

# Section 25

## Comparison of Alternatives

This section presents a summary comparison of the potential significant environmental effects of each of the alternatives, based on the analyses previously presented in Sections 3 through 21.

### 25.1 Introduction

The purpose of the alternatives analysis in an Environmental Impact Report (EIR), as stated in section 15126.6(a) of the State California Environmental Quality Act (CEQA) Guidelines, is to

*describe a range of reasonable alternatives to the project..., which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives...[T]he discussion of alternatives shall focus on alternatives to the project...which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines section 15126.6(b)).*

Therefore, an EIR must describe a range of reasonable alternatives that could feasibly attain most of the basic objectives of the Proposed Project. The feasibility of an alternative may be determined based on a variety of factors, including but not limited to economic viability, jurisdictional authority, and other plans or regulatory limitations (CEQA Guidelines section 15126.6(f)(1)). The development of the alternatives to the Proposed Project based on this CEQA guidance was discussed in detail in Section 2A, Proposed Project and Alternatives.

### 25.2 Project Objectives

As discussed in Section 1, Introduction, of this EIR, the Delta Plan is mandated by the Delta Reform Act (SBX7 1), which the Legislature passed in late 2009. SBX7 1 sets forth specific goals and objectives that the Delta Plan must accomplish. These goals and objectives are the fundamental basis of the project objectives for the Proposed Project, which are set out in Section 1, Introduction.

The degree to which the alternatives might or might not satisfy the project objectives and be feasible is something the Delta Stewardship Council will consider at some point after the release of this Draft program-level EIR but prior to consideration of final adoption of a Delta Plan.

## 25.3 Description of Proposed Project and Alternatives

The 12 Policies and 61 Recommendations in the Fifth Staff Draft Delta Plan comprise the Proposed Project. The Proposed Project, the mandatory No Project Alternative, and Alternatives 1A, 1B, 2, and 3 are described in detail in Section 2A, Proposed Project and Alternatives.

## 25.4 Comparative Analysis of Alternatives

Sections 3 through 21 present a detailed description of the environmental effects of the alternatives – both compared to the Proposed Project (as required by CEQA) and compared to the existing environment – for each of the resources evaluated in this EIR. The comparison of the alternatives to the Proposed Project is summarized by resource area in the paragraphs below. Lastly, based on the foregoing analysis, the environmentally superior alternative is identified.

Fundamentally, the Delta Plan seeks to arrest (and ultimately improve) declining water reliability and declining environmental conditions related to the Delta ecosystem, flood risk, and water quality, as well to improve recreation opportunities in the Delta and protect Delta legacy towns. Generally speaking, these are long-term goals to reduce/reverse increasing long-term environmental impacts due to inaction. Accomplishing these goals in many instances will require physical construction work – extensive, in some cases (e.g., levee construction/modification, dam construction, park construction, etc.). That work could have adverse environmental impacts during the construction period. In many regards, therefore, the alternatives involve varying degrees of environmental trade-off between short-term impacts from construction (in areas including air quality, cultural and paleontological resources, noise, transportation, geology/soils, and utilities) and long-term reduction in impacts to water supply, water quality, flood risk, and ecosystem health. Generally, accomplishing larger reductions in long-term impacts requires larger short-term impacts, and vice versa. This statement of tradeoff does not explain all the environmental impact differences among the alternatives, but does explain many of them. Other important differences include differing numbers and locations of possible new reservoirs (and associated habitat and agricultural land lost), differing extents of floodplain and habitat expansion in the Delta (and associated agricultural land lost) and differing levels of aggressiveness in setting minimum water flow standards in the Delta.

The following summary comparisons of the alternatives, by resource topic, do not cover every aspect of the analyses in the resource sections (Sections 3 through 21). Rather, the summaries focus on the major factors that differentiate the impacts of the alternatives, particularly differences in potential long-term impacts of the Proposed Project versus the alternatives. Potential short-term construction impact differences among the Proposed Project and alternatives are discussed below but are relatively less important as distinguishing factors because the impacts end when construction ends; the resource areas that predominantly or exclusively involve construction/short-term significant impacts are air quality, cultural and paleontological resources, noise, transportation, geology/soils, and utilities.

