Chapter 20
Public Services and Utilities

20.3 Environmental Consequences

20.3.3 Effects and Mitigation Approaches

20.3.3.1 No Action Alternative

Catastrophic Seismic Risks

The Delta and vicinity are within a highly active seismic area, with a generally high potential for major future earthquake events along nearby and/or regional faults, and with the probability for such events increasing over time. Based on the location, extent and non-engineered nature of many existing levee structures in the Delta area, the potential for significant damage to, or failure of, these structures during a major local seismic event is generally moderate to high. For major earthquakes along larger faults, ground rupture can extend for considerable distances (hundreds or thousands of feet), with associated risks for surface and subsurface structures such as buildings and utilities (e.g., gas or water pipelines). See Appendix 3E, *Potential Seismic and Climate Change Risks to SWP/CVP Water Supplies* for more detailed discussion. In instances of a catastrophic event due to climate change or a seismic event, there would also be a potential for adverse effect to public services (such as emergency response) and facilities (such as hospitals).

***CEQA Conclusion*:** Under the No Action Alternative, public services such as law enforcement, fire protection, emergency response services, public medical services, public schools, libraries, or other services would operate and expand as needed to appropriately serve the Plan Area in accordance with applicable general plans and local, state, and federal laws pertaining to service levels. ~~There would be no BDCP-related disruption to existing utility services because there would be no construction of the action alternatives~~Under the No Action Alternative, BDCP-related effects would not occur. Public services and utilities impacts would occur related to build out of other identified (and currently unknown) projects, as well as routine~~s~~ maintenance and improvement projects. These potential impacts are identified as less than significant due to anticipated conformance with applicable general plans, and local, state and federal laws. This impact would be less than significant. ~~No mitigation is required.~~

20.3.3.2 Alternative 1A—Dual Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Impact UT-1: Increased Demand on Law Enforcement, Fire Protection, and Emergency Response Services from New Workers in the Plan Area as a Result of Constructing the Proposed Water Conveyance Facilities

Increased Public Service Demands Associated with Workers Relocating to the Study Area

Table 20-2. Estimated Workforce during Peak Construction and Operation and Maintenance[a]

Alternative	Construction Workers	Operation and Maintenance Workers
1A, 2A, 6A	4,390	190
4	~~3,937~~2,278	~~130~~129
7, 8	3,360	190
3	2,850	190
5	1,320	190
1B, 2B, 6B	6,280	200
1C, 2C, 6C	5,300	190
9	3,210	120

[a] Estimated construction and operation expenditures were used as an input to the Impact Analysis for Planning (IMPLAN) model, which applies multipliers to generate estimates of employment and income change for the five-county Plan Area, as provided in Chapter 16, *Socioeconomics.*

Impact UT-4: Effects on Water or Wastewater Treatment Services and Facilities as a Result of Constructing the Proposed Water Conveyance Facilities

Table 20-3. Estimated Potable Water Supply for Construction by Alternative[1]

	Alternatives 1A, 2A, 6A		Alternatives 1B, 2B, 6B		Alternatives 1C, 2C, 6C		Alternative 3		Alternative 4[2]		Alternative 5		Alternatives 7, 8		Alternative 9	
	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required	CY Concrete	Gallons of water required
Intakes	~~147,500~~3,114,373	~~4,425,000~~93,431,190	~~147,500~~3,144,373	94,331,190~~4,425,000~~	~~147,500~~3,144,373	94,331,190~~4,425,000~~	1,261,515~~9,000~~	37,845,450~~1,770,000~~	437,780~~88,500~~	13,133,400~~2,655,000~~	~~29,500~~621,343	18,640,290~~885,000~~	1,882,858~~8,500~~	56,485,740~~2,655,000~~	5,272,002~~-~~	158,160,060~~-~~
Pumping Plants	~~442,035~~397,037	11,911,110~~13,261,050~~	~~442,035~~397,037	11,911,110~~3,261,050~~	~~442,035~~383,342	11,500,260~~13,261,050~~	169,919~~6,814~~	5,097,570~~5,304,420~~	~~265,221~~	~~7,956,630~~	114,721~~88,407~~	3,441,630~~2,652,210~~	347,638~~26~~5,221	10,429,140~~7,956,630~~	49,399~~-~~	1,481,970~~-~~
Pipelines	~~161,608~~62,183	1,865,490~~4,848,240~~	~~107,000~~76,485	2,294,550~~3,210,000~~	~~187,500~~110,064	3,301,920~~5,625,000~~	34,822~~161,608~~	1,044,660~~4,848,240~~	~~79,526~~	~~2,385,780~~	16,789~~161,608~~	503,670~~4,848,240~~	37,310~~161,608~~	1,119,300~~4,848,240~~	~~-~~	~~-~~
Canals	-	-	~~282,422~~80,956	2,428,680~~4,272,660~~	87,049~~251,915~~	2,611,470~~7,557,450~~	~~-~~	~~-~~	~~52,711~~	~~1,581,330~~	-	-	-	-	13,928~~-~~	417,840~~-~~
Siphons	-	-	370,632~~64,846~~	11,118,960~~1,945,380~~	394,888~~76,538~~	11,846,640~~23,056,140~~	~~-~~	~~-~~	~~229,233~~	~~6,876,990~~	-	-	-	-	426,906~~-~~	12,807,180~~-~~
~~Control Structures~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~110,008~~	~~3,300,240~~	~~-~~	~~-~~
Tunnels	~~3,741,459~~1,250,595	37,517,850~~2,243,770~~	~~477,120~~625,298	18,758,940~~4,313,600~~	62,530~~1,681,659~~	1,875,900~~50,449,770~~	984,844~~3,425,200~~	29,545,320~~2,756,000~~	664,502~~4,046,481~~	19,935,060~~1,394,430~~	969,211~~1,119,249~~	29,076,330~~3,577,470~~	1,094,271~~3,741,459~~	32,828,130~~2,243,770~~	~~-~~	~~-~~
Bridges	-	-	~~51,291~~79,743	2,392,290~~1,538,730~~	105,063~~54,341~~	3,151,890~~1,630,230~~	~~-~~	~~-~~	-	-	-	-	-	-	15,009~~-~~	450,270~~-~~
Forebays/Intermediate PP	~~301,096~~332,145	9,964,350~~9,032,880~~	~~195,373~~125,299	3,758,970~~5,861,190~~	125,299~~169,043~~	3,758,970~~5,071,290~~	332,145~~301,096~~	9,964,350~~9,032,880~~	222,042~~39,857~~	6,661,260~~1,195,710~~	332,144~~301,096~~	9,964,320~~9,032,880~~	332,144~~301,096~~	9,964,320~~9,032,880~~	~~-~~	~~-~~
Dredging	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510	15,300
Offsite Segment Production	-	-	-	-	-	~~-~~	-	-	3,648,416	109,452,480	-	-	-	-	-	-
Subtotal for Concrete	~~4,903,706~~5,186,333	155,589,990~~47,111,180~~	~~2,457,595~~4,899,821	146,994,630~~73,727,850~~	~~3,812,539~~4,412,607	132,378,210~~14,376,170~~	~~4,233,726~~2,783,244	83,497,320~~7,011,780~~	~~4,911,537~~4,972,740	~~147,346,110~~49,182,200	~~1,809,868~~2,054,209	61,626,270~~4,296,040~~	3,694,221~~4,667,892~~	110,826,630~~40,036,760~~	5,777,754~~4,400,502~~	173,332,620~~42,015,060~~
Field offices ~~12~~	-----	21,024,000	-----	18,396,000	-----	17,082,000	-----	17,082,000	-----	~~18,396,000~~28,616,000	-----	15,768,000	-----	18,396,000	-----	13,140,000
Total Potable Water for Construction	-----	**~~176,613,990~~168,135,180**	-----	**~~165,390,630~~92,123,850**	-----	**~~149,460,210~~131,458,170**	-----	**~~100,579,320~~144,093,780**		**~~165,742,110~~167,578,200 177,798,200**	-----	**~~77,394,270~~70,064,040**	-----	**~~129,222,630~~58,432,760**	-----	**~~186,472,620~~55,155,060**

[1] Assumptions were carried over from Appendix 22B, *Air Quality Assumptions*, Table 22B-18, *Concrete Batching Volumes (cubic yards)*.

