Chapter 30 Environmental Justice and Socioeconomics

30.1 Introduction

This chapter describes the affected environment, methods of analysis, and environmental consequences for environmental justice and socioeconomics that would potentially result from the construction and operation of the Project. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. Environmental Protection Agency 2020). Chapter 33, *Consultation and Coordination and List of Preparers*, summarizes ongoing coordination efforts with Project stakeholders and potentially affected communities throughout the environmental documentation process, including local water interests, counties, other state and federal agencies, tribal representatives, and nongovernmental organizations. In the context of NEPA, the analysis of socioeconomics is concerned with the interaction between social and economic characteristics of populations with the potential to be affected by a given project or action. The socioeconomic indicators discussed in relation to the Project include regional employment and income, local government fiscal resources, recreational spending, agricultural economics, and municipal and industrial (M&I) water use economics.

The study areas for effects on environmental justice and socioeconomics differ based on the indicators being assessed. Alternatives 1, 2, and 3 include facilities in Colusa, Glenn, Tehama, and Yolo Counties. The magnitude and duration of effects varies between these counties depending on the type of facility being installed and operated. For example, Yolo County includes Project facilities that would have a limited effect on property taxes and revenue for the County of Yolo. The Project facilities included in Yolo County are all related to conveyance to the Sacramento River (facilities located in remote and highly rural agricultural lands or underground). The study area for the evaluation of potential environmental justice effects consists of the block groups[1] that contain Project facilities with the potential to affect local populations during construction or operation. Study areas for socioeconomic effects vary depending on the scope of the economic indicator being evaluated. For some indicators (e.g., fiscal effects), the study area is limited to the areas containing and immediately surrounding Project facilities, whereas other indicators (e.g., agriculture) must be measured over a larger geographic area because of their potential to result in changes beyond a local level.

The Project activities in Tehama County would consist of the installation of two new pumps in existing pump bays at the RBPP. The improvements at the RBPP would have minimal temporary

[1] Block Groups are statistical divisions of census tracts, are generally defined to contain between 600 and 3,000 people and are used to present data and control block numbering.

effects and operation of the pumps would not constitute a substantial modification to the RBPP's existing operational conditions. Therefore, there would be no effects on environmental justice and socioeconomics in Tehama County and it is not discussed further in this chapter.

Tables 30-1a and 30-1b summarize the NEPA conclusions for construction and operation effects, respectively, for each alternative by effect. This chapter only includes NEPA effects because impact analyses for environmental justice and socioeconomics are not required under CEQA.

Table 30-1a. Summary of Construction Impacts and Mitigation Measures for Environmental Justice and Socioeconomics Resources

Alternative	NEPA Conclusion	Rationale
Effect EJ-1: Disproportionate and Adverse Effects on Minority Populations		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on minority populations.
Alternatives 1, 2 and 3	Substantially Adverse Effect	Construction of Alternatives 1, 2, and 3 would have substantial adverse effects related to air quality and visual resources that would be likely to disproportionately affect an identified minority community in Colusa County. The substantial adverse effects related to air quality and greenhouse gases would also be likely to disproportionately affect an identified minority community in Yolo County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Effect EJ-2: Disproportionate and Adverse Effects on Low-Income Populations		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on low-income populations.
Alternatives 1, 2, and 3	Substantially Adverse Effect	Construction of Alternatives 1, 2, and 3 would have substantial adverse effects related to air quality and visual resources would be likely to disproportionately affect identified low-income populations in Colusa County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD,

Alternative	NEPA Conclusion	Rationale
		GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Effect SOC-1: Substantial Adverse Effects on Regional Economics		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on regional economics.
Alternatives 1, 2, and 3	Not Adverse; Beneficial	Under Alternatives 1, 2, and 3, beneficial effects to regional economics would occur due to increased labor income and employment related to construction jobs. The temporary disturbance of agricultural land from construction activities would result in temporarily reduced labor income and employment in agriculture. The increase in construction income and jobs is expected to be larger than the decrease in agricultural jobs and income, resulting in an overall beneficial effect on regional economics.
Effect SOC-2: Substantial Adverse Effects on Local Economics (Local Government Fiscal Conditions and Recreational Economics)		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on local economics.
Alternatives 1, 2, and 3	Not Adverse; Beneficial	There would be losses in property tax revenues resulting from the relocation of the residents of the community of Sites and other changes in land use related to Project facilities. These losses would be minor in the context of total tax revenue in the affected counties. A beneficial effect to local economics would result from the increase in recreational visitors and associated spending.
Effect SOC-3: Substantial Adverse Effects on Agricultural Economics		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on agricultural economics.
Alternatives 1, 2, and 3	Not Adverse	The primary effect to agricultural economics during Project construction would result from the temporary disturbance of agricultural land during construction activities. Due to the temporary nature of the effect and the small area of agricultural land disturbance compared to the total amount of agricultural land in the affected counties, this effect would not be adverse.
Effect SOC-4: Substantial Adverse Effects on Municipal and Industrial Economics		
No Project	No Effect	Construction would not occur under the No Project Alternative; therefore, there would be no effects on municipal and industrial economics.
Alternatives 1, 2,	No Effect	There would not be any construction-related effects on

Alternative	NEPA Conclusion	Rationale
and 3		municipal and industrial water use economics. Water supply to municipal and industrial users would not be affected by construction of Alternatives 1, 2, and 3.

Table 30-1b. Summary of Operations Impacts and Mitigation Measures for Environmental Justice and Socioeconomics Resources

Alternative	NEPA Conclusion	Rationale
Effect EJ-1: Disproportionate and Adverse Effects on Minority Populations		
No Project	No Effect	Under the No Project Alternative, existing conditions would continue and there would be no effect on minority populations.
Alternatives 1 and 3	Substantially Adverse Effect	Operation of Alternatives 1 and 3 would result in substantial adverse effects to air quality that would be likely to disproportionately affect an identified minority population in Colusa County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Alternative 2	Substantially Adverse Effect	In addition to the effects discussed under Alternatives 1 and 3, operation of Alternative 2 would result in substantial adverse effects to land use and transportation and traffic that would be likely to disproportionately affect an identified minority population in Colusa County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Effect EJ-2: Disproportionate and Adverse Effects on Low-Income Populations		
No Project	No Effect	Under the No Project Alternative, existing conditions would remain consistent and there would be no effect on low-income populations.

Alternative	NEPA Conclusion	Rationale
Alternatives 1 and 3	Substantially Adverse Effect	Operation of Alternatives 1 and 3 would result in substantial adverse effects to air quality that would be likely to disproportionately affect an identified low-income environmental justice population in Colusa County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Alternative 2	Substantially Adverse Effect	In addition to the effects discussed under Alternatives 1 and 3, operation of Alternative 2 would result in substantial adverse effects to land use and transportation and traffic that would be likely to disproportionately affect an identified low-income population in Colusa County. Mitigation measures would be implemented but would not fully reduce the identified effects. **Mitigation Measure AQ-1.1:** Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Effect SOC-1: Substantial Adverse Effects on Regional Economics		
No Project	No Effect	Under the No Project Alternative, existing conditions would remain consistent and there would be no effect on regional economics.
Alternatives 1, 2, and 3	Not Adverse; Beneficial	Alternatives 1, 2, and 3 would create new labor income and jobs from operation and maintenance of Project facilities, including the recreation areas. This would be a limited beneficial effect on regional economics. There would be a small decrease in agricultural labor income and employment due to permanent conversion of agricultural land; however, this decrease would be minor in the context of total agricultural labor income and employment in Glenn and Colusa Counties.

Alternative	NEPA Conclusion	Rationale
Effect SOC-2: Substantial Adverse Effects on Local Economics (Local Government Fiscal Conditions and Recreational Economics)		
No Project	No Effect	Under the No Project Alternative, existing conditions would remain consistent and there would be no effect on local economics.
Alternatives 1, 2, and 3	Not Adverse; Beneficial	There would be losses in property tax revenues resulting from the relocation of the residents of the community of Sites and other changes in land use related to Project facilities. These losses would be minor in the context of total tax revenue in the affected counties. A beneficial effect to local economics would result from the increase in recreational visitors and associated spending.
Effect SOC-3: Substantial Adverse Effects on Agricultural Economics		
No Project	No Effect	Under the No Project Alternative, existing conditions would continue and there would be no effect on agricultural economics.
Alternatives 1, 2, and 3	Not Adverse; Beneficial	Effects on agricultural economics would occur due to the permanent conversion of agricultural land to nonagricultural use for Project facilities but would be offset by the beneficial effect of increased water supply reliability. The area of permanently converted agricultural land would be minor in the context of the total area of agricultural land in production in the study area. Agricultural users would experience beneficial economic effects from increased water supply reliability and reduced costs.
Effect SOC-4: Substantial Adverse Effects on Municipal and Industrial Water Use Economics		
No Project	No Effect	Under the No Project Alternative, existing conditions would continue and there would be no effect on municipal and industrial water use economics.
Alternatives 1, 2, and 3	Beneficial	Alternatives 1, 2, and 3 would result in a beneficial effect on municipal and industrial water use economics due to increased water supply reliability. This effect would vary in magnitude depending on factors such as demand, water costs, and drought.