### 25.4.1 Water Resources

The Delta provides water supplies to urban communities and agricultural operations located within the Delta watershed and some that are located outside of the Delta watershed. The Delta Plan encourages decreased reliance on imported Delta water, and emphasizes increased development of sustainable local water supplies. Currently, local water supplies, such as groundwater, are over utilized and not sustainably managed in some areas, while other sources of water, such as stormwater capture, recycling, and conservation, are underutilized. The imbalance in water supplies and demands in the state are predicted to

1 be exacerbated with changing climate patterns over the next few decades. The water quality in the Delta  
2 and the Delta watershed is mostly affected by issues related to high salinity and the occurrence of  
3 selenium and methylmercury, which accumulate in fish tissue.

4 The Proposed Project and the alternatives would have approximately the same water supply impacts,  
5 except Alternative 2. Alternative 2 would sharply reduce exports of Delta water and would limit local  
6 surface storage projects to Tulare Lake. Making up the difference with groundwater, desalination and  
7 recycling projects, and efficiency/conservation measures may be difficult; this could result in greater  
8 long-term water supply impacts than the Proposed Project. The Proposed Project and Alternative 3 would  
9 take a more-balanced approach, and Alternatives 1A and 1B are more water-supply focused.

10 Impacts to water quality and groundwater supply primarily would be related to construction site runoff,  
11 construction dewatering activities, and agricultural runoff. Temporary construction-related groundwater  
12 impacts are possible, but quite small for the Proposed Project and all Alternatives. The Proposed Project  
13 involves more construction work that could affect water quality than the No Project Alternative and  
14 Alternatives 1A and 1B. These alternatives would therefore have less water quality impacts than the  
15 Proposed Project. Alternative 3 encourages greater levee modification/maintenance and dredging for  
16 flood reduction than the Proposed Project, which could result in an increase in erosion and siltation during  
17 construction, but includes fewer other projects. It would preserve Delta agricultural land due to its limited  
18 ecosystem restoration actions; this would increase agricultural runoff over the Proposed Project, which  
19 would affect water quality. Overall, Alternative 3's water quality impacts would be greater than the  
20 Proposed Project. Alternative 2 involves more of some of these facilities/actions and fewer of others, but  
21 includes substantial water quality improvement projects. Overall, Alternative 2 would have less water  
22 quality impact than the Proposed Project. It should be noted that the impacts of the Project and  
23 Alternatives 1A and 1B are chiefly construction-related and therefore temporary and limited. These  
24 alternatives would ultimately provide benefits to water quality, because they would include facilities to  
25 prevent further declines in water quality.

## 26 **25.4.2 Biological Resources**

27 Biological resources in the Delta have been in decline for many years. That decline is expected to  
28 continue. From a long-term perspective, therefore, alternatives that would do less to arrest this decline  
29 than the Proposed Project would have more impacts on biological resources than the Proposed Project.  
30 The No Project Alternative and Alternatives 1A, 1B and 3 would restore less habitat than the Proposed  
31 Project and/or would not encourage natural flows in the Delta to the same degree. Alternative 2 would  
32 contribute more to improving conditions for biological resources and arresting ecosystem decline than the  
33 Proposed Project, primarily because of its more rigorous pursuit of flow objectives that protect the  
34 environment and public trust resources. From a short-term perspective, the Proposed Project would  
35 involve more construction work that could affect biological resources than the No Project Alternative and  
36 Alternatives 1A, 1B, 2 and 3, and would therefore involve greater potential short-term adverse impacts to  
37 biological resources during construction. These construction impacts would be temporary, and most of  
38 them can be mitigated through implementation of standard mitigation measures.

### 1 25.4.3 Delta Flood Risk

2 The Delta is a vast network of levees and canals that protect and dewater reclaimed land from flooding.  
3 Many of the levees are in a degraded condition and are continuing to degrade, which creates an increasing  
4 flood risk in the Delta as time passes without the levees being repaired. From a long-term perspective,  
5 therefore, the alternatives that would do less to arrest this increasing flood risk than the Proposed Project  
6 would have more impacts to flood risk reduction than the Project are the No Project Alternative and  
7 Alternatives 1A, 1B, 2 and 3. These alternatives would do less to reduce flood risk by focusing levee  
8 investments on only part of the Delta (all alternatives) or focusing prevention of encroachment into  
9 floodplains in only limited parts of the Delta (Alternatives 1A and 1B).