~~12~~ The number of field offices estimated for each alternative is based on the number of major structures included in the alternative. Major structures include: intakes, forebays, and pumping plants. Gallons of water required for each alternative is based on the following assumptions:

Average number of workers per office: 10
Number of operational days per office: 9 years at 365 days per year = 3,285 (Alternative 4 assumes 14 years at 365 days per year = 5,110)
Gallons of water consumed per person per day: 40 (includes drinking, hand washing, and toilet use)
Based on these assumptions, the number of field offices required for each alternative is as follows:
Alternatives 1A, 2A, 6A: 16
Alternatives 1B, 2B, 6B, 1C, 2C, 6C: 14
Alternatives 4, 7, 8: 14
Alternative 3: 13
Alternative 5: 12
Alternative 9: 10

~~2 Assumptions for Alternative 4 were carried over from Appendix 22B, *Air Quality Assumptions*, Table 22B-18, *Concrete Batching Volumes (cubic yards).*~~

[3] General Note for the RDEIR/SDEIS: Structure impacts have been revised for other alternatives as a result of an updated dataset of structures within the study area. These revisions (up to three additional storage/support structures affected) would not affect the ultimate impact conclusions associated with this effect; therefore, impact conclusions associated with these alternatives have not been reprinted in this RDEIR/SDEIS.

Impact UT-6: Effects on Regional or Local Utilities as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Under Alternative 1A, construction of some elements could disrupt utility services or require relocation of existing facilities. The alternative could result in environmental effects in and around areas temporarily or permanently affected by relocation activities.

Due to the nature of underground construction, the exact location of underground utilities cannot be guaranteed based on construction documents but can only be determined by careful probing or hand digging, in compliance with Article 6 of the California Occupational Safety and Health Administration (Cal/OSHA) Construction Safety Orders. Underground Service Alert, a service which provides utility location services, is not available until the time of construction. Construction activities for Alternative 1A could result in damage to or interference with existing water, sewer, storm drain, natural gas, oil, electric, and/or communication lines and, in some cases, could require that existing lines be permanently relocated, potentially causing interruptions in service. Numerous utility lines of varying sizes are located along and across the alternative alignment and at the various pumping plants and forebay sites.

This water conveyance alignment, along with its associated physical structures, could interfere with ~~9 ni~~11 ~~ne~~ overhead power/electrical transmission lines (Chapter 24, *Hazards and Hazardous Materials*, Figure 24-6), ~~5~~ 11 ~~five~~ natural gas pipelines (Table 20-5 and Chapter 24, *Hazards and Hazardous Materials*, Figure 24-3), ~~6~~ six active oil or gas wells (Chapter 24, *Hazards and Hazardous Materials*, Figure 24-5), the Mokelumne Aqueduct, and approximately 38 miles of agricultural delivery canals and drainage ditches, including approximately 7 miles on Victoria Island, 5 miles on Bacon Island, 4 miles on Byron Tract, and 4 miles on Tyler Island. The potential for construction of the proposed conveyance facilities to cause disruptions to agricultural infrastructure in the study area are addressed in Chapter 14, *Agricultural Resources*. Specifically, Chapter 14 addresses potential conflicts with existing agricultural irrigation and drainage facilities as a result of construction.

Table 20-5. Number and Type of Pipelines and Electrical Transmission Lines Crossing Action Alternative Alignments

Utility Operator and Type	Pipeline/ Tunnel Option (Alt. 1A, 2A, 3, 5, 6A, 7, and 8)	Modified Pipeline/ Tunnel Option (Alt. 4)	East Option (Alt. 1B, 2B, and 6B)	West Option (Alt. 1C, 2C, and 6C)	Separate Corridor Option (Alt. 9)
Electrical Transmission Lines					
Western Area Power Administration 69 kV	1	1	1	1	0
Western Area Power Administration 230 kV	2	2	2	1	2
Pacific Gas & Electric 115 kV	~~4~~2	2	2	~~3~~2	2
Pacific Gas & Electric 230 kV	0	0	4	2	0
Pacific Gas & Electric 500 kV	3	3	3	4	0
Transmission Agency of Northern California/ Western Area Power Administration for the California-Oregon Transmission Project (COTP) 500 kV	1	1	1	1	1
Sacramento Municipal Utility District 230 kV	0	3	0	0	0
	11	**12**	**13**	**12**	**5**
Pipelines					
Pacific Gas & Electric (size unspecified) Natural Gas	~~7~~5	6	~~5~~3	~~5~~7	0
Chevron Texaco (7" diameter) Petroleum Product	1	1	1	~~1~~0	0
Chevron Texaco (9" diameter) Petroleum Product	~~1~~2	1	~~1~~2	~~1~~0	0
Chevron Texaco (18" diameter) Petroleum Product	1	0	1	0	0
Kinder Morgan Pacific Region (10") Petroleum Product	~~1~~2~~a~~	~~1~~2~~a~~	~~1~~2~~a~~	~~1~~0	~~1~~2~~a~~
	11	**9**	**9**	**10**	**1**

kV = kilovolts.

This table does not include all possible crossings because existing infrastructure inventory has not been completed.~~a These Kinder Morgan product lines run parallel to one another~~

Construction of the proposed conveyance facility would involve site grading and similar activities requiring heavy equipment use. These construction activities could result in the unintentional damage to or disruption of underground utilities as a result of trenching, augering, or other ground disturbing activity. Disruption of certain utilities, such as natural gas pipelines, could result in public health hazards (e.g., explosions). Construction could also result in damage to or disruption of overhead utilities when establishing electrical interconnection of this alternative to the electric grid. Temporary transmission lines would extend existing power infrastructure (transmission lines and substations) to construction areas. In some cases, disruption of infrastructure and facility operations would be avoided because BDCP facilities would cross either over or under the existing utilities. For instance, most natural gas pipeline crossings are less than 30 feet below ground surface and the

proposed tunnel would be installed more than 80 feet below ground surface. However, construction of certain alternative facilities would require relocation of existing utilities.

Proposed forebays and spoil areas would conflict with PG&E 500 kV and 115 kV power lines, and with ~~a~~ Western ~~500~~ 69 kV and 230 kV transmission lines. A COTP 500 kV line would cross an~~, which crosses the Byron Tract Forebay site and a~~ RTM area. Some additional electric distribution lines along roads would require relocation. Six active oil or gas wells lie along the permanent conveyance footprint or within areas identified for the deposition of borrow, spoil, or RTM, where it crosses Brannan-Andrus and Tyler Islands. Since the RTM areas will not be deeper than topsoil levels, minimal conflicts, if any, are anticipated. One natural gas pipeline in the Byron Tract Forebay area would potentially require relocation.

The potential damage and disruption to buried and overhead electric transmission lines would be similar for telecommunication infrastructure. In addition, alternative construction would require use of existing and/or construction of new communications infrastructure for intake pumping plants (Chapter 3, *Description of Alternatives*). A communication system would be required to connect to the existing DWR Delta Field Division Operations and Maintenance Center near Banks Pumping Plant and the DWR communications headquarters in Sacramento, which would require buried fiber optic conduit installed from the southern end of the new conveyance facility at Byron Tract Forebay along the inlet canal to Banks pumping plant and the Delta Field Division Operations and Maintenance Center. The conduit route would be adjacent to roads, highways, railroads, utilities, or other easements.

Effects would be more likely to occur if utilities were not carefully surveyed prior to construction, including contact with local utility service providers. Implementation of pre-construction surveys, and then utility avoidance or relocation if necessary, would minimize any potential disruption. Mitigation Measures UT-6a, UT-6b, and UT-6c would require relocation or modification of existing utility systems, including, but not limited to, public and private ditches, pumps, and septic systems, in a manner that does not affect current operational reliability to existing and projected users; coordination of utility relocation and modification with utility providers and local agencies to integrate potential other construction projects and minimize disturbance to the communities; and verification of utility locations through field surveys and services such as Underground Service Alert.

Because relocation and disruption of existing utility infrastructure, including water, sewer, storm drain, natural gas, oil, electric, and/or communication lines, would be required under this alternative, this would be an adverse effect.

Mitigation Measures UT-6a, UT-6b, and UT-6c are available to reduce the severity of this effect. If coordination with all appropriate utility providers and local agencies to integrate with other construction projects and minimize disturbance to communities were successful under Mitigation Measure UT-6b, the effect would not be adverse.

***CEQA Conclusion*:** Under this alternative, most features would avoid disrupting public utility service by crossing over or under existing infrastructure. However, construction of facilities would conflict with utility facilities in some locations. Alternative 1A would require relocation of regional power transmission lines and one natural gas pipeline. Additionally, active gas wells may need to be plugged and abandoned. Because the relocation and potential disruption of utility infrastructure would be required, this impact is significant ~~and unavoidable~~.