30.2 Affected Environment

This section describes the demographic and socioeconomic setting for the Project and provides context for potential effects on environmental justice communities and socioeconomic indicators. Demographics are discussed as they pertain to the identification of environmental justice communities.

30.2.1. Minority Populations

Data for minority populations were obtained from the U.S. Census Bureau (2020a, 2020b). Table 30-2 lists the populations by race and ethnicity for Glenn, Colusa, and Yolo Counties and the state of California. Glenn and Colusa Counties have proportionally smaller Asian populations and proportionally larger Hispanic or Latino populations than the state averages. Compared to the state averages, Yolo County has a comparable Asian population and a proportionally smaller Hispanic/Latino population. Glenn, Colusa, and Yolo Counties have comparably higher White populations than the average for California. When responding to U.S. Census surveys, individuals can identify as belonging to one or multiple racial groups. Additionally, respondents can identify as Hispanic/Latino or not Hispanic/Latino. Hispanic/Latino is an identification of ethnicity, rather than race, and individuals identifying as Hispanic/Latino can identify as any race. For this reason, sums of the percentages reported in each column of Table 30-2 exceed 100%.

Table 30-2. Population by Race and Ethnicity in 2019 of Glenn, Colusa, and Yolo Counties and California (percent)

Population	Glenn County	Colusa County	Yolo County	California
White	81.1	88.3	69.3	59.7
Black	0.8	1.5	2.7	5.8
Native American and Native Alaskan	2.4	1.0	0.6	0.8
Asian	2.9	1.4	14.0	14.5
Native Hawaiian/Pacific Islander	0.0	0.2	0.4	0.4
Other	10.4	4.6	6.7	14.0
Two or more races	2.3	2.8	6.3	4.9
Hispanic or Latino (of any race)	41.8	59.4	31.6	39.0

Source: U.S. Census Bureau 2020a

30.2.2. Income and Poverty

Information on income and poverty was derived from the U.S. Census Bureau (2020b). Table 30-3 shows the median household income and percent of the population in poverty in Glenn, Colusa, and Yolo Counties and the state. Poverty rates in Glenn County and Yolo County are higher than the state average, and that for Colusa County is slightly lower than the state average. Median household income is lower in Glenn, Colusa, and Yolo Counties than the average for the state. It is important to note that these averages are not reflective of shifting economic conditions; income and poverty are not static and are influenced by many external factors.

Table 30-3. 2019 Income Levels and Poverty Rates in Glenn, Colusa, and Yolo Counties and California

Parameter[1]	Glenn County	Colusa County	Yolo County	California
Median Household Income	$49,633	$59,401	$70,228	$75,235
Percent of Population in Poverty	17.5%	13.0%	19.1%	13.4%

Source: U.S. Census Bureau 2020b

[1] 2019 estimates based on 5-year averages.

30.2.3. Population and Demographics

Population and demographic data from 2019 for Glenn, Colusa, and Yolo Counties and the state were obtained from the U.S. Census Bureau (2020a). Glenn County's population in 2019 was 27,897 with a density of 21.0 people per square mile. Colusa County's total population in 2019 was 21,464 with a density of 18.6 people per square mile. Yolo County's total population in 2019 was 214,977, with a density of 209.9 people per square mile. The average population density in California in 2019 was 239.1 people per square mile.

Glenn and Colusa Counties are primarily rural and have much lower population densities than the state average. The two largest municipalities in Glenn County are the cities of Orland and Willows, with respective populations of 7,829 and 6,072 (as of 2019). If the populations of Orland and Willows are subtracted from the total population of Glenn County its population density is 12.7 people per square mile. The two largest municipalities in Colusa County are the cities of Colusa and Williams, with respective populations of 6,060 and 5,048 (as of 2019). If the populations of Colusa and Williams are subtracted from the total population of Colusa County its population density is 7.9 people per square mile.

Yolo County has a population density much closer to the state average. The population in Yolo County is concentrated in the cities of Davis, West Sacramento, and Woodland, whose combined population represents 83.2% of the county's total population. The remainder of Yolo County is much more rural. Table 30-4 presents general socioeconomic population characteristics for Glenn, Colusa, and Yolo Counties compared with the state.

Table 30-4. 2019 Socioeconomic Population Characteristics for Glenn, Colusa, and Yolo Counties and California

Indicator	Glenn County	Colusa County	Yolo County	California
Median Household Income	$49,633	$59,401	$70,228	$75,235
Per Capita Income	$22,668	$26,932	$34,515	$36,955
Percent of Persons below Poverty Level	17.5%	13.0%	19.1%	13.4%

Sources: U.S. Census Bureau 2020b

30.2.4. Employment

Employment data were obtained from the U.S. Census Bureau (2020b) and California Employment Development Department (2020). Table 30-5 lists the size of the labor force, number of people employed, and unemployment rates in Glenn, Colusa, and Yolo Counties and statewide as of 2019. It should be noted that since the publication of 2019 data on employment, the COVID-19 pandemic has affected economic conditions across the globe, resulting in shifting unemployment rates.

Table 30-5. Summary of 2019 Average Employment Rates for Glenn, Colusa, and Yolo Counties and Statewide

Geography	Civilian Labor Force	Unemployment Rate
Glenn County	11,914	5.3%

Geography	Civilian Labor Force	Unemployment Rate
Colusa County	10,127	4.3%
Yolo County	105,929	6.2%
California	19,790,474	6.1%

Source: U.S. Census Bureau 2020b

In Glenn County, the largest employment industries in 2019 were farming and government, comprising 24.8% and 22.5% of the total workforce, respectively (California Employment Development Department 2020). In Colusa County, the largest employment industries in 2019 were farming and government, comprising 32.2% and 22.6% of the total workforce, respectively (California Employment Development Department 2020). In Yolo County, the largest employment industries in 2019 were government and education and health services, comprising 26.6% and 9.7% of the total workforce, respectively (California Employment Development Department 2020).

30.2.5. Property Taxes and County Revenue

Property tax and revenue information was sourced from the annual budgets and comprehensive annual financial reports for the Counties of Glenn and Colusa. Yolo County would contain Project facilities with a negligible effect on property taxes and county revenue because the majority of the facilities would be located underground. Therefore, property tax and revenue information is not included for Yolo County.

In the 2018–2019 fiscal year, the property tax revenue for the County of Glenn was $7,368,403 (County of Glenn 2019). The County of Glenn's total revenue from governmental activities (which include taxes, franchise fees, interest and investment earnings, unrestricted grants and contributions, and other miscellaneous revenue sources) was $17,768,418 (County of Glenn 2019). Property taxes represented about 9% of this total revenue.

In the 2018–2019 fiscal year, annual revenue from property tax collection in Colusa County was $17,453,172 (County of Colusa 2019). The County of Colusa's total revenue from governmental activities (which include taxes, interest and investment earnings, and other miscellaneous revenue sources) was $62,506,684 (County of Colusa 2019). Property taxes represented approximately 28% of this total revenue.

30.2.6. Agriculture

Information on agricultural productivity and revenue was sourced from Glenn, Colusa, and Yolo Counties' annual crop reports. Agriculture is a major contributor to California's economy. In the 2018 crop year, the total value of agricultural products was over $50 billion (California Department of Food and Agriculture 2019). The highest-value agricultural products were dairy products, almonds, and grapes (California Department of Food and Agriculture 2019).

Agriculture is the primary industry in Glenn County. The total value of agricultural production in the county in 2019 was $806,668,000. From 2015–2019, the average annual value of agricultural production in Glenn County was $773,574,800. In 2019, the total reported acreage of agricultural land in Glenn County was 260,173 acres (not including rangeland and pasture, which were reported as encompassing 233,531 acres). The highest-value agricultural product types in Glenn

County in 2019 were fruit, nut, and field crops. The highest-value commodities produced in Glenn County in 2019 were almonds, walnuts, and rice, which totaled approximately 68% of the county's total agricultural production value (County of Glenn 2020).

Agriculture is also the main industry in Colusa County. The total value of agricultural production in Colusa County in 2019 was $932,963,000. From 2015–2019, the average total value of agricultural production in Colusa County was $883,625,000. In 2019, the total reported acreage of agricultural land in Colusa County was 299,866 acres (not including rangeland, which was reported to encompass 181,100 acres). The highest-value agricultural product types in Colusa County in 2019 were fruit and nut crops, and field crops. The highest-value commodities produced in Colusa County in 2019 were almonds and rice, which totaled approximately 62% of the county's total agricultural production value (County of Colusa 2020).