### 10 25.4.4 Land Use and Planning

11 The Delta comprises a variety of land uses – agriculture, natural/habitat, and rural residential and legacy  
12 towns. Generally, these uses are consistent with local land use plans that meet local community  
13 objectives. Some of these plans have elements that reduce or mitigate environmental impacts (e.g., habitat  
14 protection and agricultural preservation policies). Implementation of the Proposed Project has the  
15 potential to introduce land uses that are not consistent with these local land use plans, such as expanding  
16 floodplains (for ecosystem and/or flood risk reasons) on land zoned for agriculture.

17 A Delta community includes not only the town where residents come together for commerce and  
18 fellowship, but also the surrounding areas where residents live and work. A community can encompass a  
19 larger area that is not necessarily densely populated but may include surrounding agricultural lands.  
20 Implementation of the Proposed Project has the potential to produce temporary, less-than-significant  
21 impacts on these communities during construction by causing road closures that could divide portions of a  
22 community. Long-term, new projects, such as expanded floodplains, could isolate a portion of a  
23 community if levee roads are flooded or otherwise become seasonally impassible. These impacts would  
24 be temporary but periodic over the long term.

25 Alternatives that minimize the introduction of new uses that conflict with land use policies would have  
26 fewer impacts than the Proposed Project. Likewise, alternatives that would reduce the potential for  
27 portions of a community to be isolated during construction and operation would have fewer impacts.

28 Regarding introduction of new conflicting land uses, the No Project Alternative and Alternatives 1A, 1B,  
29 and 3 would have fewer potential impacts than the Project primarily because they would involve fewer  
30 ecosystem restoration and floodplain expansions in the Delta that could affect land designated for  
31 agricultural use. Alternative 2 would have approximately the same impacts as the Proposed Project.

32 Regarding community isolation during construction, impacts would be less with all of the alternatives  
33 than with the Proposed Project because they would involve fewer construction projects and therefore  
34 fewer opportunities for short-term isolation; in any event, these impacts are less than significant (even  
35 without mitigation) for the Proposed Project and alternatives. Regarding long-term community isolation,  
36 impacts would be less (Alternative 2 only slightly) with all of the alternatives than with the Proposed  
37 Project because the alternatives would involve fewer discrete ecosystem and floodplain expansions and  
38 therefore less opportunity for roads to be intermittently flooded.

39 Outside of the Delta, impacts due to conflicting land uses are possible, although large-scale land use  
40 changes generally would not occur under any of the alternatives (or the Proposed Project). An exception  
41 would be the development of surface water reservoirs, which have a large development footprint.  
42 Alternatives 2 and 3 would result in implementation of fewer water storage reservoirs, so fewer impacts  
43 would result. Alternatives 1A and 1B would involve approximately the same number of surface water  
44 storage reservoirs, so the impacts would be the same as the Proposed Project.

## 25.4.5 Agriculture and Forestry Resources

Alternatives that have a lower potential to convert agricultural lands or timberland/forest resources to other uses would have fewer impacts than the Proposed Project. These would be the No Project Alternative and Alternatives 1A, 1B, and 3, primarily because of less ecosystem habitat restoration/creation in the Delta. Alternative 2 likely would lead to more conversion of agricultural land because it would convert Tulare Lake (currently in agricultural production) to a reservoir, take farmland out of production in the San Luis Drainage Area, and could result in less water being available for agricultural uses in the San Joaquin Valley areas so that land would be taken out of production (conversion would be approximately the same in the Delta).

## 25.4.6 Visual Resources

A physical change to the visual landscape does not necessarily amount to an adverse environmental impact. A change from farmland to wetland habitat, or vice versa, or a change from levee/river to wetland habitat or floodplain, would be a major land use change, but not necessarily a significant adverse visual impact. Context is important, as is degree and type of change. Generally speaking as they relate to the Delta Plan and its alternatives, new industrial facilities (such as treatment plants, desalination plants, groundwater facilities), new reservoirs/dams, and removal of vegetation would be primary sources of long-term visual impacts.

