

# Section 2A

## Proposed Project and Alternatives

This section addresses the development of the Proposed Project and alternatives, and describes the characteristics of the Proposed Project and alternatives. Policies and recommendations for the Proposed Project and alternatives are presented in Appendix C.

### 2.1 Overview of the Delta Plan

The Delta Plan, as authorized under the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act), will be a legally enforceable, comprehensive management plan for the Sacramento–San Joaquin Delta and the Suisun Marsh (Delta) that achieves the coequal goals and all of the inherent subgoals and objectives, as described in Section 1. Primarily, the Delta Plan functions as a strategic document because it provides guidance and recommendations to cities, counties, and State, federal, and local agencies to restore the Delta ecosystem and provide a more reliable water supply for California. The Council will work with government agencies, the California Legislature, and stakeholders to promote and coordinate implementation of these recommendations. The Delta Stewardship Council (Council) does not exercise direct review and approval authority over covered actions to determine their consistency with the regulatory policies in the Delta Plan. The Council does not propose or contemplate constructing, owning, or operating any facilities used for water supplies, ecosystem restoration, water quality protection, flood management, or protection and enhancement of values of the California Delta as an evolving place to implement the Delta Plan recommendations or regulatory policies.

Following adoption of the Delta Plan, “covered actions” are required to be consistent with the Delta Plan (Water Code section 85022). State or local agencies that propose to carry out, approve, or fund a covered action must submit a written certification of consistency to the Council with detailed findings as to whether the action is consistent with the Delta Plan (Water Code section 85225). Any person alleging that a covered action is not consistent with the Delta Plan may appeal the certification of consistency to the Council (Water Code section 85225.10). If, after hearing the appeal, the Council finds that the action is not consistent with the Delta Plan, the State or local agency may not proceed with the project unless it submits a revised certification of consistency, which in turn could be challenged by any person through an appeal to the Council (Water Code section 85225.25).

#### 2.1.1 Policies and Recommendations

The Delta Plan contains both policies and recommendations. Policies are mandatory; they will have regulatory effect on State and local agencies proposing to implement covered actions. For non-covered actions, the policies would be considered recommendations.

1 Recommendations are non-regulatory in nature for both covered and non-covered actions. Most of the  
2 recommendations are directed at other agencies, which may or may not choose to implement all or a part  
3 of the recommended actions. The Council also may implement some of the recommendations through  
4 future studies and/or development of policies as part of future Delta Plan amendments.

5 Some of the policies and recommendations in the Delta Plan encourage other agencies to continue  
6 implementation of ongoing programs within existing schedules or in an accelerated manner. Some of the  
7 policies and recommendations could directly or indirectly lead to construction of new or modified  
8 facilities throughout California. At this time, it is not known which agency would implement any such  
9 projects, where the facilities would be located, or how the facilities would be operated. Therefore, for the  
10 purposes of this Environmental Impact Report (EIR), general types of projects and facilities are  
11 considered possible outcomes of implementation of the policies and recommendations.

12 A description of the types of projects, facilities, or outcomes that may result from the Delta Plan's  
13 policies and recommendations in each of the following five issue areas are provided below:

- 14 ♦ Reliable Water Supply
- 15 ♦ Delta Ecosystem Restoration
- 16 ♦ Water Quality Improvement
- 17 ♦ Flood Risk Reduction
- 18 ♦ Protection and Enhancement of Delta as an Evolving Place

## 19 2.1.2 Covered Actions

20 Only certain activities qualify as covered actions. As defined in the Delta Reform Act (Water Code  
21 section 85057.5), a covered action is:

22 *...a plan, program, or project as defined pursuant to section 21065 of the Public Resources Code*  
23 *(definition of a "project" in the California Environmental Quality Act (CEQA)) that meets all of the*  
24 *following conditions:*