Agriculture is a major industry in Yolo County. The total value of agricultural production in Yolo County in 2019 was $765,231,000. From 2015–2019, the average total value of agricultural production in Yolo County was $680,700,600. In 2019, the total reported acreage of agricultural land in Yolo County was 338,958 acres (not including rangeland, which was reported to encompass 18,800 acres). The highest-value agricultural product types in Yolo County in 2019 were fruit and nut crops and vegetable crops. The highest-value commodities produced in Yolo County in 2019 were almonds, wine grapes, and processing tomatoes, which totaled approximately 49% of the county's total agricultural production value (County of Yolo 2020).

30.2.7. Municipal and Industrial Water Use

As of 2015, M&I water use constituted approximately 14% of California's total water use (U.S. Geological Survey 2020). Within California, many M&I water users receive water from the CVP and the SWP systems. The delivery amounts from these systems vary depending on hydrologic conditions, reservoir levels, and demand from contracting agencies. Additional information on M&I water supply is provided in Chapter 5, *Surface Water Resources*. The CVP delivers approximately 600 TAF annually to over 100 contractors that receive water for M&I use (Reclamation n.d.). Of the SWP's 29 contractors, 24 use this water for municipal purposes (California Department of Water Resources 2020). These contractors supply water to almost 27 million residents of California (California Department of Water Resources 2020).

Storage Partners that use M&I water and are CVP or SWP participants are identified in Chapter 5. The acquisition cost of M&I water from the CVP and SWP varies between users. Similar to delivery amounts, the cost per AF fluctuates depending on hydrologic conditions, reservoir levels, and demand; it ranges between approximately $200 and $600 per AF (Sites Project Authority 2017).

30.3 Methods of Analysis

30.3.1. Environmental Justice

30.3.1.1. Identifying Environmental Justice Communities

U.S. Census Bureau data on population, race, ethnicity, income, and poverty were obtained to characterize socioeconomic indicators for the counties in which Project facilities would be located (U.S. Census Bureau 2020a, 2020b). Census data were evaluated at the block group level. Population and housing data for these counties are presented in Chapter 25, *Population and Housing*. In accordance with Council on Environmental Quality (CEQ) (1997) and U.S. Environmental Protection Agency (2004) guidelines established to assist federal and state agencies, the first step in the environmental justice analysis was to define minority and low-income populations. This methodology follows the general guidance provided by Executive Order 12898, CEQ's *Environmental Justice: Guidance under the National Environmental Policy Act* (Council on Environmental Quality 1997).

Minority Populations

Minority individuals are members of Black, Native American or Native Alaskan, Asian, Native Hawaiian or Pacific Islander, or Hispanic/Latino population groups (Council on Environmental Quality 1997). For this analysis, a minority population was defined to be present in the study area if the minority population of the affected area exceeds 50% of the total population. The study area is analyzed at the block group level of measurement; a block group is considered to contain an environmental justice community if the total non-White population of the block group is greater than 50% or if the portion of the population that identifies as Hispanic/Latino is greater than 50%. For this analysis, consistent with guidance from CEQ, the term *minority* refers to people who are Hispanic/Latino of any race, as well as those who are non-Hispanic/Latino of a race other than White or European-American.

For census purposes, individuals classify themselves into racial categories, as well as place-of-origin categories. Racial categories include White, Black, Native American or Native Alaskan, Asian, Native Hawaiian or Pacific Islander, and Other. Place of origin categories include Hispanic/Latino and non-Hispanic/Latino. Census respondents can choose more than one race and can identify as Hispanic/Latino in combination with any race.

Low-Income Populations

In accordance with CEQ guidance on conducting NEPA environmental justice analyses, low-income populations are identified based on the national poverty thresholds from the U.S. Census Bureau (Council on Environmental Quality 1997; U.S. Census Bureau 2020b).

For the purpose of this analysis, low-income populations are identified as block groups where 20% or more of the population is considered low income (i.e., below the 2018 poverty threshold). Because the income required to sustain a household varies in relation to the number of individuals dependent on a given quantity of income, there is no single threshold for poverty status and agencies can refine low-income status determinations based on specific geographic context (Federal Interagency Working Group on Environmental Justice 2016). The 20%

threshold is used because the average cost of living in California is higher than elsewhere in the United States (U.S. Census Bureau 2011), and thus the use of a higher threshold might under-identify low-income populations in the study area.

30.3.1.2. Identified Environmental Justice Communities

The Sites Reservoir and associated facilities (i.e., inundation area, I/O Works, dams and dikes, and recreation areas) and the facilities for conveyance to the Sacramento River included in Alternatives 1, 2, and 3 are located within three block groups with a minority population. These block groups include one block group in Colusa County and two block groups in Yolo County. The Sites Reservoir and associated facilities and the facilities for conveyance to the Sacramento River included in Alternatives 1, 2, and 3 are located within one block group with a low-income population in Colusa County.

30.3.1.3. Identifying Disproportionate and Adverse Effects on Environmental Justice Populations

The environmental justice analysis identifies the potential adverse environmental effects associated with a federal action or federal agency program on environmental justice populations (U.S. Environmental Protection Agency 2004). Reclamation is the federal lead agency for the Project and as such must consider potential effects to environmental justice populations.

Effects determined to be not adverse in a resource area are disclosed in the previous chapters of this RDEIR/SDEIS. These effects are not considered in the analysis below because they would not result in disproportionately high and adverse effects on minority and low-income populations. Construction effects are not discussed unless identified as substantial and adverse because they are generally considered temporary. Adverse effects that would not result in direct or discernable indirect effects on environmental justice populations are not included in the analysis. This environmental justice assessment is limited to effects that have been identified as adverse or substantially adverse and would have discernible effects on an environmental justice population even after mitigation in previous chapters of this RDEIR/SDEIS. Table 30-6 identifies the substantial adverse effects that are evaluated in this chapter. This approach is consistent with guidance from CEQ (1997).

Table 30-6. Substantial Adverse Effects Summary and Mitigation Measures

Resource	Effect	Mitigation
Land Use	Construction and operation of Alternative 2 would result in substantial adverse effects from the physical division of an established community.	Mitigation measures are not feasible as described in Chapter 14, *Land Use*
Visual Resources	Construction of Alternatives 1 and 3 would substantially degrade the existing visual character or quality of public views of the site and its surroundings as a result of inundation of Antelope Valley and construction of Alternative 2 would substantially degrade existing visual character and quality as a result of	Mitigation measures are not feasible as described in Chapter 24, *Visual Resources*

Resource	Effect	Mitigation
	inundation of Antelope Valley and the Sacramento River discharge	
Air Quality	Construction and operation of Alternatives 1, 2, and 3 would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan	**Mitigation Measure AQ-1.1**: Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment **Mitigation Measure AQ-1.2**: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD **Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan **Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD
Navigation, Transportation and Traffic	Operation of Alternative 2 would substantially affect school bus travel provided by the Maxwell Unified School District	Mitigation measures are not feasible as described in Chapter 18, *Navigation, Transportation, and Traffic*

Following the identification of adverse effects with the potential to affect one or more environmental justice populations (Table 30-6), the next step of the analysis is to determine if these environmental consequences may disproportionately affect an environmental justice population, as identified based on the parameters described in Section 30.3.1.1 and populations identified in Section 30.3.1.2. The CEQ (1997) guidance includes factors to consider in assessing whether human health and environmental effects could be disproportionately high and adverse on environmental justice populations. These factors include whether the effects are significant (as employed by NEPA) or above generally accepted norms; whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and whether effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards. Reclamation guidance on conducting NEPA analyses of environmental justice effects states that:

> When impacts to a minority or low-income population are identified, the discussion should address whether the populations are being disproportionately affected by the action and the reasonable efforts made to avoid any disproportionate effect. If the alternative had no disproportionate impact on minority or low-income populations, this should be so stated. (Reclamation 2012)

As per this guidance, this analysis identifies whether disproportionately high and adverse effects on minority or low-income populations would occur as the result of the construction and operation of Alternatives 1, 2, and 3.

30.3.2. Socioeconomics

This section describes the methods used to analyze the potential effects of the Project on regional and local economics, the agricultural sector, and M&I water users. Specific socioeconomic indicators are evaluated and results from the previously used models are considered.

30.3.2.1. Regional Economics

The potential effects on regional economics from the construction and operation of the Project are discussed at the county level. The primary indicators of regional economic effects are employment, categorized by industry and measured in the number of jobs gained and/or lost; and labor income, grouped by industry and measured in dollars of income.