Mitigation Measures UT-6a, UT-6b, and UT-6c are available to reduce these impacts. If coordination with all appropriate utility providers and local agencies to integrate with other construction projects and minimize disturbance to communities were successful under Mitigation Measure UT-6b, the impact could be less than significant. However, since coordination with a third party is required in order to carry out this mitigation, a conservative assessment of significant and unavoidable is being made.

20.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)

Impact UT-1: Increased Demand on Law Enforcement, Fire Protection, and Emergency Response Services from New Workers in the Plan Area as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Construction of the proposed water conveyance facilities under Alternative 4 could affect law enforcement, fire protection, and emergency services and facilities through increased demand for services and direct and indirect effects on nearby facilities. Increased service demands would be experienced in the communities in which new construction workers relocate and in the areas in which construction would take place.

Increased Public Service Demands Associated with Workers Relocating to the Study Area

Although Alternative 4 would not result in a permanent increase in population that could tax the ability to provide adequate law enforcement, fire protection services, and medical services, the increase in construction workers anticipated during the construction period of approximately 14~~9~~ years could increase demands for these services during this period. An estimated peak of ~~3,937~~2,278 workers would be needed during construction of the proposed water conveyance facilities (Table 20-2) (Chapter 16, *Socioeconomics*, Table 16-41).

It is anticipated that many of these construction jobs would be filled from the existing labor force in the five-county Plan Area region. However, construction of the conveyance tunnels may require specialized skills resulting in recruitment of specially trained workers coming from outside the five-county region. As described in Chapter 16, *Socioeconomics,* this additional population would constitute a minor increase in the total 2020 projected regional population of 4.6 million.

Because the construction population would primarily come from the existing five-county labor force which is already served by law enforcement agencies and medical/emergency response services (hospitals) in the Plan Area (Appendix 20A, Tables 20A-1 to 20A-3), and because the minor increase in demand from the worker population that would move into the area to fill specialized jobs (e.g., tunnel construction) would be spread across the large multi-county study area, construction of the alternative is not anticipated to result in an increased demand on law enforcement, fire protection, or medical services. This effect is not considered adverse.

Increased Public Service Demands Associated with Construction Work Areas and Activities

Constructing the proposed water conveyance facilities could create additional demand for law enforcement, fire protection, or emergency medical services for construction property protection and related to the potential for construction-related accidents associated with hazardous materials spills, contamination, or fires.

The scale and duration of construction required for Alternative 4 could result in increased demand on law enforcement services, especially near major construction sites. As part of the alternative, DWR would implement an environmental commitment (as discussed in Appendix 3B, *Environmental Commitments*) that would provide 24-hour onsite private security at construction sites. Implementation of this environmental commitment would ensure there would be no adverse effect on local law enforcement agencies associated with construction property protection.

Construction of this alternative could also result in increased demands for service from law enforcement, fire protection, and emergency service agencies related to possible increases in construction-related accidents, either at job sites or along haul routes, or other incidents involving hazardous materials. DWR would incorporate environmental commitments into this alternative that would minimize the potential for construction-related accidents associated with hazardous materials spills, contamination, or fires. The following environmental commitments would be incorporated into this alternative (Appendix 3B, *Environmental Commitments*):

- A hazardous materials management plan (HMMP) that includes appropriate practices to reduce the likelihood of a spill of toxic chemicals and other hazardous materials during construction and facilities operation and maintenance.
- A SPCC Plan will be developed and implemented to minimize effects from spills of oil or oil-containing products during construction and operation of the project.
- A fire prevention and control plan that will include fire prevention and suppression measures consistent with the policies and standards in the affected jurisdictions and will be in full compliance with Cal-OSHA standards for fire safety and prevention.

Incorporation of these environmental commitments would minimize the potential for construction-related accidents associated with hazardous materials spills, contamination, or fires, and reduce potential effects associated with increased service demands from new construction workers in the Plan Area.

In summary, the potential for Alternative 4 to result in an effect on law enforcement, fire protection, and emergency response services because of increased demand from new workers in the Plan Area during construction of the proposed water conveyance facilities is low. The minor increase in population associated with specialized construction jobs during the construction period would not likely result in an increased demand for law enforcement, fire protection, and medical services because the minor increase in demand would be spread across a large multi-county area~~ and would not be expected to disproportionately affect any one jurisdiction~~. The incorporation of environmental commitments that would minimize construction-related accidents associated with hazardous materials spills, contamination, and fires, and provide for onsite security at construction sites, would minimize potential effects related to demand for public services associated with construction property protection and the potential for construction-related accidents. Environmental commitments would also be incorporated to reduce potential exposure of hazardous materials to the human and natural environment, thereby minimizing the potential related demand for fire or emergency services. This effect is not considered adverse.

Construction of Alternative 4 would not increase the demand on law enforcement, fire protection, and emergency response services either due to an increased worker population or due to construction-related hazards, such that it would result in substantial adverse physical effects associated with the provision of, or the need for, new or physically altered governmental facilities.

Impacts to emergency response times from construction traffic using emergency routes are discussed in Chapter 19 Impact Trans-3. Therefore, the effect would not be adverse.

***CEQA Conclusion*:** The majority of construction jobs are expected to be filled by the existing five-county labor force, and the minor increase in population associated with specialized construction jobs (e.g., tunnel construction) during the construction period would not likely result in an increased demand for law enforcement, fire protection, and medical services. This is because the minor increase in demand would be spread across a large multi-county area ~~and would not be expected to disproportionately affect any one jurisdiction~~. There would be a ~~less than significant impact~~less-than-significant impact on law enforcement, fire protection, and emergency response services from the increased demand of new workers who relocate to communities in the Plan Area during construction of the proposed water conveyance facilities.

Incorporation of environmental commitments that would minimize construction-related accidents associated with hazardous materials spills, contamination, and fires, and provide for onsite security at construction sites would minimize potential effects related to the potential for construction-related accidents, and increased demand for public services associated with construction property protection. Environmental commitments would also be incorporated to reduce potential exposure of hazardous materials to the human and natural environment, thereby minimizing the potential demand for fire or emergency services.

Construction of Alternative 4 would not require new or physically altered governmental facilities since it would not cause a marked increase in the worker population in the Plan Area, nor would it increase the potential for construction-related hazards. This impact would be less than significant. No mitigation is required.

Impact UT-2: Displacement of Public Service Facilities as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Under Alternative 4, a proposed 2~~8~~9-foot interior diameter single-bore tunnel would be constructed more than 100 feet below the surface of Hood. It would connect north of Hood to pipelines running from Intakes ~~Pumping Plant~~ 2 and 3, and south of Hood to the intermediate forebay. There are no public facilities in the proposed tunnel ~~location~~alignment. Construction of the tunnel facilities ~~is not anticipated to disturb the surface and~~ would not conflict with any public facilities, nor would it require the construction or major alteration of such facilities. Therefore, this effect would not be adverse.

***CEQA Conclusion*:** Construction of the proposed water conveyance facilities under Alternative 4 would not require the construction or major alteration of public service facilities. Therefore, this impact would be less than significant. No mitigation is required.

Impact UT-3: Effects on Public Schools as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Construction of the proposed water conveyance facilities under Alternative 4 would require an estimated peak of ~~3,937~~2,278 workers (Table 20-2), most of whom are expected to come from the existing five-county labor force. However, tunnel construction may require workers with specialized skills not readily available in the local labor pool. It is anticipated that some of the non-local workers would come from outside the five-county region, although this would represent a

minor increase in population compared to the total 2020 projected regional population of 4.6 million.

Because most of the BDCP construction jobs would be filled by workers from within the existing five-county labor force, it is anticipated that school-aged children from those families would already have planned to attend schools in school districts within the Plan Area and there would be no increased demand for public school services from these workers (see Table 20A-4, Appendix 20A). While some workers who relocate from outside of the Plan Area could have school-age children, resulting in an increase in public school enrollment, this minor increase in population in the Plan Area would not be expected to result in an increase in enrollment numbers substantial enough to exceed the capacity of any individual ~~school or~~ district, or to warrant construction of a new facility within the Plan Area. Further, it would be difficult to identify specifically where within the region these new employees would reside. However, Table 20A-4 in Appendix 20A lists the 209 schools that serve the communities within the Plan Area and the current enrollment numbers for each school, which identifies a total enrollment of 148,880 across the Plan Area. The incremental increase in school-age children of construction personnel moving into the area for specialized jobs (e.g., tunnel construction) as a result of construction of Alternative 4 would likely be distributed through a number of schools within the Plan Area. As shown in Table 20A-4, a small number of schools have current enrollments which are already in excess of the available capacity. However, the ~~This~~ increase created by project construction would not have a substantial effect on school enrollment in any one school district, and the change would not be substantial enough to exceed the capacity of any identified ~~school or~~ district, or to warrant construction of a new facility.