- 25 ♦ *Will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh;*
- 26 ♦ *Will be carried out, approved, or funded by the state or a local public agency;*
- 27 ♦ *Is covered by one or more provisions of the Delta Plan [“Provisions” are “Delta Plan Policies”*  
28 *that are applicable to the proposed action]; and*
- 29 ♦ *Will have a significant impact on the achievement of one or both of the coequal goals or the*  
30 *implementation of government-sponsored flood control programs to reduce risks to people,*  
31 *property, and state interests in the Delta. (Water Code section 85057.5(a)) [For the purpose of*  
32 *the Delta Plan, “significant impact” means a change in existing conditions that is directly,*  
33 *indirectly, and/or cumulatively caused by an action and that will significantly affect the*  
34 *achievement of one or both of the coequal goals or the implementation of government-sponsored*  
35 *flood control programs to reduce risks to people, property, and State interests in the Delta.]*

36 A State or local agency project proponent determines whether a proposed plan, program, or project is a  
37 covered action. A proponent's first step in determining whether an action is a covered action is to identify  
38 whether the proposed plan, program, or project meets the definition in Public Resources Code section  
39 21065. That particular provision is the section of CEQA that defines the term “project” for purposes of  
40 potential review under CEQA.

### 41 2.1.2.1 Statutory Exemptions of a Covered Action

42 Certain actions are statutorily excluded from the definition of covered action in Water Code  
43 section 85057.5(b), including the following:

- 1       ♦ A regulatory action of a State agency (such as adoption of a water quality control plan by the  
2       State Water Resources Control Board or issuance of a California Endangered Species Act permit  
3       by the Department of Fish and Game).
- 4       ♦ Routine maintenance and operation of the State Water Project or the federal Central Valley  
5       Project facilities.
- 6       ♦ Routine maintenance and operation of any facility located, in whole or in part, in the Delta, that is  
7       owned or operated by a local public agency (such as routine maintenance of levees by a  
8       reclamation district).
- 9       ♦ Regional transportation plans prepared pursuant to Section 65080 of the Government Code  
10      (including plans that consider short-term and long-term futures and achieve a coordinated and  
11      balanced regional transportation system, including, but not limited to, mass transportation,  
12      highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and  
13      services).
- 14      ♦ Any plan, program, project, or activity within the secondary zone of the Delta that the applicable  
15      metropolitan planning organization under Section 65080 of the Government Code has determined  
16      is consistent with either a sustainable communities strategy or an alternative planning strategy  
17      that the State Air Resources Board has determined would, if implemented, achieve the  
18      greenhouse gas emission reduction targets established by that board pursuant to subparagraph (A)  
19      of paragraph (2) of subdivision (b) of Section 65080 of the Government Code. For purposes of  
20      this paragraph, “consistent with” means consistent with the use designation, density, building  
21      intensity, transportation plan, and applicable policies specified for the area in the sustainable  
22      communities strategy or the alternative planning strategy, as applicable, and any infrastructure  
23      necessary to support the plan, program, project, or activity.
- 24      ♦ Any plan, program, project, or activity that occurs, in whole or in part, in the Delta, if both of the  
25      following conditions are met:
- 26          • (A) The plan, program, project, or activity is undertaken by a local public agency that is  
27          located, in whole or in part, in the Delta.
- 28          • (B) Either a notice of determination is filed, pursuant to Section 21152 of the Public  
29          Resources Code, for the plan, program, project, or activity by, or the plan, program, project,  
30          or activity is fully permitted by, September 30, 2009.
- 31      ♦ The following items are to be considered together:
- 32          • (A) Any project within the secondary zone, as defined pursuant to Section 29731 of Public  
33          Resources Code as of January 1, 2009, for which a notice of approval or determination  
34          pursuant to Section 21152 of the Public Resources Code has been filed before the date on  
35          which the Delta Plan becomes effective.
- 36          • (B) Any project for which a notice of approval or determination is filed on or after the date on  
37          which the final Bay Delta Conservation Plan becomes effective, and before the date on which  
38          the Delta Plan becomes effective, is not a covered action but shall be consistent with the Bay  
39          Delta Conservation Plan.
- 40          • (C) Subparagraphs (A) and (B) do not apply to either of the following:
- 41              1. Any project that is within a Restoration Opportunity Area as shown in Figure 3.1 of  
42              Chapter 3: Draft Conservation Strategy of the Bay Delta Conservation Plan, August 3,  
43              2009, or as shown in a final Bay Delta Conservation Plan.