30.3.2.2. Local Economics

The potential effects on local economics in the areas containing existing and new Project facilities are discussed using two primary indicators: local government fiscal conditions and recreational economics. Effects on local government fiscal conditions are assessed with projections of changed property tax revenue. Recreational economic effects are evaluated using projections of annual recreational visits to the Project's recreational facilities and associated spending in the surrounding area.

Recreation effects on local economies outside of the study area and related to other reservoirs in the greater northern California area were not evaluated. Chapter 16, *Recreation Resources*, Impact REC-1 and Chapter 18, *Navigation, Transportation, and Traffic*, Impact TRA-2 indicate there may be some reduction of recreation at other reservoirs in northern California, but the effects on the local economies cannot be measured or reported with any accuracy. The methods and assumptions used in Chapter 16 and Chapter 18 support the analysis of those specific resources. Using that information to quantify potential reductions in local revenue would be speculative. It is acknowledged that some recreationists who currently use other reservoirs would potentially forgo their use to recreate at Sites Reservoir. As such, there may be some reduction in local revenue at those existing reservoirs. However, in California, the demand for outdoor recreational opportunities is anticipated to grow as the state's population increases (California State Parks 2005). With a population now exceeding 39 million, the state is generally experiencing visitation pressure increases across all outdoor and open space recreational areas. Thus, given the existing finite recreation opportunities and the population they serve, Sites Reservoir may ultimately offer additional recreational opportunities to residents rather than replacement opportunities. Under those conditions, existing local economies may see no reduction in revenue. As such, recreation at other reservoirs is not further revaluated.

30.3.2.3. Agricultural Economics

The potential effects on agricultural economics from the construction and operation of the Project are discussed in terms of the costs associated with the temporary or permanent disturbance of agricultural land, changes to agricultural water supply reliability, and changes to agricultural water quality.

30.3.2.4. Municipal and Industrial Water Use Economics

The potential effects of Project construction and operation on M&I water use economics could occur in a broad area that includes the jurisdictions of all Storage Partners. The specific effects

on these Storage Partners would vary based on temporal shifts in water demand, reservoir operations, and water costs. The effects discussed consist of the economic effect of increased water reliability due to additional sources of M&I water supply.

30.3.2.5. Hydropower

Anticipated Project energy generation and use are identified in Chapter 17, *Energy*. The Project would be a net energy user rather than a net energy generator. Reclamation acknowledged the Sites Reservoir Project in a formally released public memo entitled, *Directives Resulting from the Central Valley Project Power Initiative* (Reclamation 2019). The CVP Power Initiative directs Reclamation's California–Great Basin Region to identify the Sites/North-of-Delta Offstream Storage (NODOS) Project impacts (costs, benefits, financial) on CVP power and to update CVP preference power customers of those impacts.

Hydropower as it relates to economics is not discussed further in this chapter.

30.3.2.6. Modeling and Overall Approach

Results from the previous economic modeling conducted for the 2017 Draft EIR/EIS were evaluated in the context of the facilities and operational criteria presented in this RDEIR/SDEIS to disclose the potential socioeconomic effects of Alternatives 1, 2, and 3. Table 30-7 identifies the effect categories applicable to Alternatives 1, 2, and 3, and the methodology used in the previous modeling. Appendix 30A, *Regional Economics Modeling*, presents a summary of the previous modeling results and methodologies and provides appendices previously used.

The previous economic modeling used output from the prior hydrologic model. As described in Appendix 5A, *Surface Water Resources Modeling of Alternatives*, updates to the hydrologic model and hydrologic baseline have been made since the previous economic modeling was completed. However, the hydrologic conditions described previously are similar to those analyzed in this document and would not result in substantive changes to the previous positive economic results. Simulated operations of the CVP and SWP were altered due to the implementation of recent regulatory requirements (e.g., Biological Opinion for the Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and State Water Project). However, demands have been generally consistent between 2017 and 2020 and there was a relatively minimal change to south-of-Delta exports. The estimated water delivery to each Storage Partner has been updated since the previous hydrologic modeling by providing refined delivery estimates for the hydrologic regions potentially affected by the Project. The current hydrologic modeling refined the previous hydrologic modeling delivery assumptions by evaluating expected water deliveries to various hydrologic regions by Storage Partners. The previous hydrologic modeling was coarser and grouped expected water deliveries to various hydrologic regions by the larger SWP and CVP participation. However, simulated water deliveries are made to the same hydrologic regions in the previous hydrologic modeling and the current hydrologic modeling. Furthermore, the distribution and range of expected water deliveries for both agriculture and M&I use under Alternatives 1, 2, and 3 are similar to the previous hydrologic modeling results. Therefore, the economic effect mechanisms previously modeled, that used output from the hydrologic model, are applicable to Alternatives 1, 2, and 3. Appendix 30B, *Comparison of Regional Hydrologic Model Results to Inform Regional*

Economic Analyses, provides additional detail on the previous hydrologic modeling compared to the current hydrologic modeling.

Previous economic modeling included assumptions and results for alternatives proposing a 1.3-MAF or 1.8-MAF reservoir capacity. The previous modeled results provide a range of economic effects expected to be comparable to effects under Alternatives 1, 2, and 3. A summary comparison of the alternatives modeled in the 2017 Draft EIR/EIS to Alternatives 1, 2, and 3 is provided in Table 2B-1 of Appendix 2B, *Additional Alternatives Screening and Evaluation*. The economic implications of Alternatives 1, 2, and 3 can be identified generally by considering similarities and differences to the previously modeled alternatives. The 1.5-MAF reservoir capacity under Alternatives 1 and 3 would be between the reservoir capacities reflected in the previous economic modeling. The 1.3-MAF reservoir capacity under Alternative 2 would be equal to the smallest reservoir capacity previously modeled. Alternatives 1, 2, and 3 rely mostly on existing conveyance and discharge facilities, and the magnitude of socioeconomic effects associated with Project conveyance and discharge facilities would be of lesser magnitude than the effects modeled in the previous economic modeling, but still positive and beneficial.

Table 30-7. Summary of Socioeconomic Effects Approaches

Effect Category	Description of Previous Approach	Alternatives 1, 2, and 3
Regional Economics	The previous modeling estimated changes to the region's labor income and employment changes to specific economic drivers, which included construction spending, operation and maintenance expenditures, temporary and permanent changes to agricultural production, and recreational expenditures using IMPLAN. Appendix 30A provides detailed modeling methodology.	Construction activities and required land acquisition for the reservoir and associated facilities under Alternatives 1, 2, and 3 would be the same as or similar to the activities previously modeled. Construction activities for the conveyance and discharge facilities under Alternatives 1, 2, and 3 would require less construction than was previously modeled. Operation of Alternatives 1, 2, and 3 would be the same as or similar to the previously modeled alternatives. Therefore, labor income and employment from operation, maintenance, and recreational facilities would be comparable to what was shown in the previous modeling.
Local Economics	The previous modeling evaluated fiscal effects on local governments based on changes to property tax revenue from land acquisition and conversion of existing land uses. The analysis estimated the total annual change in property tax revenue associated with affected parcels. Recreational economic effects were evaluated based on estimated changes in recreational expenditures from visitation and expenditures in Glenn and Colusa Counties. See Appendix 30A for detailed modeling methodology.	The previous local economic analysis included a scale and type of land use conversion that are comparable to Alternatives 1, 2, and 3, so the findings of the previous analysis can be applied to the Project. Recreational economic effects of the previous modeling are applicable to Alternatives 1, 2, and 3, as the recreational facilities modeled are the same as those described in Alternatives 1, 2, and 3.
Agricultural Economics	The previous modeling estimated agricultural effects based on changes in agricultural acreage from construction and operation of the reservoir, changes in water supply to agricultural users, and changes in costs associated with water quality. The Statewide Agricultural Production (SWAP) model was primarily used for the analysis and results were reported as a long-term annual average and a Dry and Critically Dry Water Year annual average. Appendix 30A provides additional detail on models and methodology.	The previously modeled assumptions regarding water deliveries are comparable to those for Alternatives 1, 2, and 3. These alternatives would deliver agricultural water to the same hydrologic regions included in the previous analysis. The quantity of water deliveries to agricultural users would differ (i.e., be less) between the previous modeling and Alternatives 1, 2, and 3, but overall the previous approach for evaluating socioeconomic effects is applicable.