Overall, construction of Alternative 4 is not anticipated to result in a substantial increase in demand for public schools in the Plan Area and would not create a need for new or physically altered public schools. There would be no adverse effect.

***CEQA Conclusion*:** There would be a significant impact if the proposed action resulted in substantial adverse physical effects associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental effects, for any public services. The majority of construction jobs are expected to be filled by workers from the existing five-county labor force. The incremental increase in school-age children of construction personnel moving into the area for specialized construction jobs (e.g., tunnel construction) would likely be distributed through a number of schools within the Plan Area. This increase in school enrollment would not be substantial enough to exceed the capacity of any individual ~~school or~~ district, or to warrant construction of a new facility or alteration of an existing facility within the Plan Area. The impact is less than significant. No mitigation is required.[1]

Impact UT-4: Effects on Water or Wastewater Treatment Services and Facilities as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Construction of the proposed water conveyance facilities would require water supply and wastewater treatment services. While pre-construction geotechnical activities including backfilling borings with cement-bentonite grout, and general construction activities including dust control and soil compaction would require a supply of water, for purposes of this analysis, the major

[1] Under California law, the rules governing what constitutes adequate mitigation for impacts on school facilities is governed by legislation. Pursuant to the operative statutes, impacts to schools, with some exceptions, are sufficiently mitigated, as a matter of law, by the payment of school impact fees by residential developers. (See Cal. Gov. Code, §§ 65995[h], 65996[a].)

potable water supply needs would be for the concrete batch plants (see Chapter 3, *Description of Alternatives*) and field offices during construction. Potable water supply needed for construction was calculated based on the amount of concrete required for this alternative and the amount of water required by the field offices. Under this alternative, ~~four~~ ~~three~~ six concrete batch plants would be constructed onsite for temporary use during construction. Each batch concrete plant would require fresh water for batching, dust control, and washing requirements (including concrete truck washout). The potable water supply estimates also considered the number of field offices needed for each alternative and assumed that each field office would have an average of 10 workers, an average of 40 gallons of water would be consumed per person per day (including drinking, hand washing, and toilet use), and would be operational for ~~3,285~~5,110 days (i.e., ~~9~~ 14 years at 365 days per year[2]). Table 20-3 presents the estimated potable water supply required for concrete (by each type of facility) and for field offices.

Based on the number of major structures associated with this alternative, it is estimated that 14 field offices would be needed, which would use 18 million gallons of water. In addition, ~~147~~ 150 million gallons of water would be used for activities associated with concrete batch plants. The total potable water supply needed under this alternative is estimated to be ~~167~~5.7~~6~~177.8 million gallons (Table 20-3). It is anticipated that if there are existing water lines in the vicinity of the construction sites, the field office will connect to them. Because construction of this alternative would primarily occur in rural parts of the study area, and is not likely to occur in areas with municipal water service, it is not expected to impact municipal water systems. If there are no existing water lines in the vicinity, then field offices will require construction of a water tank. Water for construction will be provided by available sources to the extent possible; if needed, water may be brought to the construction sites in water trucks. Construction impacts associated with trucks, including water trucks, are addressed in Chapter 19, *Transportation*, Chapter 22, *Air Quality and Greenhouse Gases*, and Chapter 23, *Noise*. As such, this alternative would not likely adversely affect municipal water supplies. Additionally, the potable water demand would be temporary and limited to the construction period.

Tunnel boring would create a substantial amount of wastewater. This material, part of the RTM, would also include soils, foaming agents, and other materials. This analysis assumes that RTM would undergo treatment in isolated RTM storage areas located throughout the Plan Area (see Figure M3-4 in the Mapbook Volume), and therefore, wastewater related to tunnel boring RTM would not require treatment at wastewater treatment facilities. As part of the alternative, DWR would implement an environmental commitment (as discussed in Appendix 3B, *Environmental Commitments*) that would dispose of and reuse spoils, reusable tunnel material, and dredged material. Concrete batch plants would also create wastewater, which would be treated onsite at designated concrete batch plant sites. Wastewater generated during construction at field offices and temporary construction facilities will be served by temporary portable facilities (e.g., portable toilets). As discussed in Chapter 8, Water Quality, as part of the Environmental Commitments (Appendix 3B) for each alternative, DWR will be required to conduct project construction activities in compliance with the State Water Board's *NPDES Stormwater General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order No. 2009-0009-DWQ/NPDES Permit No. CAS000002). This General Construction NPDES Permit requires the development and implementation of a SWPPP that outlines the temporary construction-related BMPs to prevent and minimize erosion, sedimentation, and discharge of other construction-related contaminants, as well

[2] This is a conservative estimate, as Chapter 3, *Description of Alternatives*, indicates that most construction activities will occur only 5 days a week (Monday through Friday) up to 24 hours a day.

as permanent post-construction BMPs to minimize adverse long-term stormwater related–runoff water quality effects.

Considered across the alternative, potable water supply needs are substantial in volume; however, these requirements would need to be met over a construction period of approximately ~~9~~14 years, and would be anticipated to be met with non-municipal water sources without any need for new water supply entitlements. Further, wastewater treatment services required for this alternative would be provided by temporary facilities and treated onsite. Construction of Alternative 4 would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. This effect would not be adverse.

***CEQA Conclusion*:** Construction of Alternative 4 would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. While construction of Alternative 4 would require 1767.~~68~~ ~~165.7~~ million gallons of potable water, this supply could be met by non-municipal sources without any new water supply entitlements. Additional needs for wastewater treatment and potable water could also be served by non-municipal entities. Water for construction activities would be brought to the site in water trucks. Wastewater services for construction crews would be provided by temporary portable facilities. ~~Construction of Alternative 4 would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities.~~ This impact would be less than significant. Mitigation is not required.

Impact UT-5: Effects on Landfills as a Result of Solid Waste Disposal Needs during Construction of the Proposed Water Conveyance Facilities

NEPA Effects: Alternative 4 would only require construction of three intake facilities as opposed to five intakes; however, Alternative 4 would also involve constructing an operable barrier at the Head of Old River, which could create some solid waste. Overall, the construction waste that could be generated by implementing Alternative 4 would not adversely affect capacity of available landfills because it represents a negligible amount of the total remaining permitted capacity of Plan Area landfills, and is not expected to exceed this capacity. Further, at least 50% of construction waste would be diverted (diversion requirements set forth by the State Agency Model IWMA). This alternative is not expected to impact the lifespan of area landfills, because over 70% of the remaining permitted capacity is associated with landfills with expected lifespans of between 18 and 70 years—well beyond the expected timeframe for construction of BDCP facilities, when solid waste disposal services would be needed. Further, implementation of BMP 13 (Appendix 3B, *Environmental Commitments*) would require development of a project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste. Construction of Alternative 4 would not create solid waste in excess of the permitted capacity of area landfills, nor would it adversely affect the expected lifespan of these solid waste facilities. There would be no adverse effect.

Construction of the proposed water conveyance facilities would generate construction debris and excavated material that would require disposal at a landfill. For purposes of this analysis, an estimate of the total quantity of excavated material to be disposed at a landfill was calculated for each facility of the alternative based on construction cost estimating documents. Construction of Alternative 4, is estimated to generate ~~17,846~~44,353 tons of excavated material. Construction of tunnel segments under this alternative would require disposal of RTM, which is a mix of soils cutting and soil conditioning agents (water, air, bentonite, foaming agents, and/or polymers or biopolymers). As part of the alternative, DWR would implement an environmental commitment (as

discussed in Appendix 3B, *Environmental Commitments*) that would dispose of and reuse spoils, RTM, and dredged material. Before RTM can be reused or reintroduced to the environment, it must be managed and treated. Construction of the BDCP alternatives would utilize the controlled storage method; under this approach, soils, RTM, and dredged material would be transported to designated RTM work areas for the temporary storage of these materials. Based on a review of the typical additives in RTM, it is assumed that the RTM can be disposed of onsite; however, to be conservative, an estimated 0.1% of the excavated waste, accounting for any hazardous substances or wastes coming from farming operations or previous land uses, would require disposal at a landfill[3]. Based on these assumptions, up to ~~17.85~~44.35 tons (i.e., 0.1% of ~~17,846~~44,353 tons) of excavated materials would require disposal at a landfill. Under this alternative, the total volume of excavated material that would require disposal at a landfill during the construction period (~~17.85~~44.35 tons) represents a negligible impact on the 11 solid waste landfills, which have a total remaining permitted capacity of over 300 million tons or 440.25 million cubic yards (Appendix 20A).