- 1                   2. Any project that is within the alignment of a conveyance facility as shown in Figures 1  
2                   to 5, inclusive, of the Final Draft Initial Assessment of Dual Delta Water Conveyance  
3                   Report, April 23, 2008, and in future revisions of this document by the Department of  
4                   Water Resources.

5                   Although a regulatory action by another State agency is not a “covered action,” the underlying action  
6                   regulated by that agency can be a covered action (provided it otherwise meets the definition in  
7                   subsection 2.1.2, above). For example, the issuance of a California Endangered Species Act take permit  
8                   by the California Department of Fish and Game (DFG) is a regulatory action of a State agency; therefore,  
9                   it is not a covered action. However, the underlying action requiring the take permit could be a covered  
10                  action and, if it is, it must be consistent with the Delta Plan’s policies. Therefore, even when a covered  
11                  action is regulated by another agency (or agencies), the action still must be consistent with the Delta Plan.  
12                  Where a covered action is governed by multiple agencies and laws, the action must comply with all  
13                  relevant legal requirements.

14                 Nothing in the application of the definition of a “covered action” shall be interpreted to authorize the  
15                 abrogation of any vested right whether created by statute or by common law.

### 16                 2.1.2.2    *Administrative Exemptions of a Covered Action*

17                 Under the Proposed Project, the following types of projects are not covered actions because they will not  
18                 have a significant impact under Water Code section 85057.5(a)(4):

- 19                 ◆ “Emergency” projects under CEQA, as defined in Public Resources Code section  
20                 21080(b)(2)-(4).
- 21                 ◆ Temporary water transfers of up to 1 year in duration.
- 22                 ◆ “Ministerial” projects under CEQA, as defined by CEQA Guidelines (Public Resources Code  
23                 section 21080(b)(1) and CEQA Guidelines section 15369), because they only require the  
24                 application of fixed standards or objective measurements set forth in an ordinance or other legal  
25                 or regulatory provision.

26                 The Administrative Exemptions would not include other types of CEQA Statutory Exemptions (see  
27                 CEQA Guidelines section 15260 et. seq.) and CEQA Categorical Exemptions (see CEQA Guidelines  
28                 section 15300 et. seq.) if they meet the four criteria listed in subsection 2.1.2, above.

## 29                 2.2        Proposed Project

30                 The Proposed Project consists of the policies and recommendations included in the Fifth Staff Draft Delta  
31                 Plan published on August 2, 2011, and included in Appendix C of this EIR. The description of the  
32                 Proposed Project is separated into the following categories that were used to organize the policies and  
33                 recommendations in the Fifth Staff Draft Delta Plan, and is described in detail in the following  
34                 subsections below.

- 35                 ◆ Reliable Water Supply  
36                 ◆ Delta Ecosystem Restoration  
37                 ◆ Water Quality Improvement  
38                 ◆ Flood Risk Reduction  
39                 ◆ Protection and Enhancement of Delta as an Evolving Place  
40                 ◆ Finance Plan Framework to Support Coequal Goals

## 2.2.1 Reliable Water Supply

The Proposed Project will increase development of reliable local and regional water supplies (including water use efficiency) to reduce reliance on Delta exports and will encourage implementation of programs to expand conveyance and storage.

The Proposed Project does not direct the construction of specific projects, nor would projects be implemented under the direct authority of the Council. However, the Proposed Project seeks to improve water supply reliability by encouraging various actions which, if taken, could lead to construction and/or operation of projects that could provide a more reliable water supply. Such projects and their features could include the following:

- ◆ Surface water projects (construction and operation)
- ◆ Groundwater projects (construction and operation)
- ◆ Ocean desalination projects (construction and operation)
- ◆ Recycled wastewater and stormwater projects (construction and operation)
- ◆ Water transfers
- ◆ Water use efficiency and conservation program implementation

The number and location of all potential projects that will be implemented is not known at this time. Four possible projects, however, are known to some degree and are named in the Proposed Project: North of Delta Offstream Storage Investigation, Los Vaqueros Reservoir Project - Phase 2, the Upper San Joaquin River Basin Storage Investigation Plan, and the next update of the Department of Water Resources (DWR) Bulletin 118 *California's Groundwater* (DWR 2003).