Effect Category	Description of Previous Approach	Alternatives 1, 2, and 3
Municipal and Industrial Water Use Economics	The previous modeling evaluated the socioeconomic effects of changes to municipal and industrial water supply. The socioeconomic effects related to municipal and industrial water supply are based on how the availability of water would change the cost of meeting water demand. These effects were evaluated using the Least Cost Planning Simulation (LCPSIM) Model and the Other Municipal Water Economics Model (OMWEM). These models evaluate regional effects of urban water supply changes. Both models use CALSIM II to provide inputs for SWP and CVP water deliveries. The previous modeling evaluated effects on municipal and industrial water use economics based on the average annual volume of water delivered to municipal and industrial users under each alternative and the related changes in costs to these users. Appendix 30A provides additional detail on models and methodology.	The previously modeled assumptions regarding simulated municipal and industrial water deliveries are generally comparable to those for Alternatives 1, 2, and 3. These alternatives would distribute municipal and industrial water to the same hydrologic regions included in the previous analysis. The quantity of water deliveries to municipal and industrial users would differ (i.e., be less) between the previous modeling and Alternatives 1, 2, and 3, but overall the previous approach for evaluating socioeconomic effects is applicable.

30.3.3. Evaluation Criteria

Because analyses of social, economic, and socioeconomic effects are not within CEQA's purview, only a NEPA conclusion is made for these effects. The effect standards evaluated in this analysis consist of the following:

30.3.3.1. Environmental Justice

- Effect EJ-1: Disproportionate and Adverse Effects on Minority Populations
- Effect EJ-2: Disproportionate and Adverse Effects on Low-Income Populations

30.3.3.2. Socioeconomics

- Effect SOC-1: Substantial Adverse Effects on Regional Economics
- Effect SOC-2: Substantial Adverse Effects on Local Economics (Local Government Fiscal Conditions and Recreational Economics)
- Effect SOC-3: Substantial Adverse Effects on Agricultural Economics
- Effect SOC-4: Substantial Adverse Effects on Municipal and Industrial Economics

30.4 Environmental Consequences

Effect EJ-1: Disproportionate and Adverse Effects on Minority Populations

No Project

The No Project Alternative would have no disproportionate and adverse effects on minority populations because the Project would not be built. There would be no effects associated with the construction or operation of the Project.

Alternatives 1 and 3

One block group with an identified minority-based environmental justice population is in Colusa County (Figure 30-1). Facilities for Alternatives 1 and 3 that would be located in this block group include TRR East and roads, including McDermott Road, Delevan Road, and Road 68, that would be widened and used for construction trips. Adverse effects or substantial adverse effects with the potential to result in disproportionately high and adverse effects to environmental justice populations in this block group were identified for air quality and visual resources. The population of this block group is concentrated in the community of Maxwell, which would not contain any facilities for Alternatives 1 and 3. However, this block group would experience disproportionate effects from criteria pollutant mass emissions and localized criteria pollutant emissions during construction and operations, and a substantial degradation to the visual character and quality of views from Sites Lodoga Road. Residents of this block group would be disproportionately exposed to sources of criteria pollutant emissions during construction and operation due to proximity to the construction footprint and permanent facilities. While this environmental justice population does not have direct visual exposure to the Sites Reservoir due to intervening foothills and distance, the Sites Lodoga Road is a primary

route connecting the communities of Maxwell, Lodoga, and Stonyford. During construction, the visual character and quality of this area would substantially change from the inundation of Antelope Valley and would affect views from Sites Lodoga Road. Residents of this block group are likely to be most directly affected by this change, as the road runs through a substantial portion of the block group. Once operational, all widened and improved roads would be beneficial to this block group. In addition, the recreation areas at the reservoir would provide new recreational opportunities in proximity to this block group.

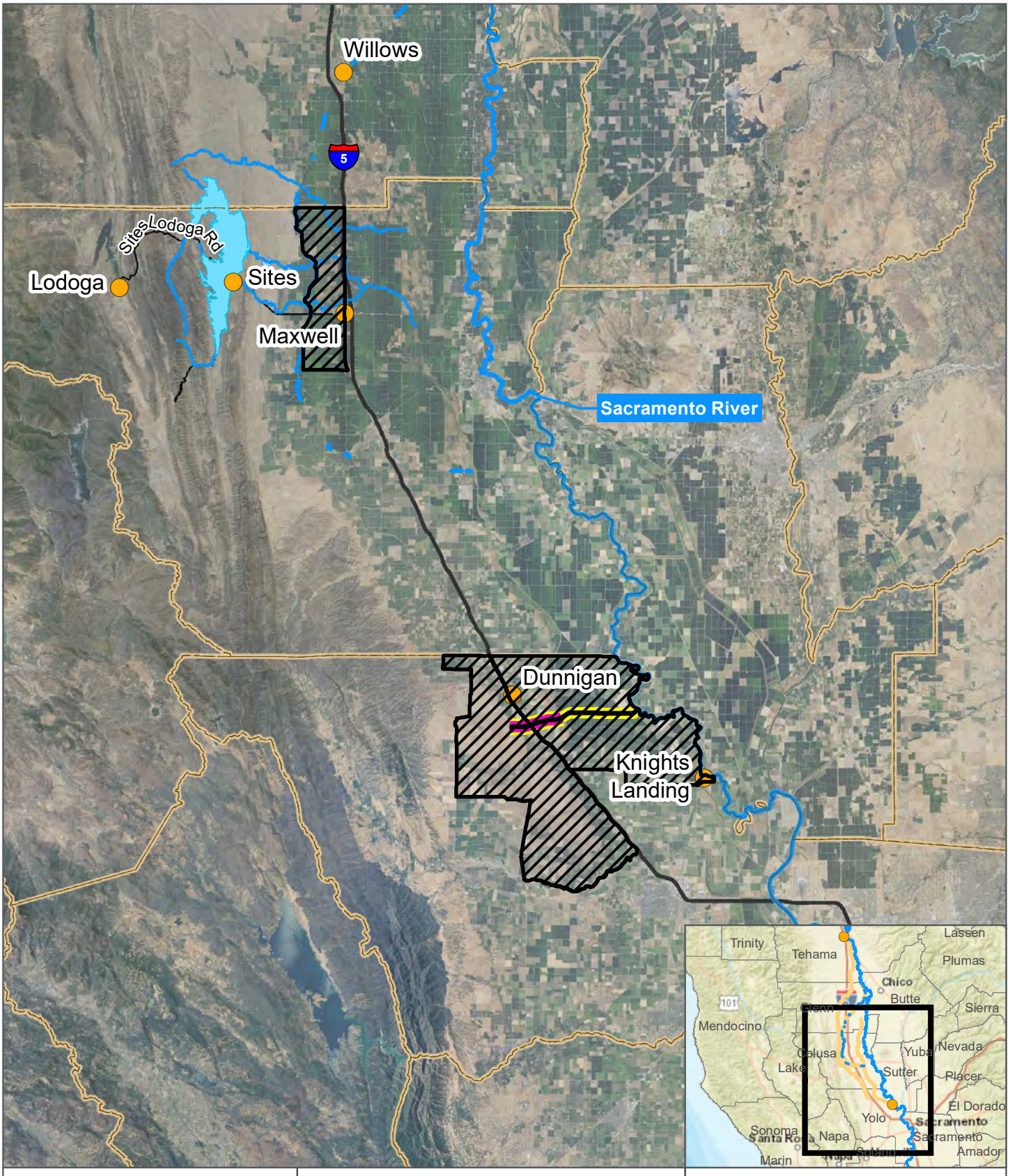
Two of the block groups that contain Alternatives 1 and 3 facilities and have a minority-based environmental justice population are in Yolo County (Figure 30-1). This is where the facilities for conveyance to the Sacramento River would be constructed and operated. The Dunnigan Pipeline would be primarily located underground. The aboveground facilities for conveyance to the Sacramento River under Alternatives 1 and 3 include the Dunnigan Pipeline, TC Canal intake and CBD outlet. Adverse effects or substantial adverse effects with the potential to result in disproportionately high and adverse effects on environmental justice populations in this block group were identified in air quality. Similar to the effects discussed above, this community would experience disproportionate criteria pollutant mass emissions during construction and operations and localized criteria pollutant emissions during construction.

Overall, implementation of Alternatives 1 and 3 would result in disproportionately high and adverse effects to minority environmental justice populations in the resource areas of air quality and visual resources. Construction would affect the visual character and quality of views from Sites Lodoga Road, and construction and operation of Alternatives 1 and 3 would increase criteria pollutant mass emissions as compared to the No Project Alternative. Substantial adverse effects would occur. As discussed in Chapter 20, *Air Quality*, and Chapter 24, the feasibility of mitigation is discussed and where feasible mitigation is proposed to reduce the effects. Mitigation Measures AQ-1.1, AQ-1.2, AQ-2.1, and AQ-2.2 would reduce effects on air quality for affected receptors, including environmental justice populations, by setting standards for emissions from vehicles, off-road equipment, and boats and mandating offsets for construction and operations-generated criteria pollutants. These mitigation measures would not fully reduce the identified effects of criteria pollutant emissions because there could be insufficient supply of offsets, making it infeasible to reach offset targets. Therefore, construction and operations phase emissions of criteria pollutants would remain substantially adverse.