Construction debris, including debris from structure demolition, power poles, utility lines, piping, and other materials would also be generated as a result of construction of this alternative. For purposes of this analysis, the volume of construction debris generated during construction was based on estimated truck trips that were assumed to be potentially associated with disposal of construction debris at a landfill. This includes all trips by trucks categorized as ~~Heavy Construction~~ T7 Onsite that are likely to carry debris (~~flatbed,~~ end dump~~, and tractor~~) detailed in Chapter 22, *Air Quality and Greenhouse Gases* (Table 22B-~~4~~ 67 of Appendix 22B, *Air Quality Assumptions*). ~~The analysis in Appendix 22A, *Air Quality Analysis Methodology*, assumes that crew and dump truck roundtrips would be 30 miles, based on information provided by DWR and also assumes that these trips would include crew vehicle movement onsite among various facilities and trips to local landfill sites.~~ Under this alternative, there would be approximately ~~21~~ 459 outbound trips per day, or ~~47,268~~1,033,143 trips over the 9-year construction period[4]. One truck typically holds approximately 20 cubic yards of material. Therefore, an average of ~~420~~ 9,175 cubic yards (~~302~~ 6,606 tons) would be generated per day, totaling ~~952,552~~20,651,614 cubic yards (~~685,837~~14,869,162 tons[5]) of construction debris over the 9-year construction period.

[3] The percentage of waste excavation that might need specialized disposal at a landfill site was determined in consultation with the U.S. Department of Energy (DOE) Hazardous Substances Coordinator. For purposes of this analysis, "excavated material" includes dredged spoils for intakes, associated pumping plants, canals, conveyance pipelines, and forebays. This analysis does not take into account RTM since 100% of RTM is assumed to be able to be disposed of on site.

[4] This assumption is based on ~~1A alignment calculations scaled based on~~ emissions factors detailed in Appendix 22A and Appendix 2B. As provided in ~~Chapter~~ Appendix 22A, Air Quality ~~and Greenhouse Gases~~Analysis Methodology, it is assumed that ~~each truck will make a maximum of 4 roundtrips (or 8 one-way trips)~~roundtrips to landfills are on average 30 miles. Based on the assumptions detailed in Appendix 22A and Table~~s~~ 22B-~~75 through 22B-8~~ of Appendix 22B, there would be ~~120~~25724 heavy duty dump trucks associated with construction of Alternative 4 (modified pipeline/tunnel alternative) ~~traveling a total of~~which would travel over 30 miles a day (the length of one round-trip to a landfill)~~-~~. Appendix 22A, based on information provided by DWR, assumes that these dump trucks would be split between crew vehicle movement onsite among various facilities and trips to local landfill sites, so the analysis assumes 50% of these vehicles would be used for hauling material to landfills.~~, which would result in a maximum of 47,628 trips potentially associated with the disposal of construction debris at a landfill over the 9-year construction period.~~ Although the truck trips during construction may not all be used for excavated material disposal, this number was used to provide a conservative estimate of the amount of excavated material that would be disposed.

[5] Conversion assumes 1 cubic yard of excavated material is approximately 0.72 ton.

Although it is not known specifically which landfills would be utilized during construction of the proposed water conveyance facilities, disposal of demolition and excavated material would be expected to occur at several different locations depending on the type of material and its origin. It is standard practice that the construction contractors handle and dispose of all hazardous and non-hazardous materials during construction. Of the solid waste facilities in the Plan Area counties, there are 30 active facilities that can handle solid waste, including 11 solid waste landfills with a remaining permitted capacity of well over 300 million tons, and 18 large volume transfer/processing facilities (see Appendix 20A, Table 20A-6 for a listing of each facility's name, location, permitted capacity, remaining capacity, maximum permitted daily throughput, and proximity to the statutory Delta). According to the CalRecycle SWIS, the 11 solid waste landfills within the study area have estimated "cease operation" dates[6] ranging from between 2016 and 2082. Of the remaining permitted capacity at area landfills, approximately 70% of the capacity is associated with landfills that are not expected to close for 18 to 70 more years (CalRecycle 2012).

Of the estimated 14,869,162 ~~685,837~~ tons of construction debris that would be generated under this alternative, a percentage would be diverted from landfills to the maximum extent feasible at the time of demolition. Even before consideration of diversion, the construction debris represents negligible amount of the total remaining permitted capacity of Plan Area landfills, and is not expected to exceed this capacity.

Based on a 2006 characterization study of construction and demolition waste conducted by the CIWMB (now CalRecycle), Alternative 4 would be considered reasonably equivalent to that study's "Other C&D activities that include construction or demolition materials generated from the building, repair, and/or demolition of roads, bridges and other public infrastructure." Divertible categories of material included recyclable aggregates; recyclable wood; rock, dirt, and sand; recyclable metal; and other recoverable material. All non-divertible materials are categorized as other MSW (California Integrated Waste Management Board 2006:46).

Based on the CalRecycle study, approximately 93% of waste generated by the Other C&D subsector was estimated to be divertible. The 10 most prevalent materials for Other C&D waste are shown in Table 20-4. Nine of the top ten materials for Other C&D waste were considered divertible; only painted/demolition gypsum board was not. The most prominent single material type was large asphalt pavement without re-bar, which accounted for approximately 44% of total waste diverted, whereas all other material types in this waste subsector accounted for less than 10% of other C&D waste (California Integrated Waste Management Board 2006:31).

Table 20-4 identifies some of the types of construction and demolition debris that would be anticipated to be generated as a result of construction of Alternative 4. Demolished concrete could be sent to a concrete recycling facility. Other select materials, such as doors, windows, siding, lumber, timbers, and steel, may also be salvaged and reused. Based on CalRecycle's study, ~~637,828~~13,828,320 tons (i.e., 93% of the 14,869,162 ~~685,837~~ tons of construction debris) is estimated to be divertible. Diverting over 90% of this waste from landfills would substantially lessen any potential effects to Plan Area solid waste management providers. The materials requiring

[6] As defined by the California Department of Resources Recycling and Recovery (CalRecycle), for active disposal facilities, the ceased operations date is the estimated date when the facility will reach its permitted capacity. That date is found in or estimated from information in the current permit or permit application for a particular facility, including the approved closure plan for the facility (CalRecycle 2012).

disposal that are considered non-divertible would be hauled offsite to a suitable landfill depending on the type of material and its origin.

While a 90% diversion rate is not always feasible in every instance, the State Agency Model IWMA (Chapter 764, Statutes of 1999, Strom-Martin) which took effect on January 1, 2000 as part of AB 75, requires that each state agency (including DWR) is mandated to develop and implement an IWMP. The provisions of the IWMA require that all state agencies and large state facilities must divert at least 50% of their solid waste from disposal facilities on and after January 1, 2004. Another requirement of the law is that each state agency and large facility is to submit an annual report to CalRecycle summarizing its yearly progress in implementing waste diversion programs. All solid waste management activities for the construction and operations and maintenance associated with Alternative 4 would be conducted in accordance with regulations set forth by CalRecycle, and any applicable IWMP developed for affected jurisdictions. Although it is not known which landfills will be utilized during construction of the proposed water conveyance facilities, as construction contractors will handle disposal of demolition and excavated material, it is assumed that at least 50% of waste (~~342,919~~7,434,581 tons) will be diverted in compliance with the provisions of the IWMA. Therefore, after consideration of diversion requirements, the volume of construction debris that requires disposal at landfills (7,434,581 ~~342,919~~ tons, at most) represents a negligible effect on the remaining permitted capacity of Plan Area landfills, and is not expected to exceed this capacity.