Overall, significant impacts on visual resources under Alternatives 1A and 1B would be less than the Proposed Project because these alternatives would involve fewer new treatment plants, groundwater facilities, and ocean desalination projects. Alternative 2 would involve more new treatment plants, groundwater facilities, and ocean desalination projects, but fewer reservoirs than the Proposed Project; overall, visual impacts of Alternative 2 would be more than the Proposed Project. Alternative 3 would have approximately the same impacts as the Proposed Project.

## 25.4.7 Air Quality

Most of the counties in the area that could be affected by the Delta Plan are designated as nonattainment for certain federal and/or State ambient air quality standards. Because of these existing air quality issues, alternatives that result in lower levels of emissions from construction and operations of facilities would have less air quality impacts than the Proposed Project.

The significant air quality impacts are most likely to occur during construction, particularly of large infrastructure projects, and would be temporary in nature. From a short-term perspective, the Proposed Project involves more construction work than No Project Alternative and Alternatives 1A, 1B, and 3, so it would involve more potential short-term adverse impacts to air quality.

Longer term air quality impacts could result from operation of large or complex facilities, such as surface reservoirs, desalination or water treatment facilities, or major conveyance systems, primarily due to equipment use and worker and truck travel to and from the facilities. Impacts could also result from ongoing levee maintenance (dust, equipment exhaust, and worker trips), dredging (equipment exhaust), and invasive species management (equipment exhaust, worker trips). Compared to the Proposed Project, the No Project Alternative and Alternative 1A involves slightly fewer of these facilities/actions, so fewer long-term air quality impacts are expected. Alternatives 1B, 2, and 3 have more of some of these facilities/actions, and fewer of others, so on balance the long-term air quality impacts of these alternatives would be approximately the same as the Proposed Project.

## 25.4.8 Cultural Resources

The presence of cultural resources varies around the Delta and corresponds to the location of upland areas not subject to historical tidal flooding or inundation. Historic resources are found throughout the Delta in association with development of legacy towns and rural residences located within agricultural operations. Construction activities that would occur with implementation of the Delta Plan have the potential to affect known resources by physically disturbing these resources (e.g., disturbing a burial site) or by affecting the environmental context in which they are located. Operations of permanent facilities implemented by the Delta Plan are not expected to generate significant impacts on cultural or historic resources. Alternatives that involve less ground-disturbing activity (i.e., construction) generally would have fewer impacts than the Proposed Project. This would be the case for all the alternatives, including the No Project Alternative, because they would involve less construction (fewer projects) than the Proposed Project. Over the long-term, the effect of the alternatives would be the same as the Proposed Project because the operations associated with the Proposed Project would have little to no effect on cultural or historic resources.

## 25.4.9 Geology and Soils

Alternatives that involve less construction disturbance would have fewer geology and soils impacts than those alternatives that encourage construction. Most of these impacts would be concentrated in the construction period, but several such impacts would continue throughout the life of the facilities. All of these impacts are easily mitigated with standard measures and careful siting.

In general, each of the alternatives would encourage less construction than the Proposed Project and fewer overall facilities; therefore, they would result in fewer overall soils and geology impacts.

## 25.4.10 Paleontological Resources

Significant impacts to paleontological resources could occur during construction activities involving deep ground disturbance and deep excavation, particularly associated with large infrastructure projects or major levee maintenance activities. Impacts to paleontological resources could occur under all alternatives. Alternatives that result in less construction of large facilities or less levee modification/maintenance activities than the Proposed Project would, therefore, have less impact on paleontological resources than the Proposed Project.

The No Project Alternative and Alternative 2 would involve less construction of certain types of large infrastructure projects that could affect paleontological resources and smaller areas of ground disturbance, and also less levee modification/maintenance and dredging activities. These alternatives would have less overall impacts compared to the Proposed Project.

Compared to the Proposed Project, Alternative 1A would involve similar construction of large infrastructure projects that could affect paleontological resources, but less levee construction, modification, and maintenance activities. Because fewer levee projects would occur as part of this alternative compared to the Proposed Project, there would be a smaller area of ground disturbance and a correspondingly reduced likelihood that paleontological resources would be encountered. Alternative 1A would have less overall impacts compared to the Proposed Project.

Under Alternatives 1B and 3, there would be less construction of certain types of large infrastructure projects that could affect paleontological resources and smaller areas of ground disturbance, decreasing the overall impacts compared to the Proposed Project. However, these alternatives would have greater levee modification/maintenance and dredging activities, potentially leading to more construction involving deep excavation and increasing the overall impacts compared to the Proposed Project. On balance, the impacts of Alternatives 1B and 3 would be approximately the same as the Proposed Project.

