational and water quality benefits for surrounding communities, including minority and/or low-income communities.

The potential impacts on minority and/or low-income populations resulting from the implementation of Alternatives 2 through 4 is generally distributed throughout the study area, which reduces the magnitude of the impact in any one location within the study area and reduces the action alternatives' contributions to the cumulative condition.

T.3 References

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