Overall, the construction waste that could be generated by implementing Alternative 4 would not result in an adverse effect on the capacity of available landfills because 50% or more of construction waste generated by this alternative would be diverted (in accordance with diversion requirements set forth by the State Agency Model IWMA and BMP 13 [Appendix 3B, *Environmental Commitments*]), and the construction debris and excavated material that would require disposal at a landfill could be accommodated by, and would have a negligible effect, on the remaining permitted capacity of Plan Area landfills. This alternative is not expected to impact the lifespan of area landfills, because over 70% of the remaining permitted capacity is associated with landfills with expected lifespans of between 18 and 70 years—well beyond the expected timeframe for construction of BDCP facilities, when solid waste disposal services would be needed. This effect is not adverse.

CEQA Conclusion: Based on the capacity of the landfills in the region, and the waste diversion requirements set forth by the State of California, it would be expected that construction of the proposed water conveyance facilities would not cause any exceedance of landfill capacity. RTM resulting from construction of tunnel segments would be treated in designated RTM work areas. Debris from structure demolition, power poles, utility lines, piping, and other materials would be diverted from landfills to the maximum extent feasible at the time of demolition. This alternative is not expected to impact the lifespan of area landfills, because over 70% of the remaining permitted capacity is associated with landfills with expected lifespans of between 18 and 70 years—well beyond the expected timeframe for construction of BDCP facilities, when solid waste disposal services would be needed. Further, implementation of BMP 13 (Appendix 3B, *Environmental Commitments*) would require development of a project-~~-~~specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste. Construction of Alternative 4 would not create solid waste in excess of the permitted capacity of area landfills, nor would it adversely affect the expected lifespan of these solid waste facilities. Therefore, there would be a ~~less than significant impact~~less-than-significant impact on solid waste management facilities.

Impact UT-6: Effects on Regional or Local Utilities as a Result of Constructing the Proposed Water Conveyance Facilities

NEPA Effects: Under Alternative 4, construction of some elements could disrupt utility services or require relocation of existing facilities. The alternative could result in environmental effects in and around areas temporarily or permanently affected by relocation activities. Alternative 4 would construct Intakes 2, 3, and 5. It would also involve constructing an operable barrier at the Head of Old River, which could potentially introduce additional conflicts.

Prior to construction, detailed subsurface geotechnical investigations will be performed at several locations along the water conveyance alignment and associated appurtenant facilities, including within, and immediately to the north and south of, the town of Hood. The primary exploration methods would include soil borings and cone penetration tests (conventional piezo cones and seismic cones). In order to avoid impacts to underground utilities, prior to actual drilling and sampling, each planned boring/cone penetration test location would require field reconnaissance, marking or staking the exploration site, and calling the Underground Service Alert (USA) for utility clearance.

Due to the nature of underground construction, the exact location of underground utilities cannot be guaranteed based on construction documents but can only be determined by careful probing or hand digging, in compliance with Article 6 of the Cal/OSHA Construction Safety Orders. Underground Service Alert, a service which provides utility location services, is not available until the time of construction. Construction activities for Alternative 4 could result in damage to or interference with existing water, sewer, storm drain, natural gas, oil, electric, and/or communication lines and, in some cases, could require that existing lines be permanently relocated, potentially causing interruptions in service. Numerous utility lines of varying sizes are located along and across the pipeline/tunnel alignment and at the various pumping plants and forebay sites.

This water conveyance alignment, along with its associated physical structures, could interfere with approximately ~~9 nine~~ 12 overhead power/electrical transmission lines (Chapter 24, *Hazards and Hazardous Materials*, Figure 24-6), ~~6 sixnine~~six natural gas pipelines (Table 20-5 and Chapter 24, *Hazards and Hazardous Materials*, Figure 24-3), ~~11 eight15~~11 inactive ~~oil and~~ oil or gas wells (Chapter 24, *Hazards and Hazardous Materials*, Figure 24-5), the Mokelumne Aqueduct, and ~~46 34~~43 miles of agricultural delivery canals and drainage ditches, including approximately ~~19 miles on Staten Island, 11~~23 miles on Byron Tract, and seven~~6~~ miles on Bouldin Island. The potential for construction of the proposed conveyance facilities to cause disruptions to agricultural infrastructure in the study area are addressed in Chapter 14, *Agricultural Resources*. Specifically, Chapter 14 addresses potential conflicts with existing agricultural irrigation and drainage facilities as a result of construction.

Construction of the proposed conveyance facility would involve site grading and similar activities requiring heavy equipment use. These construction activities could result in the unintentional damage to or disruption of underground utilities as a result of trenching, augering, or other ground disturbing activity. Disruption of certain utilities, such as natural gas pipelines, could result in public health hazards (e.g., explosions). Construction could also result in damage to or disruption of overhead utilities when establishing electrical interconnection of this alternative to the electric grid. Temporary transmission lines would extend existing power infrastructure (transmission lines and substations) to construction areas. In some cases, disruption of infrastructure and facility operations would be avoided because BDCP facilities would cross either over or under the existing utilities. For

instance, most natural gas pipeline crossings are less than 30 feet below ground surface and the proposed tunnel would be installed more than 100 feet below ground surface. However, construction of certain alternative facilities would require relocation of existing utilities.

~~Proposed forebays and reusable tunnel material areas~~Alternative 4 c~~w~~ould conflict with approximately 2 PG&E 115 kV lines, 3 PG&E 500 kV lines, 2 WAPA 230 kV lines, 1 COTP 500 kV line, ~~and~~ 1 WAPA 69 kV line, and 3 SMUD 230 kV lines~~PG&E 500 kV and 115 kV power transmission lines and with a Western 500 kV transmission line, which cross either the expanded Clifton Court Forebay site or the RTM area next to the Clifton Court Forebay, and would require relocation~~. ~~Some~~ Six additional electric distribution lines ~~along roads would require relocation~~would cross transmission lines that would be constructed as part of the project in the northern section of the project near Intake 5, and the outer edge of the eastern portion of the footprint. ~~There are 11 plugged oil or Eight~~Eleven inactive gas wells lie within the permanent conveyance footprint, but since they are inactive they will likely not require relocation. Natural gas pipelines cross the conveyance alignment near Intake 2 at a proposed borrow/spoils area, within the construction footprint of the proposed east/west transmission line east of Courtland, on Staten Island within the proposed tunnel footprint between a safe haven area and a RTM area, and near a main tunnel construction shaft on Bacon Island. The majority of natural gas pipeline crossings are near the surface (less than 30 feet below grade) and within the tunnel or RTM areas of the proposed alignment. Since the tunnels are located in excess of 100 feet below grade, and RTM areas will not be deeper than topsoil levels, minimal conflicts, if any, are anticipated.

The potential damage and disruption to buried and overhead electric transmission lines would be similar for telecommunication infrastructure. In addition, alternative construction would require use of existing and/or construction of new communications infrastructure for intake pumping plants (Chapter 3, *Description of Alternatives*). A communication system would be required to connect to the existing DWR Delta Field Division Operations and Maintenance Center near Banks Pumping Plant and the DWR communications headquarters in Sacramento, which would require buried fiber optic conduit installed from the southern end of the new conveyance facility at the expanded Clifton Court Forebay along the inlet canal to Banks pumping plant and the Delta Field Division Operations and Maintenance Center. The conduit route would be adjacent to roads, highways, railroads, utilities, or other easements.

Effects would be more likely to occur if utilities were not carefully surveyed prior to construction, including contact with local utility service providers. Implementation of pre-construction surveys, and then utility avoidance or relocation if necessary, would minimize any potential disruption. Mitigation Measures UT-6a, UT-6b, and UT-6c would require relocation or modification of existing utility systems, including, but not limited to, public and private ditches, pumps, and septic systems, in a manner that does not affect current operational reliability to existing and projected users; coordination of utility relocation and modification with utility providers and local agencies to integrate potential other construction projects and minimize disturbance to the communities; and verification of utility locations through field surveys and services such as Underground Service Alert.

Because relocation and disruption of existing utility infrastructure would be required under this alternative and would have the potential to create effects through the relocation of facilities, this would be an adverse effect.

Mitigation Measures UT-6a, UT-6b, and UT-6c would be available to reduce the severity of this effect. If coordination with all appropriate utility providers and local agencies to integrate with other

construction projects and minimize disturbance to communities were successful under Mitigation Measure UT-6b, the effect would not be adverse.

***CEQA Conclusion*:** Under this alternative, most features would avoid disrupting existing facilities by crossing over or under infrastructure. However, construction of facilities would conflict with existing utility facilities in some locations. Regional power transmission lines and one natural gas pipeline would require relocation. ~~Additionally, active gas wells may need to be plugged and abandoned.~~ Because the relocation and potential disruption of utility infrastructure would be required, this impact is significant ~~and unavoidable~~.