## 25.4.11 Mineral Resources

The most important mineral resources in California that possibly could be affected by the Delta Plan are generally construction aggregate (sand and gravel) and Portland cement. In addition, specific mineral resource extraction sites, both stone/rock/gravel/sand mining and oil/natural gas wells, could be affected. Because these resources occupy discrete locations, they would most likely be affected by alternatives with construction footprints that would overlay those resources, making them unavailable for future extraction. Alternatives that have the highest requirement for aggregate would have greater impacts on aggregate availability, at least in areas where aggregate shortages are foreseeable. Impacts would be temporary if access to extraction sites would be limited to the construction phase; impacts would be permanent if resources would become permanently unavailable for future extraction or if remaining aggregate resources following construction would be inadequate to meet future local development needs.

Most of the counties in the areas that could be affected by the Delta Plan have permitted aggregate resource sites that represent less than the projected 50-year construction demand, and some counties have less than a 10-year supply. Therefore, alternatives that would require less construction-grade aggregate than the Proposed Project would have less impacts on mineral resources. This would be the No Project Alternative and Alternative 3. Overall, construction and operation of projects under Alternatives 1A, 1B, and 2 would result in the same impacts on mineral resources as the Proposed Project.

Overall, the Proposed Project and Alternative 2 would have the same effects relating to the loss of availability of mineral resource extraction sites (i.e., mineral operations, oil and natural gas wells). Both would entail substantial ecosystem restoration within the Delta and could affect the ability to access and operate existing natural gas wells. The No Project Alternative and Alternatives 1A, 1B, and 3 would have less impacts on extraction sites than the Proposed Project because these alternatives would have less emphasis on ecosystem restoration in the Delta. Such impacts generally are temporary because resource extraction could continue once wells are modified or new wells are developed.

## 25.4.12 Hazards and Hazardous Materials

Short-term adverse impacts due to hazards and hazardous materials would result from construction activities associated with large or complex facilities such as surface reservoirs, desalination and water treatment facilities, major conveyance systems, or levee projects. Longer-term impacts from hazardous materials could result from operation of those facilities, primarily due to equipment use and the transport of hazardous materials to the sites. Impacts could also result from ongoing levee maintenance, dredging, and invasive species management, which would all require the use of vehicles and equipment that could result in inadvertent releases or spills of hazardous materials. Both short- and long-term impacts will generally vary roughly with the number and magnitude of projects: larger and more projects require more construction, providing more opportunities for exposure to hazardous materials, and will also involve more such materials during operation. All such impacts are fairly small in magnitude and likely can be mitigated to a less-than-significant level.

Construction, operation, and maintenance of any project could result in standing water for periods of time long enough to promote mosquito breeding (“vectors”) due to mismanagement. Projects that aim to create large areas of standing water, such as surface storage and certain restoration projects, are more likely to have this effect.

As compared to the Proposed Project, Alternative 1A involves slightly fewer facilities and actions. Fewer impacts from hazardous materials are expected. Alternatives 1B, 2, and 3 would have more of some of these facilities/actions and fewer of others. On balance, impacts would be approximately the same as the Proposed Project.

1 Because the potential for an increase in vectors is related to the size of the construction footprint,  
2 especially operations that will result in standing water, Alternative 2, which encourages, ecosystem  
3 restoration in the Delta, including floodplain and wetland restoration, would have greater vector-related  
4 impacts than the Proposed Project. By contrast, Alternatives 1A, 1B, and 3 would involve less such  
5 restoration, and so their vector-related impacts would be less than the Proposed Project.

### 6 **25.4.13 Noise**

7 Potential noise impacts of the Delta Plan and alternatives are predominantly short-term and related to  
8 construction; the types of projects the Delta Plan and alternatives could encourage are not significant  
9 generators of operational noise.