### 2.2.1.1 Overview of Reliable Water Supply Programs

The Proposed Project will encourage increased emphasis on reliable local and regional water supplies through several of its policies and recommendations, including WR P1, WR P2, ER P1, WR R1, WR R2, WR R3, WR R4, WR R5, WR R7, WR R8, WR R9, WR R10, WR R11, and WR R12. Most notably, WR P1 requires certain water suppliers that receive water from the Delta to comply with water supply reliability requirements listed in WR P1 to be consistent with the Delta Plan. When these requirements do not apply to a particular covered action or water supplier as a mandatory policy, they are recommendations. WR P1 has three components: (1) compliance with State law regarding urban and agricultural water suppliers adopting and implementing water management plans and practices and achieving water conservation targets in existing State law, (2) the addition of a water supply reliability element in urban and agricultural water management plans, including details regarding how water suppliers will improve regional self-reliance and reduce reliance on the Delta, and (3) the development of a conservation-oriented rate structure.

The development of reliable local and regional supplies will be encouraged by other Delta policies and recommendations as well. For example, WR R4 recommends that all State agencies, among other things, design new and retrofit existing State facilities to increase water efficiency, use recycled water, and reduce reliance on the Delta. WR R5 recommends that various State agencies focus grants and loans on water suppliers that comply with WR P1's Water Supply Reliability Element requirements

ER P1 encourages the State Water Resources Control Board (SWRCB) to adopt updated flow objectives<sup>1</sup> for the Delta and updated flow criteria<sup>2</sup> for Delta tributaries. If the SWRCB adopts new flow objectives

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<sup>1</sup> "Flow objectives" are limits or levels of flows for a specific period of time (such as during the "month of May in dry years") that would be established by the SWRCB in a quasi-legislative capacity under its regulatory function of establishing water quality objectives that can be achieved by specific flow limits or levels. Flow objectives can be used by the SWRCB in subsequent efforts to establish or modify water rights. Flow and water quality objectives are developed to protect all of the beneficial uses which have been designated for a water body, and generally protect the most sensitive of the beneficial uses.

1 that limit Delta exports during some periods of the year, ER P1 could result in the development of local  
2 and regional supplies and less reliance on Delta water.

3 The Proposed Project encourages development of storage projects through two recommendations that  
4 encourage State entities to identify potential storage projects (WR R6 and WR R7), and through policy  
5 WR P1 requiring water suppliers to identify water conservation, efficiency and supply strategies including  
6 “local groundwater and storage.” WR R6 recommends that DWR should complete the Surface Water  
7 Storage Investigations of proposed off-stream surface storage projects, discussed in more detail in  
8 2.2.1.2.4. In addition, the Proposed Project recommends that the State complete the Bay Delta  
9 Conservation Plan (BDCP) (ER R8).

10 The Proposed Project does not require specific water reliability projects; rather it contains broad  
11 requirements and recommendations such as the identification by water suppliers of specific programs and  
12 projects that will improve self-reliance. Given both the general nature of the Proposed Project policies and  
13 recommendations and the uncertainty concerning the extent to which the Proposed Project will result in  
14 any particular action, it is unclear what types of projects will actually be implemented as a result of the  
15 Proposed Project policies and recommendations. Nevertheless, this EIR assumes that the Proposed  
16 Project will lead to an increase in local and regional water reliability projects. Also, the degree to which  
17 the Proposed Project will increase the chances that a storage facility will be built is unknown, because  
18 these projects are within the authority and jurisdiction of other agencies. However, this EIR assumes that  
19 the Proposed Project recommendations regarding storage will lead to an increase in water storage  
20 projects.

21 The types of projects that may be developed to increase water supply reliability can best be seen by  
22 looking at Urban Water Management Plans that were recently completed by urban water supply agencies  
23 identify adequate water supplies to meet existing and future needs over 20-years, including water supplies  
24 to respond to long-duration water shortages and droughts. Recently, the DWR indicated that Delta water  
25 exports could be disrupted for up to six months following catastrophic levee failures. Therefore, water  
26 supply agencies located outside of the Delta that rely upon Delta water have identified local and regional  
27 water supplies. The Agricultural Water Management Plans are not required until December 31, 2012;  
28 therefore, specific information is not generally available in a similar format for agricultural areas.  
29 However, several urban and agricultural areas are developing Integrated Regional Water Management  
30 Plans to plan and implement regional water supplies and address other water resource issues within a  
31 region. Information from available plans that have been completed or are being completed also were  
32 considered in identifying a range of options for local and regional water supplies.