Mitigation Measures UT-6a, UT-6b, and UT-6c are available to reduce these impacts through measures that could avoid disruption of utility infrastructure. If coordination with all appropriate utility providers and local agencies to integrate with other construction projects and minimize disturbance to communities were successful under Mitigation Measure UT-6b, the impact ~~e~~would be less ~~-~~than ~~-~~significant. However, since coordination with a third party is required in order to carry out this mitigation, a conservative assessment of significant and unavoidable is being made.

Mitigation Measure UT-6a: Verify Locations of Utility Infrastructure

Before beginning construction, the BDCP proponents will confirm utility/infrastructure locations through consultation with utility service providers, preconstruction field surveys, and services such as Underground Service Alert. The BDCP proponents will find the exact location of underground utilities by safe and acceptable means, including use of hand and modern techniques as well as customary types of equipment. Information regarding the size, color, and location of existing utilities must be confirmed before construction activities begin. The BDCP proponents will confirm the specific location of all high priority utilities (i.e., pipelines carrying petroleum products, oxygen, chlorine, toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter, or with normal operating measures, greater than 60 pounds per square inch gauge; and underground electric supply lines, conductors, or cables that have a potential to ground more than 300 volts that do not have effectively grounded sheaths) and such locations will be highlighted on all construction drawings.

In the contract specifications, the BDCP proponents will require that the contractor provide weekly updates on planned excavation for the upcoming week and identify when construction will occur near a high priority utility. On days when this work will occur, the BDCP proponents' construction managers will attend tailgate meetings with contractor staff to review all measures—those identified in the Mitigation Monitoring and Reporting Program and in the construction specifications—regarding such excavations. The contractor's designated health and safety officer will specify a safe distance to work near high-pressure gas lines, and excavation closer to the pipeline will not be authorized until the designated health and safety officer confirms and documents in the construction records that: (1) the line was appropriately located in the field by the utility owner using as-built drawings and a pipeline-locating device, and (2) the location was verified by hand by the construction contractor. The designated health and safety officer will provide written confirmation to the BDCP proponents that the line has been adequately located, and excavation will not start until this confirmation has been received by the BDCP proponents.

Mitigation Measure UT-6b: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Operational Reliability

In places where utility lines would be relocated, existing corridors will be utilized to the greatest extent possible, in the following order of priority: (1) existing utility corridors; (2) highway and railroad corridors; (3) recreation trails, with limitations; and (4) new corridors.

New poles or towers will be erected and cable-pulled prior to being connected to existing systems. Natural gas pipeline relocation will be constructed by one of several methods including cut-and-cover, trenching, or placement on at-grade saddles. Active natural gas wells in the proposed water conveyance facilities area will be abandoned to a depth below the tunnel.

Decisions regarding agricultural irrigation and drainage ditches will be made based on site-specific conditions. Planned measures may include one or more of the following.

- New or modified irrigation pumping plants.
- Extended delivery pipes.
- New or modified drainage ditches.
- New or modified drainage pumping plants.

Any utility relocation will be coordinated with all appropriate utility providers and local agencies to integrate with other construction projects and minimize disturbance to communities, as required by California Water Code §11590. ~~In the instance that coordination with public utility providers and local agencies is unsuccessful, the issue will be taken before the California Public Utilities Commission for a decision, per Water Code §11592.~~ BDCP proponents will notify the public in advance of any relocation that is anticipated to disrupt utility service. The BDCP proponents will contact utility owners if construction causes any damage and promptly reconnect disconnected cables and lines with approval of the owners.

Mitigation Measure UT-6c: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Worker and Public Health and Safety

While any excavation is open, the BDCP proponents will protect, support, or remove underground utilities as necessary to safeguard employees. The BDCP proponents will notify local fire departments if a gas utility is damaged causing a leak or suspected leak, or if damage to a utility results in a threat to public safety.

Impact UT-7: Effects on Public Services and Utilities as a Result of Operation and Maintenance of the Proposed Water Conveyance Facilities

NEPA Effects:

Public Services

Operation and maintenance activities would require minimal labor. The proposed water conveyance facilities under this alternative would be operated to provide diversions up to a total of 9,000 cfs from three new north Delta intakes.

For the purposes of this analysis, it was estimated that weekly operations and maintenance would require approximately ~~190 130~~129 workers (Table 20-2), including maintenance crew,

management, repair crew, pumping plant crew, and dewatering crew. These activities would take place along the entire alternative alignment. Given the limited number of workers involved and the large number of work sites, it is not anticipated that routine operations and maintenance activities or major inspections would result in substantial demand for law enforcement, fire protection, or emergency response services. In addition, operation and maintenance would not place service demand on public schools or libraries. The operation and maintenance of the proposed water conveyance facilities would not result in the need for new or physically altered government facilities as a result of increased need for public services.

Utilities

Water and Wastewater

Operation and maintenance of Alternative 4 facilities would involve use of water for pressure washing intake screen panels and basic cleaning of building facilities and other equipment. Additionally, pumping plants would include permanent restroom facilities, which would be equipped with a sanitary gravity drainage leading to a wastewater holding tank. A potable water system would provide water to pumping plant welfare facilities and, if required, safety showers. This supply would be taken from the nearest clean water conveyance system, if available. If not available, pumping plants would be designed to include a self-contained water filtration and treatment system. Raw water downstream would be evaluated for potential use in a non-potable system serving hose faucets and water-cooled condensing units for plant equipment. Small amounts of additional services may result from the operation and maintenance of an operable barrier. Quantities of water needed for these purposes would be anticipated to be relatively small compared with municipal supplies. Additionally, water supplies and wastewater treatment services would potentially be provided by non-municipal facilities. The operation and maintenance of the proposed water conveyance facilities would not result in the need for new water supply entitlements, or require construction of new water or wastewater treatment facilities or expansion of existing facilities.

Solid Waste

The operation and maintenance of the proposed water conveyance facilities under Alternative 4 would not be expected to generate solid waste such that there would be an increase in demand for solid waste management providers in the Plan Area and surrounding communities. Operation and maintenance of the proposed water conveyance facilities would involve a sedimentation basin that would be constructed between the intake structure and the pumping plant to collect sediment load from the river. Although the intake fish screens would remove debris and sediment from the intake inflow, a sedimentation basin would be constructed to remove the suspended solids that pass through the screen.

The volume of solids generated on a daily basis would depend on the volume of water pumped through the intakes, as well as the sediment load of the river. Based on a worst-case scenario, considering the throughput of the intakes at a maximum flow of 3,000 cfs, an estimated 82,200 dry pounds of solids per day would be pumped to the solids lagoons. During periods of high sediment load in the Sacramento River, the daily mass of solids would be expected to increase up to 253,000 dry pounds per day. The annual volume of solids is anticipated to be approximately 291,600 cubic feet (dry solids).

As designed, it is anticipated that a portion of the solids would be stored and reused at alternative facilities and some portion would be transported for offsite disposal. Additionally, maintenance activities related to the operable barrier could involve the removal of additional sediments. Solids from sediment load would not exceed the permitted capacity or adversely impact the lifespan of area landfills.

Electricity and Natural Gas

Operation and maintenance of water conveyance facilities under this alternative would require new permanent transmission lines for intakes, pumping plants, operable barriers, boat locks, and gate control structures throughout the various proposed conveyance alignments and construction of project facilities. Electrical power to operate the new north Delta pumping plant facilities would be delivered through new transmission lines that would connect to the existing grid in the northern section of the conveyance alignment. The northern point of interconnection would be located north of Lambert Road and west of Highway 99. From here, a ~~230 kV~~ transmission line would run west, along Lambert Road where one segment would run south to the intermediate forebay, and one segment would run north to connect to a substation, where temporary 69 kV lines would connect to substations at each of the three intakes~~to work stations and a vent shaft. There, , where one segment would run south to the intermediate forebay on Glannvale Tract, and one segment would run north to connect to a substation east of Intake 5, where 69 kV lines would connect to the intake pumping plants~~, as shown in Figure 3-25. Three utility grids could supply power to the BDCP conveyance facilities: PG&E (under the control of the California Independent System Operator), Sacramento Municipal Utility District (SMUD), and the Western Area Power Administration (WAPA). The electrical power needed for the conveyance facilities would be procured in time to support construction and operation of the facilities.

Construction of permanent transmission lines would not require improvements to the existing physical power transmission system. As such, operation and maintenance activities associated with the proposed water conveyance facilities would not be expected to result in the disruption or relocation of utilities. Effects associated with energy demands of operation and maintenance of the proposed water conveyance facilities are addressed in Chapter 21, *Energy*.