10 Ambient noise levels vary throughout the Delta. Sensitive receptors are found in a wide range of  
11 densities, ranging from sparsely populated rural areas to more-densely populated urban areas. Noise and  
12 groundborne vibrations generated during construction of the Proposed Project have the potential to  
13 exceed local noise ordinances or standards. Because the potential to cause noise and groundborne  
14 vibration levels exceeding a local noise ordinance or standard is a function of the amount of construction  
15 activity, alternatives that would result in less construction would have fewer impacts than the Proposed  
16 Project. Most of the alternatives would have fewer or the same impacts as the Proposed Project, including  
17 the No Project Alternative, because fewer noise-generating activities (i.e., construction) would be  
18 implemented. Alternative 2 would have more noise related to operations because more water treatment  
19 facilities, including ocean desalination projects, would be implemented in more urbanized areas.

### 20 **25.4.14 Population and Housing**

21 The types of actions that could affect population and housing include land use changes; conversion of  
22 agricultural lands, wetland and other habitat types; land fallowing, levee construction or reconfiguration;  
23 and construction or reconstruction of water and wastewater treatment plants, conveyance facilities and  
24 pumping plants, surface water and groundwater storage facilities, ecosystem restoration projects, and  
25 recreation facilities. These types of activities could affect population and housing depending on the size  
26 and location of the projects.

27 Construction and operation of specific water supply, levee maintenance, and other individual projects  
28 encouraged by the Proposed Project could result in population growth, displacement of population,  
29 displacement of existing housing, or construction of new housing. Construction of projects would result  
30 in a temporary increase of population associated with the temporary relocation of construction workers to  
31 the specific locale where the construction activity occurs. This could lead to an increased, though  
32 temporary, demand for additional housing. Project operations could lead to some population growth, but  
33 would likely involve fewer employees than construction. Thus, it is unlikely that the Proposed Project  
34 would result in substantial permanent population growth in an area. Projects could also displace some  
35 existing housing and people, depending on the size and location of facilities, necessitating the  
36 construction of replacement housing elsewhere. Projects are not likely to be sited in heavily populated  
37 areas, which means that these impacts would be less than significant.

38 Alternative 1A involves slightly fewer facilities and actions that could create population/housing impacts  
39 than the Proposed Project; therefore, it would have less population-related impacts.

40 Similar types of population and housing impacts would occur under Alternatives 1B, 2, and 3 because  
41 these alternatives have more of some of the facilities/actions and fewer of others that could have  
42 population/housing impacts than the Proposed Project. Thus, short-term construction impacts and  
43 long-term operations impacts would be approximately the same as for the Proposed Project.

## 1 25.4.15 Public Services

2 The need for new or physically altered police, fire protection, and emergency medical services and/or  
3 facilities is prompted by increased demand, typically as a result of new land development and/or  
4 population growth. The Proposed Project, No Project Alternative, and Alternatives 1A, 1B, 2, and 3 do  
5 not include new land development and/or population growth, and therefore would not add new demands  
6 to existing police, fire protection, and emergency medical services. Slight differences among the  
7 alternatives (e.g., minor changes in demands during construction and operation) are negligible, and  
8 impacts would be less than significant under all alternatives.

## 9 25.4.16 Recreation

10 The Proposed Project's recommendations to construct large projects such as surface and groundwater  
11 storage facilities, water intakes, treatment plants, conveyance facilities (canals, pipelines, tunnels,  
12 siphons, and pumping plants) and desalination plants could affect existing marinas and boating activity  
13 areas, hunting and fishing areas, campgrounds, beach areas, and various recreation-related private  
14 enterprise facilities, such as water-oriented resorts, wineries, and businesses in the Delta and in areas  
15 outside the Delta that use Delta water. Alternatives 1A, 1B, 2, and 3 recommend more of some of these  
16 facilities and actions and fewer of others to varying degrees, but generally less overall than the Proposed  
17 Project. On balance, therefore, impacts related to recreational facilities and activities under  
18 Alternatives 1A, 1B, 2, and 3 would be less than under the Proposed Project. This relates to both  
19 construction-period impacts and long-term impacts. Long-term impacts generally can be mitigated to  
20 less-than-significant levels in most but not all cases.

21 Importantly, however, the Proposed Project (and all the alternatives to the same degree except for the No  
22 Project Alternative) would encourage new/expanded/enhanced recreational trails, community gateways,  
23 visitor centers, and parks and facilities in the Delta. These would offset to some degree impacts to  
24 recreation in the Delta due to other elements of the Proposed Project and alternatives.