Mitigation is not feasible for the effects on visual resources, and effects would remain substantially adverse.

Alternative 2

The air quality and visual resources effects of Alternative 2 on the environmental justice populations identified in Colusa and Yolo Counties would be similar to those described above for Alternatives 1 and 3. In addition, substantial adverse effects would occur to land use as a result of a physical division of established communities and to transportation and traffic as a result of extended school bus travel. These two additional effects of Alternative 2 would result in a disproportionate adverse effect on environmental justice communities. Similar to Alternatives 1 and 3, the beneficial effects associated with the recreation areas at the reservoir and improved roads would also occur under Alternative 2.



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DATA SOURCES: US Censuse Bureau, ACS 2014-2019

DISCLAIMER: This exhibit is preliminary and is subject to change.

LEGEND

- EJ Block Group
- City/Town/Community
- River
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Sites Reservoir (Alternatives 1, 2, and 3)

FIGURE 30-1
MINORITY-BASED ENVIRONMENTAL JUSTICE POPULATIONS

Map Date: 7/19/2021

Sites

PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER_30\FIGURE_30_1_MINORITY.MXD - USER: 29391 - DATE: 7/19/2021

The Sacramento River discharge, which would be located in Yolo County, is a conveyance and discharge facility that would not be included in the facilities for conveyance to the Sacramento River under Alternatives 1 and 3. Construction and operation of this facility would not adversely affect any new or different minority populations than identified and discussed in reference to the block groups containing the Dunnigan Pipeline for Alternatives 1 and 3.

Overall, implementation of Alternative 2 would result in disproportionately high and adverse effects to minority environmental justice populations in the resource areas of air quality, visual resources, land use, transportation, and traffic. Construction would affect the visual character and quality of views from Sites Lodoga Road. Construction and operation of Alternative 2 would increase criteria pollutant mass emissions, cause a physical division of established communities, and extend school bus travel times as compared to the No Project Alternative. Substantial adverse effects would occur. As discussed in Chapter 14, Land Use; Chapter 18; Chapter 20, and Chapter 24, mitigation is proposed where feasible to reduce the effects. Mitigation would not fully reduce effects on air quality, as described for Alternatives 1 and 3. Mitigation is not feasible for the effects on visual resources, land use, or transportation and traffic. Effects would remain substantially adverse.

Effect EJ-2: Disproportionate and Adverse Effects on Low-Income Populations

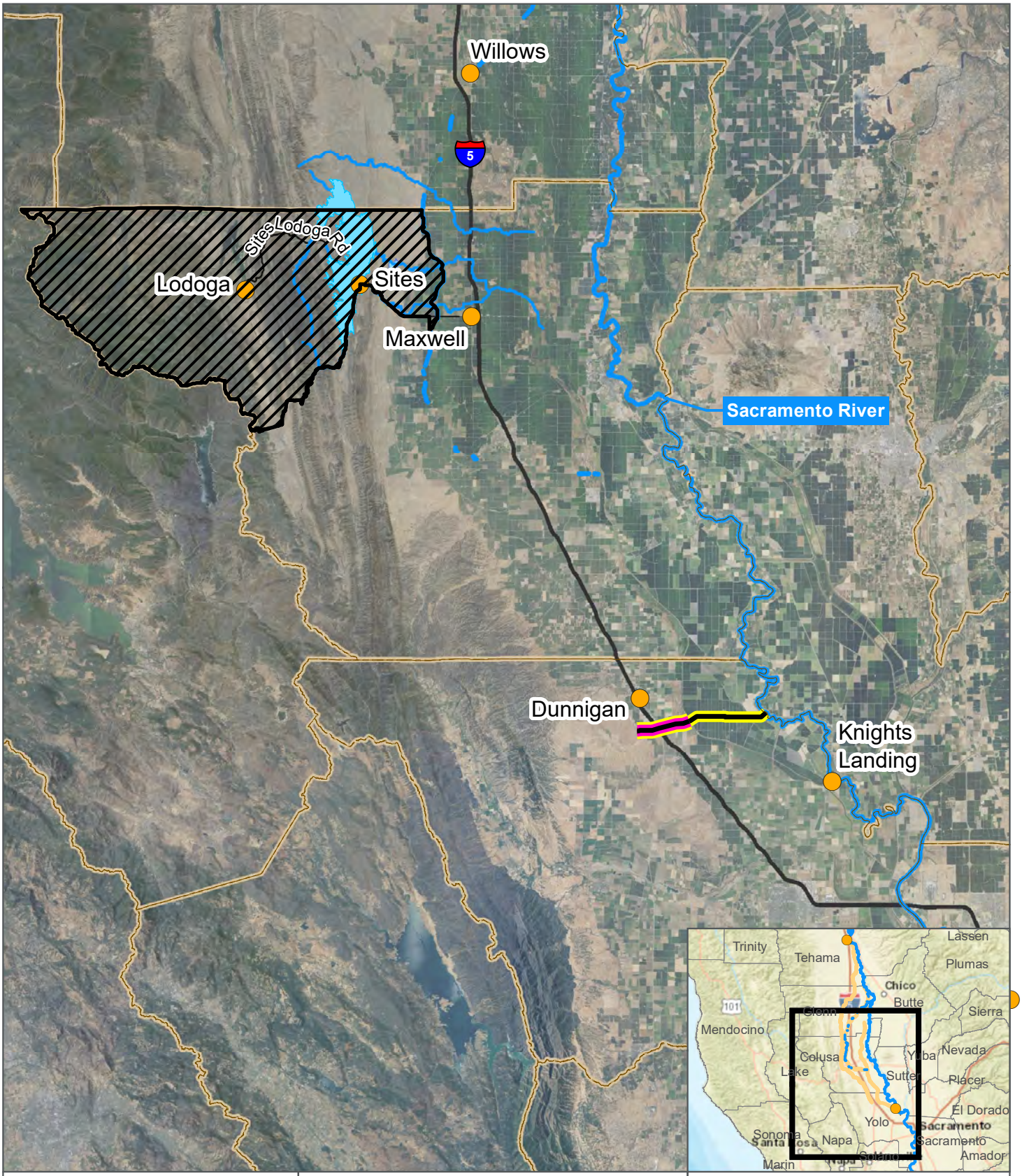
No Project

The No Project Alternative would have no disproportionate and adverse effects on low-income populations because the Project would not be built. There would be no effects associated with the construction or operation of the Project.

Alternatives 1 and 3

There is one block group in Colusa County that contains facilities for Alternatives 1 and 3 and has a low-income-based environmental justice population and thus is considered to have an environmental justice community (Figure 30-2). Population in this block group is concentrated in the communities of Lodoga and Stonyford. Lodoga is located approximately 6 miles west of the inundation area and Stonyford is approximately 8 miles west of it. These communities would have no direct view or exposure to Sites Reservoir because of intervening foothills and distance. However, one of the primary north-south roads to enter Stonyford is Lodoga Stonyford Road, which connects to Sites Lodoga Road. In addition, traffic to/from Lodoga also uses the Sites Lodoga Road as a primary route.

Adverse effects or substantial adverse effects with the potential to result in disproportionately high and adverse effects to low-income populations were identified in the resource areas of air quality and visual resources. This block group would experience the disproportionate adverse effects described above in Effect EJ-1 for Alternatives 1 and 3. Construction would affect the visual character and quality of views from Sites Lodoga Road, and construction and operation of Alternatives 1 and 3 would increase criteria pollutant mass emissions as compared to the No Project Alternative. Once operational, the widened and improved roads would be beneficial to communities in the region as described in Impact EJ-1. As discussed in Chapter 20 and Chapter 24, mitigation is proposed when feasible to reduce the effects. Mitigation is not feasible for



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MILES

DATA SOURCES: US Censuse Bureau, ACS 2014-2019

DISCLAIMER: This exhibit is preliminary and is subject to change.

LEGEND

- EJ Block Group
- City/Town/Community
- River
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Sites Reservoir (Alternatives 1, 2, and 3)

FIGURE 30-2
LOW INCOME-BASED ENVIRONMENTAL JUSTICE POPULATIONS

Map Date: 7/19/2021

Sites

PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER_30\FIGURE_30_2_LOWINCOMEEJ.MXD - USER: 29391 - DATE: 7/19/2021

visual resources, and mitigation would not reduce the air quality effects from criteria pollutant emissions to not adverse, as discussed in Effect EJ-1. Effects would remain substantial.