Overall, operation and maintenance of the conveyance facilities under Alternative 4 would not result in adverse effects on service demands, water capacity, wastewater and solid waste facilities nor conflict with local and regional utility lines because demand for law enforcement and fire protection services would be temporary over a six-county area, new water and wastewater treatment service would be handled onsite, and adequate solid waste disposal capacity exists to handle construction waste. There would not be an adverse effect.

***CEQA Conclusion*:** Operation and maintenance activities associated with the proposed water conveyance facilities would not result in the need for the provision of, or the need for, new or physically altered government facilities from the increased need for public services; construction of new water and wastewater treatment facilities or generate a need for new water supply entitlements; generate solid waste in excess of permitted landfill capacity; or result in the disruption or relocation of utilities. The impact on public services and utilities would be less than significant. No mitigation is required.

Impact UT-8: Effects on Public Services and Utilities as a Result of Implementing the Proposed CM2–CM11 and CM20

NEPA Effects: Alternative 4 would restore up to 83,900 acres under conservation components to restore tidal habitat, seasonally inundated floodplain, grassland communities, vernal pool complex habitat, and nontidal marsh areas. Additionally, 20 linear miles of channel margin habitat would be enhanced. While locations of conservation components have not been selected, implementation of conservation components for habitat restoration and channel margin habitat enhancement would occur within the ROAs described in Chapter 3, *Description of Alternatives*.

Public Services

Potential effects of implementing conservation components on law enforcement, fire protection, and emergency response services within the ROAs would primarily involve demand for services related to construction site security and construction–related accidents. Because of the scale and duration of construction associated with implementing conservation components, there could be an increased demand for these public services. This effect would not be considered adverse with the implementation of environmental commitments to provide onsite private security services at construction areas and environmental commitments that would minimize the potential for construction-related accidents associated with hazardous materials spills, contamination, or fires, as described in Appendix 3B, *Environmental Commitments*. These environmental commitments would be incorporated into this alternative and would provide for onsite security at construction sites and minimize construction-related accidents associated with hazardous materials spills, contamination, and fires that may result from construction of the conservation components. Further, the ROAs extend beyond the statutory Delta so the increase in demand for services would be distributed across the study area. Implementing the proposed conservation components would not result in effects associated with the need to construct new government facilities as a result of increased need for public services (i.e., law enforcement, fire protection, emergency responders, hospitals, public schools, libraries). Because the location for the implementation of conservation activities is not known at this point, it is not possible to determine whether the construction of conservation components would require demolition and replacement of a government facility.

Utilities

Water and Wastewater

Implementation of some of the conservation components, in particular those involved with restoration and enhancement of some habitat types, could require a water supply, but would not require city or county treated water sources. Conservation components that could increase need for water supply are restoration of tidal, seasonally inundated floodplain, channel margin, riparian, grassland, vernal pool complex, and nontidal marsh habitats; and maintenance of these habitats as well as alkali seasonal wetland complex, and managed wetlands habitats. Additionally, measures related to the reduction of stressors on covered species would not generally require a treated water supply or generate wastewater. Exceptions to this would potentially include the establishment of a new fish hatchery, expansion of facilities to support dissolved oxygen levels in the Stockton Deep Water Ship Channel, and activities to reduce the risk of invasive species introduction on recreational vessels. For example, boat cleaning stations proposed under the Recreational Users Invasive Species Program (CM20) would potentially draw substantial amounts of water from city or county treated water supplies. Because the location and construction or operational details (i.e., water consumption

and water sources associated with conservation components of these facilities and programs have not yet been developed, the need for new or expanded water or wastewater treatment facilities is uncertain.

Solid Waste

Implementation of some of the conservation components would result in construction debris and green waste. Implementation of habitat restoration and enhancement proposed under CM4–CM11 would involve restoration, enhancement, and management of various types of habitat. Construction activities could require clearing and grubbing, demolition of existing structures (e.g., roads and utilities), surface water quality protection, dust control, establishment of storage and stockpile areas, temporary utilities and fuel storage, and erosion control. The estimated tonnage of construction debris and solid waste that would be generated from construction associated with the proposed conservation components is unknown. However, there is a remaining landfill capacity of over 300 million tons in nearby landfills (Appendix 20A, Table 20A-6). The disposal of construction debris and excavated material would occur at several different locations depending on the type of material and its origin. Based on the capacity of the landfills in the region, and the waste diversion requirements set forth by the State of California, it is expected that construction and operation of the proposed conservation components would not cause any exceedance of landfill capacity.

Electricity and Natural Gas

Conservation components including habitat restoration and enhancement would, in some cases, involve substantial earthwork and ground disturbance. As discussed above under Impact UT-6, construction could potentially disrupt utility services, and ground disturbance has potential to damage underground utilities. The long-term conversion of existing utility corridors to habitat purposes could require the relocation of utility infrastructure, which could carry environmental effects. Mitigation Measures UT-6a, UT-6b, and UT-6c would be available to reduce the severity of these effects.

Alternative 4 would restore, enhance, and protect thousands of acres of habitat, including the restoration of up to 65,000 acres of tidal habitat. The locations, construction, and operational details for these and other conservation components have not been identified. Adverse effects due to the construction, operation and maintenance activities associated with the conservation components are not expected to result in the need for new government facilities to provide public services or the need for new or expanded water or wastewater treatment facilities based on increased demand. Environmental commitments into this alternative and would minimize construction-related accidents associated with hazardous materials spills, contamination, and fires that may result from construction of the conservation components. However, there is a potential for the disruption or relocation of utility infrastructure, which has the potential to result in an adverse effect. Further, no substantive adverse effects to solid waste management facilities are anticipated. Because the location and construction and operational details (i.e., water consumption and water sources associated with conservation components) related to these facilities and programs have not yet been developed, the need for new or expanded water or wastewater treatment facilities is uncertain. This effect would be adverse.

***CEQA Conclusion*:** Significant impacts could occur if ~~I~~implementation of the proposed conservation components would result in the need for the provision of, or the need for, new or physically altered government facilities from the increased need for public services; construction of new water and wastewater treatment facilities or generate a need for new water supply entitlements; generate

solid waste in excess of permitted landfill capacity; or result in the disruption or relocation of utilities.

Implementation of the proposed conservation components is not likely to require alteration or construction of new government facilities due to increased need for public services and utilities. Several measures to reduce stressors on covered species could result in water supply requirements, but are not expected to require substantial increases in demand on municipal water and wastewater treatment services. ~~Construction and operation activities associated with the proposed conservation components would result in a less than significant impact~~less-than-significant impact ~~on solid waste management facilities b~~

Based upon the capacity of the landfills in the region, and the waste diversion requirements set forth by the State of California, construction and operation activities associated with the proposed conservation components would not create a significant impact on solid waste management facilities.

Potential impacts of implementing conservation components on law enforcement, fire protection and emergency response services within the ROAs would be less~~-~~-than~~-~~-significant with the incorporation of environmental commitments into this alternative and would minimize construction-related accidents associated with hazardous materials spills, contamination, and fires that may result from construction of the conservation components (Appendix 3B, *Environmental Commitments*).

~~However, the location and construction and operational details (i.e., water consumption and water sources associated with conservation components) of these facilities and programs have not yet been developed. Therefore, t~~The need for new or expanded water or wastewater treatment facilities and the potential to disrupt utilities in the study area as a result of construction of operation of CMs 2-21 is unknown at this time due to the fact that locations have not been determined, nor have construction and operational details been settled upon. While Mitigation Measures UT-6a, UT-6b, and UT-6c c~~w~~ould reduce the significance of impacts on utilities; ~~however,~~ it ~~remains~~is uncertain whether these mitigations could reduce this impact in every case~~would be reduced to a less than significant level~~less-than-significant level. Therefore, this impact would be ~~a~~ significant and unavoidable ~~impact~~.

Mitigation Measure UT-6a: Verify Locations of Utility Infrastructure

Please see Mitigation Measure UT-6a under Impact UT-6 in the discussion of Alternative 4.

Mitigation Measure UT-6b: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Operational Reliability

Please see Mitigation Measure UT-6b under Impact UT-6 in the discussion of Alternative 4.

Mitigation Measure UT-6c: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Worker and Public Health and Safety

Please see Mitigation Measure UT-6c under Impact UT-6 in the discussion of Alternative 4.