## 25 25.4.17 Transportation, Traffic, and Circulation

26 Construction activities have the greatest potential to affect traffic because, with the exception of parks and  
27 new retail and restaurant uses in the Delta legacy towns, projects encouraged by the Proposed Project  
28 would generate little or no additional traffic. Accordingly, there would be no meaningful long-term  
29 difference among the alternatives.

30 Regarding short-term impacts due to construction, the No Project Alternative and Alternatives 1A, 1B,  
31 and 3 would involve less overall construction with impacts to transportation, so there would be fewer  
32 impacts than the Proposed Project. Alternative 2 would involve approximately the same total amount of  
33 construction, but fewer discrete projects (particularly in the Delta), so there would be slightly fewer  
34 opportunities for construction to disrupt traffic in multiple areas. Alternative 3 would involve less  
35 construction and construction-related impacts of some projects and more of others. On balance,  
36 Alternatives 2 and 3 would have the same transportation impacts as the Proposed Project.

## 37 25.4.18 Utilities and Service Systems

38 Demand for municipal utilities—water, wastewater, and stormwater systems—and for solid waste  
39 disposal capacity is prompted by increased customer demand, typically as a result of new land  
40 development and/or population growth. The Proposed Project, No Project Alternative, and  
41 Alternatives 1A, 1B, 2, and 3 do not include new land development and/or induce population growth, and  
42 therefore would not add new customer demand for municipal utility and solid waste services. Slight  
43 differences among the alternatives (e.g., minor changes in demands during construction and operation) are  
44 negligible, and impacts would be less than significant under all alternatives.

1 Utility conflicts could occur under all alternatives, depending on the extent of ground disturbance.  
2 Because the No Project Alternative and all of the project alternatives would have less ground disturbance  
3 than the Proposed Project, all alternatives would have fewer impacts than the Proposed Project. In all  
4 cases, however, impacts would be less than significant with standard preconstruction utility  
5 investigations.

## 6 **25.4.19 Climate Change and Greenhouse Gas Emissions**

7 In this program-level assessment, impacts from implementation of the alternatives were evaluated in  
8 terms of how project components could generate greenhouse gas (GHG) emissions that might contribute  
9 to climate change-related environmental impacts. Because project-level details of project construction and  
10 operation are needed to determine quantities and timing of GHG emissions and are unknown at this time,  
11 impacts for the alternatives were qualitatively evaluated for significance based on the estimated  
12 magnitude and types of emissions that might result. In some cases, GHG emissions from construction or  
13 operations may exceed the applicable air quality management district significance levels, even with  
14 mitigation. This situation is most likely to occur during construction or operation of large or complex  
15 infrastructure projects, such as surface reservoirs, desalination or water treatment facilities, or conveyance  
16 systems. Fuel and electricity use to support construction and operation of facilities would be the primary  
17 sources of GHG emissions. Alternatives that involve moving larger amounts of water that require  
18 pumping would have increased emissions due to larger electricity demands. Because GHGs have a long  
19 atmospheric lifetime, all impacts, even those resulting from construction, are viewed as long term.

20 The Proposed Project would have approximately the same GHG impacts as all the alternatives (except  
21 Alternative 3), but for differing reasons. Alternatives 1A and 1B would involve fewer GHG emissions  
22 from construction but more GHG emissions from pumping and moving water, particularly over mountain  
23 ranges in southern California. Alternative 2 would involve more GHG emissions from operation of local  
24 water projects such as desalination plants and treatment plants but fewer GHG emissions from  
25 pumping/moving water. Alternative 3 would involve overall less construction and operation of local water  
26 projects and about the same amount of water movement/pumping, so fewer GHG emissions overall.

## 27 **25.5 Environmentally Superior Alternative**

28 An EIR is required to identify the environmentally superior alternative from among the range of  
29 reasonable alternatives that are evaluated. State CEQA Guidelines section 15126(d)(2) states that if the  
30 environmentally superior alternative is the No Project Alternative, the EIR shall also identify an  
31 environmentally superior alternative from among the other alternatives.

32 Identification of an environmentally superior alternative involves weighing and balancing the various  
33 impacts of the alternatives compared to each other and to the Proposed Project. Inherent in this process is  
34 an evaluation of which impacts are relatively most important in differentiating the Proposed Project and  
35 alternatives.