33 Ongoing studies by DWR for the Surface Water Storage Investigations provide the basis for types of  
34 water storage projects that can be expected. The Proposed Project recommends that DWR complete the  
35 Surface Water Storage Investigation program (WR R6), which includes the North-of-the-Delta Offstream  
36 Storage Project (Sites Reservoir), Los Vaqueros Reservoir Expansion Project, and Upper San Joaquin  
37 River Basin Storage Project (Temperance Flats) Investigations, presented in subsection 2.2.1.2.4. These  
38 ongoing studies provide information for consideration of the types of actions that could be implemented  
39 under the DWR Surface Water Storage Investigations.

40 The Proposed Project also recommends that the State should complete the BDCP (ER R8), as discussed in  
41 subsection 2.2.1.8.

42 The policies and recommendations included in the Proposed Project are presented in Appendix C.

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<sup>2</sup> “Flow criteria” are recommended flows to protect a specific beneficial use. Flow criteria are to be used to inform, but are not, by themselves, regulatory in nature. For the Proposed Project, the flow criteria address flows to protect public trust resources in the Delta and Delta watershed in accordance with Water Code sections 85084.5 and 85056, but do not consider balancing of the flow criteria with other beneficial uses.

## 1 **2.2.1.2 Surface Water Projects**

2 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
3 WR R4, WR R5, WR R6, WR R7, and ER P1, encourage development of local water supplies and  
4 reduced reliance on the Delta, which could require construction of:

- 5 ♦ Surface water intake and diversions from streams and rivers
- 6 ♦ Surface water treatment plants
- 7 ♦ Conveyance facilities for surface water projects
- 8 ♦ Surface water reservoirs

9 Conveyance facilities include pipelines, tunnels, canals, and pumping plants. Reservoirs include  
10 construction of dams and may include hydroelectric generation on the intakes or outlet facilities. Ocean  
11 desalination projects are discussed in subsection 2.2.1.4.

### 12 **2.2.1.2.1 Surface Water Intakes and Diversions from Streams and Rivers**

13 The intakes/diversion structures are generally designed to divert water through a fish screen and convey  
14 the water into adjacent sedimentation basins to remove silt, sediment, and debris. Water from the  
15 sedimentation basin is conveyed through a pumping plant into a pipeline or canal for conveyance to a  
16 water treatment plant, reservoir or groundwater storage, or directly to the water user.

17 Surface water intake/diversion facilities are generally located along stream banks or river banks, within  
18 the river, or under the river bed. The sedimentation basins and pumping plant would be located on the  
19 land adjacent to the intakes and fish screens.

20 The type of screen used in each location would depend upon the flow patterns and fish screen design  
21 criteria established by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service  
22 (NMFS), and DFG. Pursuant to federal and/or local regulations, the intakes/diversions may not increase  
23 flood potential in the stream or river; therefore, the intake/diversion project could include widening of the  
24 stream or river.

25 Intake/diversion projects could include construction and operations of the following new facilities:

- 26 ♦ The intake/diversion structure would include a series of fish screens with mechanical cleaning  
27 equipment, such as brushes and possibly water jets. The intake/diversion, including the fish  
28 screen, could rise two to three stories above the surface water elevation.
- 29 ♦ Generally, portions or all of the intake/diversion structure would be constructed within the river.  
30 During the construction period, a watertight structure, known as a cofferdam, could be  
31 constructed in the river to surround the intake/diversion construction site and connect to the  
32 existing river bank/levee. The cofferdam generally would be constructed by driving deep piles  
33 and steel sheets into the river bed. Pile driving also could be required for the intake/diversion  
34 structure. Following construction of the cofferdam, the water inside of the cofferdam would be  
35 pumped out to provide a dry construction site for the intake/diversion structure. The water would  
36 be treated onsite to remove sediment and discharged into the river in accordance with SWRCB  
37 requirements. The cofferdam would be removed following construction of the intake/diversion.  
38 Navigation protection (such as buoy lights, warning signs, and bollards) would be installed  
39 around the cofferdam and the intake/diversion structure to prevent boats from hitting the intake  
40 structure.
- 41 ♦ At some locations, most of the construction activities for the intake/diversion structure could  
42 occur on land between the existing river bank/levee and a new levee. Following construction of  
43 the intake/diversion, the existing river bank/levee would be removed and the area for the river