Alternative 2

The low-income populations identified under Alternatives 1 and 3 would be the same for Alternative 2. The effects of Alternative 2 on low-income populations related to air quality and visual resources would be similar to those for Alternatives 1 and 3. The facilities for Alternative 2 would be located within the same block groups as those under Alternatives 1 and 3. In addition, substantial adverse effects would occur to land use due to the physical division of established communities and to transportation and traffic due to extended school bus travel as described in Effect EJ-1. These additional effects of Alternative 2 would result in a disproportionate adverse effect on environmental justice communities. Overall, implementation of Alternative 2 would result in disproportionately high and adverse effects on low-income environmental justice populations in the resource areas of air quality, visual resources, land use, transportation, and traffic. The effects are the same as those described above in Effect EJ-1 for Alternative 2. Construction would affect the visual character and quality of views from Sites Lodoga Road. Construction and operation of Alternative 2 would increase criteria pollutant mass emissions, cause a physical division of established communities, and extend school bus travel times as compared to the No Project Alternative. As described in Effect EJ-1, mitigation would not reduce the air quality effects from criteria pollutant emissions to a not adverse level. Mitigation was determined to be infeasible for the effects on visual resources, land use, or transportation. Effects would remain substantial.

Effect SOC-1: Substantial Adverse Effects on Regional Economics

No Project

Under the No Project Alternative, regional economics would remain consistent with existing conditions. The beneficial regional economic effects of Project construction and operation on income and jobs would not be realized under the No Project Alternative. Similarly, the changes to agricultural acreage and productivity anticipated with Project implementation would not occur. The beneficial effects of increased recreational spending and increased water supply reliability for agricultural users would not be realized under the No Project Alternative. Overall, the No Project Alternative would not have an adverse effect on regional economics, but the beneficial effect anticipated to occur under the Project would not be realized.

Alternatives 1 and 3

Under Alternatives 1 and 3, construction-related effects on regional economics would take the form of changes to total employment and income resulting from land acquisition and the temporary loss of agricultural land during the construction of facilities. Once operational, the permanent effects of Alternatives 1 and 3 on regional economics would be factors in changes to total employment and income resulting from agricultural and recreational opportunities.

Construction

Previous modeling and results related to regional economics is applicable to the effects of Alternatives 1 and 3. As evidenced in the previous modeling results, construction-related job

opportunities would result in an overall increase in labor income and jobs, thus resulting in a positive economic effect as compared to the No Project Alternative. This effect would occur under Alternatives 1 and 3. The analysis of construction-phase regional economics in the previous economic modeling was limited to Glenn and Colusa Counties. The previous modeling assumed a portion of construction labor would be sourced from Glenn and Colusa Counties. Construction jobs sourced from the study area would generally have a positive economic effect on the study area counties. Most of the facilities under Alternatives 1 and 3 would still be located in Glenn and Colusa Counties, but Project conveyance facilities (e.g., Dunnigan Pipeline) would be in Yolo County. As discussed in Section 30.3, *Methods of Analysis*, Alternatives 1 and 3 would use primarily existing conveyance and discharge facilities and would therefore require less construction than was previously modeled. The type of regional economic effects from construction of the Dunnigan Pipeline would be similar to the type of effects identified in the previous modeling for conveyance and discharge facilities. These effects under Alternatives 1 and 3 would be of smaller magnitude due to the use of primarily existing conveyance and discharge facilities. These effects would apply across a broader region than the effects previously modeled due to the Dunnigan Pipeline's location in Yolo County. Construction of Alternatives 1 and 3 would result in generally positive economic benefits from increased labor income and employment.

One of the previously modeled economic effects is a decrease in agriculture-based labor income and jobs due to temporary disturbance of agricultural land (particularly rice fields) for construction purposes. Alternatives 1 and 3 would temporarily disturb a smaller amount of agricultural land as compared to the No Project Alternative than was previously modeled because these alternatives involve the use of primarily existing conveyance and discharge facilities. The effects of activities related to pipeline construction would be temporary as compared to the No Project Alternative, and agricultural land would be restored once construction of underground facilities is completed.

The previous modeling found that the overall effect of construction on regional economics would be positive and beneficial because of increased labor income and jobs in Glenn and Colusa Counties during construction as compared to the No Project Alternative. This increase was determined to be greater in magnitude than the economic effect of temporary decreases in agricultural labor income and jobs. Under Alternatives 1 and 3, the economic effect of increased labor income and jobs in Glenn and Colusa Counties during construction would be of lesser magnitude because of a smaller reservoir and fewer conveyance and discharge facilities, but the effect would still be positive and beneficial to the regional economy as compared to the No Project Alternative. In addition, there would be temporary regional economic benefits in Yolo County from the construction of the Dunnigan Pipeline and CBD outlet as compared to the No Project Alternative. The economic effect of decreased agricultural labor income and jobs would also be of lesser magnitude than the effect found in the previous modeling because fewer acres of agriculture would be temporarily or permanently disturbed. Overall, the effect of construction on regional economics under Alternatives 1 and 3 would be positive and beneficial.

Operation

Alternatives 1 and 3 would create sources of labor income and jobs due to operation and maintenance of the associated facilities and recreational areas as compared to the No Project

Alternative. These effects would be in Glenn, Colusa, and Yolo Counties, where the Sites Reservoir and associated facilities, including those for conveyance to the CBD.

The previous economic modeling quantified operational effects using IMPLAN and found that there would be a permanent increase in direct and indirect labor income that would be correlated with a permanent increase in direct jobs and total jobs in affected counties. The need for direct and indirect labor income and jobs resulting from the operation of Alternatives 1 and 3 would be similar to that shown in the previous modeling because the number of permanent employees is relatively similar, and the number of recreationists expected to use the reservoir is the same. The overall effect of the operation of Alternative 1 or 3 on regional economics would be positive and beneficial, although the number of jobs generated by Project operations would be small in the context of total employment in the study area.

Alternative 2

The effects of Alternative 2 on regional economics would be similar to those described above for Alternatives 1 and 3. The effects of reservoir construction would be of lesser magnitude than under Alternatives 1 and 3 due to the smaller size of the reservoir for Alternative 2. Under Alternative 2, the Dunnigan Pipeline would be longer than for Alternatives 1 and 3 and the Sacramento River discharge would be constructed. This construction under Alternative 2 would result in some additional positive economic benefits to Yolo County as compared to the No Project Alternative. As with Alternatives 1 and 3, there would be temporary effects on agriculture-based labor income and jobs from the temporary disturbance of agricultural land during construction. These temporary effects on agricultural labor income and jobs may be slightly larger under Alternative 2 when compared to Alternative 1 or 3 due to the larger area of temporary disturbance in Yolo County. However, effects from the Dunnigan Pipeline would still be of lesser magnitude than the effects of the facilities analyzed in the previous modeling. Alternative 2 would result in a beneficial effect on regional economics.

Effect SOC-2: Substantial Adverse Effects on Local Economics, including Recreation and Local Government Fiscal Conditions

No Project

Under the No Project Alternative, local economic conditions would remain consistent with existing conditions. The potential effects of land use conversion on property tax revenue in Glenn and Colusa Counties would not occur, resulting in a minor local economic benefit in comparison to the Project. Under the No Project Alternative, there would be no change to existing recreational economic conditions. Overall, the No Project Alternative would have no effect on local economics, but the beneficial effect on local economics from increased recreational spending that would be anticipated to occur under the Project would not be realized.

Alternatives 1 and 3

Construction and Operation

A change in local government fiscal conditions occurs when property tax revenue changes from a property being converted to a different land use with different tax rates. Homes in the unincorporated community of Sites that are located in the inundation area would no longer exist

and would not generate property taxes once demolished and inundated as compared to the No Project Alternative. The previous analysis assumed the same demolition and conversion of land use in the community of Sites as Alternatives 1 and 3 and estimated annual losses in property tax revenue for the Counties of Glenn and Colusa from land conversion. Annual losses in property tax revenue were estimated to be $30,892 for the County of Glenn and $274,239 for the County of Colusa. These amounts totaled 0.04% and 0.33%, respectively, of the Counties' total revenue in the 2015–2016 fiscal year. Between the 2015–2016 and 2018–2019 fiscal years, countywide average property tax rates in Glenn County and Colusa County increased. A small additional loss in property tax revenue would result if property tax losses estimated in the previous analysis were adjusted to reflect the increase in overall property tax rates since the previous modeling. This effect would still be minor in the context of the counties' total tax revenue and would not result in an adverse effect on local economics.

The other component of local economics is recreational economics. There would be no effects on recreational economics during construction, as existing recreational facilities would not be affected by the construction of Alternatives 1 and 3. Once operational, the recreational facilities included in Alternatives 1 and 3 would be the same as those previously modeled. Therefore, the economic effects of recreational opportunities under Alternatives 1 and 3 would be comparable to the estimated effects in the previous modeling and would represent approximately $2.4 million. This effect would be beneficial due to the influx of recreational visitors and the benefit to the local economy from recreation-related spending under Alternatives 1 and 3 as compared to the No Project Alternative.