36 The biggest differentiators among the Proposed Project and alternatives, given their varying focus and the  
37 subject matter requirements of the Delta Reform Act, relate to long-term impacts to biological resources,  
38 flood risk reduction, water supply and water quality, and agricultural land. Impacts in other areas are  
39 relatively less important. For example, the Proposed Project and all the alternatives could result in  
40 significant environmental impacts related to geology and soils (e.g., risks of locating new projects on  
41 expansive soils, in earthquake fault zones, or in areas subject to landslides), but these impacts generally  
42 can be reduced to less-than-significant levels through standard mitigation such as careful siting and  
43 standard engineering techniques.

1 From a short-term construction-impacts perspective, the No Project Alternative is environmentally  
2 superior. It involves the least amount of construction of all the alternatives, including the Proposed  
3 Project. From an operations perspective, however, it would be environmentally inferior to the Proposed  
4 Project in many ways in that it would not stem the increasing environmental impacts to the Delta  
5 ecosystem, water quality, flood risk and water supply.

6 Among the remaining alternatives, the Proposed Project is the environmentally superior alternative,  
7 taking into account both construction and operations impacts.

8 Alternatives 1A and 1B are inferior mostly because they would fail to arrest the increasing environmental  
9 deterioration of the Delta ecosystem. They fail to do so because they would result in fewer ecosystem  
10 restoration projects in the Delta and would be less aggressive in moving toward minimum standards for  
11 water flow in the Delta necessary for a healthy fishery and ecosystem. Alternatives 1A and 1B generally  
12 would result in delayed action to stem the decline of the Delta ecosystem and declining water quality by  
13 awaiting the outcome of additional data collection and additional studies to take action, and by changing  
14 many (Alternative 1A) or all (Alternative 1B) of the Delta Plan's regulatory policies to non-binding  
15 recommendations thereby decreasing the chance of preventing further environmental decline.

16 Alternative 2 is slightly environmentally inferior to the Proposed Project because it would result in the  
17 greatest amount of water supply uncertainty and agricultural land losses. Alternative 2 would result in the  
18 greatest reduction in agricultural land use in the San Joaquin Valley through the loss of approximately  
19 320,000 acres of Farmland of Statewide Importance (if Alternative 2's Tulare Lake Basin reservoir is  
20 constructed), 380,000 acres to be fallowed within the San Luis Drainage Area, and possibly additional  
21 acreage to be periodically fallowed due to restrictions on total amount of water to be exported from the  
22 Delta. Extensive land fallowing also has adverse air quality impacts from resulting dust. Alternative 2 is  
23 superior to the Proposed Project in terms of stemming the decline of the Delta ecosystem and declining  
24 water quality because it would encourage new water flow objectives for the Delta and tributaries that  
25 emphasize meeting environmental needs ahead of all other beneficial uses of Delta waters; it would also  
26 eliminate the water quality impacts associated with agricultural runoff water from Tulare Lake Basin  
27 agriculture. These two items, however, would not be enough to outweigh the extensive loss of agricultural  
28 land. Under CEQA, both agricultural land and fish/wildlife/habitat are environmental resources (CEQA  
29 Guidelines Appendix G). Lastly, Alternative 2 would be inferior to the Proposed Project regarding  
30 potential water supply impacts because it would result in fewer redundancies in the water supply system,  
31 thereby increasing the chance that water users could be without sufficient water during droughts affecting  
32 their water source more than another source that might be a back-up source under the Proposed Project.

33 Alternative 3 would be slightly environmentally inferior to the Proposed Project because it would do less  
34 to stem the declining ecosystem in the Delta and in ecologically important areas along the lower  
35 San Joaquin River. Lastly, while Alternative 3 would preserve more agricultural land in the Delta than the  
36 Proposed Project, it would do so at the cost of lower reduction of long-term worsening impacts to the  
37 Delta ecosystem (e.g., because of less habitat and tidal marsh restoration) in the Delta and the cost of the  
38 environmental impacts due to runoff water from that Delta agricultural land preserved.

39 Regarding flood risk reduction, all of the alternatives are inferior to the Proposed Project because they  
40 would do less to reduce flood risk by focusing levee investments on only part of the Delta  
41 (all alternatives) or focusing prevention of encroachment into floodplains in only limited parts of the  
42 Delta (Alternatives 1A and 1B).