The conveyance facilities located in Yolo County would not have any effect on local government fiscal conditions or recreation. They would consist of the underground Dunnigan Pipeline and associated infrastructure in areas that accommodate those types of uses.

Overall, the effects of Alternatives 1 and 3 on local economics would not be adverse and would be beneficial. There would be relatively minor losses in property tax revenues for the Counties of Glenn and Colusa Counties; however, local economic benefits would be incurred from the increase in recreational visits and spending, making the overall effect of Alternatives 1 and 3 on local economics beneficial.

Alternative 2

The effects of Alternative 2 on local economics would be the same as those described for Alternatives 1 and 3 because the same properties would be affected (i.e., community of Sites) and the same recreational facilities would be included. Effects would be positive and beneficial under Alternative 2.

Effect SOC-3: Substantial Adverse Effects on Agricultural Economics

No Project

Under the No Project Alternative, existing conditions are anticipated to continue and no effect on agricultural economics is anticipated. However, the potential economic benefits from increased agricultural water supply reliability under the Project would not be realized.

Alternatives 1 and 3

Under Alternatives 1 and 3, effects on agricultural economics would result from the disturbance of agricultural land and the increased reliability of agricultural water supply.

Construction

Construction of Alternatives 1 and 3 would result in temporary effects on agricultural land in some areas of Glenn, Colusa, and Yolo Counties. As described in Chapter 15, *Agricultural Resources*, agricultural land would be temporarily affected by construction of Alternatives 1 and 3. Previous modeling indicated a temporary annual decrease in agricultural revenue due to disturbance of agricultural land in Glenn and Colusa County as a result of the construction of the Delevan Pipeline across rice fields. This pipeline is not included in the Project. The Delevan Pipeline would have required the temporary disturbance of a much larger area of rice fields than would be required for the Dunnigan Pipeline. Therefore, the economic effect of the temporary disturbance of agricultural land under Alternatives 1 and 3 would be of a much smaller magnitude as compared to the No Project Alternative than previously reported. Refer to the discussion under Effect SOC-1 for additional detail on the effects of construction on agricultural income and employment. Due to the smaller area of agricultural land disturbance and its temporary nature, this effect would be not adverse.

Operation

Long-term effects on agricultural economics would result from the permanent conversion of agricultural land for Alternatives 1 and 3 facilities and from increased water supply reliability for agricultural users as compared to the No Project Alternative. Permanent conversion of agricultural land would only take place in Glenn and Colusa Counties, whereas the effects of increased water supply reliability would occur across a broader area. Previous SWAP modeling projected that permanent conversion of agricultural land would result in a decrease in annual crop production value. Alternatives 1 and 3 would involve a Sites Reservoir located in the same area, although within a smaller footprint than that used in the previous modeling; Therefore, Alternatives 1 and 3 would result in a comparable effect, although slightly smaller, as a result of permanent conversion of agricultural land. The decreased agricultural production value would be limited to agricultural lands located within the footprints of facilities for Alternatives 1 and 3 in Glenn and Colusa Counties, most of which is grazing land, and is expected to be less than 3% of the total area of agricultural land in Glenn and Colusa Counties and represented approximately 0.1% of the total production value of the agricultural land in those counties (Appendix 30A).

Agricultural water deliveries would differ between Alternatives 1 and 3; however, the operational effects would be similar because water deliveries would benefit agricultural users. Alternatives 1 and 3 would increase the reliability of agricultural water supply for Storage Partners. As listed in Table 30B-2a, simulated agricultural water deliveries to Storage Partners would range from a long-term annual average of 37 TAF/year or 41 TAF/year for Alternatives 1A and 1B, respectively, to 58 TAF/year for Alternative 3 (Appendix 30B). Table 30B-2a also shows that in Dry and Critically Dry Water Years, the total annual average would range from 82 TAF/year or 96 TAF/year for Alternatives 1A and 1B, respectively, or 116 TAF/year for

Alternative 3 (Appendix 30B).[2] Increased water supply reliability would allow agricultural users to be more productive and increase their crop production value. As evidenced by the simulated results above, in drier years, these agricultural water supply effects are projected to be greater for Alternatives 1 and 3 than under existing conditions. Water delivery to agricultural users under Alternatives 1 and 3 may be slightly less than previously modeled due to the reduced reservoir size and smaller deliveries to Storage Partners (Appendix 30B). However, the economic benefits related to agricultural water supply reliability would still be positive and beneficial given the deliveries are anticipated to increase within the same hydrologic regions as previously modeled. Overall, the effects of Alternatives 1 and 3 on agricultural economics would be not adverse and beneficial.

Alternative 2

The construction and operation effects of Alternative 2 on agricultural economics would be similar or the same as the effects under Alternatives 1 and 3. The amount of agricultural land temporarily disturbed by construction would be slightly higher than under Alternatives 1 and 3 and as compared to the No Project Alternative because Alternative 2 includes a longer Dunnigan Pipeline. The amount of agricultural land permanently converted to nonagricultural use under Alternative 2 would be less than the amount converted under Alternatives 1 and 3. The benefit to agricultural users of increased water supply reliability would be of slightly lesser magnitude under Alternative 2 than Alternatives 1 and 3 due to the smaller reservoir size and the lower volume of deliveries. As shown in Table 30B-2a, the simulated long-term annual average of total agricultural water deliveries for Alternative 2 is 35 TAF/year, and the Dry and Critically Dry Water Years annual average of total agricultural water deliveries is 79 TAF/year (Appendix 30B). The overall effect of Alternative 2 on agricultural economics would be positive. The effect would be not adverse and beneficial.

Effect SOC-4: Substantial Adverse Effects on Municipal and Industrial Water Use Economics

No Project

Under the No Project Alternative, M&I water use would be expected to remain consistent with existing conditions and no effect would be expected to occur. The economic benefits of increased M&I water supply reliability and avoided treatment costs anticipated under the Project would not occur under the No Project Alternative.

Alternatives 1 and 3

Construction and Operation

There would not be any construction-related effects on M&I water use economics. Water supply to M&I users would not be affected by construction of Alternatives 1 and 3 facilities as compared to the No Project Alternative. Operational effects of Alternatives 1 and 3 on M&I water use economics would occur because of expected increases in water supply deliveries. The

[2] Differences in the delivery volumes presented in this chapter may vary slightly from delivery volumes presented in Chapter 5, *Surface Water Resources*, and Chapter 32, *Other Required Analyses*, due to rounding during processing of modeling results.

operational effects of Alternatives 1 and 3 would be similar because the differences in water deliveries to individual M&I users would not change the overall economic benefit of increased water supply reliability for M&I water users. As evidenced in the economic modeling, increased water supply reliability would result in beneficial effects under Alternatives 1 and 3 as compared to the No Project Alternative. The economic benefit to M&I users was determined based on the volume of water expected to be delivered to M&I users. Based on the CALSIM modeling conducted for Alternatives 1 and 3, the simulated long-term annual average of total M&I deliveries to Storage Partners is 94 TAF/year and 86 TAF/year for Alternatives 1A and 1B, respectively and 71 TAF/year for Alternative 3. The simulated annual average for Dry and Critically Dry Water Years is 234 TAF/year and 221 TAF/year for Alternatives 1A and 1B, respectively, and 179 TAF/year for Alternative 3.[3] As evidenced by the simulated results, the magnitude of potential economic effects would depend on the conditions in a given water year. In a Dry Water Year, M&I benefit would be greater because the average annual quantity of water delivered with Alternatives 1 and 3 would be greater than the average annual quantity of water delivered under baseline conditions. Overall, Alternatives 1 and 3 would result in a beneficial effect on M&I water use economics. This benefit would vary in magnitude depending on factors such as demand, water costs, and drought.

Alternative 2

The effects of Alternative 2 on M&I water use economics would be similar to those for Alternatives 1 and 3. Based on the CALSIM modeling conducted for Alternative 2, the simulated long-term annual average of total M&I deliveries to Storage Partners is 84 TAF/year for Alternative 2. The simulated annual average for Dry and Critically Dry Water Years is 208 TAF/year for Alternative 2. As with Alternatives 1 and 3, water deliveries to M&I users under Alternative 2 would have the same type of effect as shown in the previous modeling, and a beneficial effect to M&I water use economics would be expected to occur under Alternative 2 as compared to the No Project Alternative.

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[3] Differences in the delivery volumes presented in this chapter may vary slightly from delivery volumes presented in Chapter 5, *Surface Water Resources*, and Chapter 32, *Other Required Analyses*, due to rounding during processing of modeling results.

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