- 1 would become wider. Pile driving could be required for the intake/diversion structure.  
2 Construction of the new levee would be as described in subsection 2.2.2.2.1.
- 3 ♦ At some locations, intakes/diversions could be constructed in a series of pipelines under the river  
4 bed. In this type of intake, the river bed would serve as a fish screen. Construction activities could  
5 include construction of a cofferdam or use of underwater pipeline construction methods.
  - 6 ♦ A pier could be constructed if construction activities occur from the water side of the river bank  
7 or levee or materials are delivered by barge or boat.
  - 8 ♦ The sedimentation basins and pumping plant generally would be located adjacent to the  
9 intake/diversion structure. The facilities could include a) concrete-lined settling basins to remove  
10 solids, b) structures with equipment to dewater the solids to facilitate subsequent hauling of solids  
11 to a disposal facility, c) pumping plant, d) emergency power generation engines with onsite fuel  
12 storage, and g) administration buildings with parking lots. The height of most of the building  
13 could range from one to four stories.
  - 14 ♦ New electric distribution lines could be constructed to serve the intake/diversion and pumping  
15 plants. The electric distribution lines could be above ground on poles or buried in cables  
16 underground.

17 Construction activities would include removal of existing buildings, vegetation, and debris from the  
18 construction site. Materials would be hauled offsite for disposal at permitted sites. Excavation and grading  
19 would occur throughout the construction site, including the river bed. Some of the soils may be reused  
20 onsite. However, some soils would be hauled offsite for disposal at permitted sites. Rock, soil, and other  
21 materials would be hauled to the site. Other construction activities would involve pile driving for  
22 structures, construction of structures including placement of concrete, and establishment of dewatering  
23 equipment to remove groundwater in excavated areas including treatment of the groundwater to remove  
24 silt prior to discharge into the stream or river. Erosion control methods, such as riprap rocks, would be  
25 required for all disturbed surfaces along river banks or levees. The facilities would include lighting,  
26 pavement for parking and roads, and fencing.

27 Operations and maintenance activities would include periodic dredging of sediment from the riverbed  
28 adjacent to intakes, use of electricity for all processes and operational lights, trucks trips to deliver  
29 materials and to haul sediment and debris to permitted disposal sites, vehicle trips for employees, lights  
30 that may be used on an as-needed basis, and operation of pumping plant heating and ventilation systems  
31 that could increase noise on adjacent parcels.

32 Operations of the intakes/diversion facilities would change stream flows and water quality at the intake  
33 locations. The diversion patterns would occur in accordance with requirements from regulatory agencies,  
34 including USFWS, NMFS, and DFG to define limitations on diversions to protect aquatic and riverine  
35 habitat and species; flood management agencies, DWR, and possibly the U.S. Army Corps of Engineers  
36 (USACE) to define limitations on levee and river bank construction in order to maintain or improve flood  
37 protection; and regional agencies, Department of Boating and Waterways, and possibly the Coast Guard  
38 to define limitations to protect navigation in the area.

#### 39 2.2.1.2.2 Surface Water Treatment Plants

40 Water treatment facilities generally include processes to remove sediment and solids with chemical and  
41 filtration treatment and disinfection processes. Solids from the treatment plants generally are hauled to  
42 offsite disposal areas.

43 Water treatment plant projects could include construction and operations of the following new facilities:



- 1       ♦ The treatment plant could include a) pumping plants and pipelines throughout the site, b) settling  
2       basins to remove solids, b) structures to dewater the solids to facilitate subsequent hauling of  
3       solids to a disposal facility, c) basins to mix chemicals to remove smaller solids and other  
4       materials, d) chemical handling and storage facilities, e) filtration processes (such as sand,  
5       carbon, and other materials) and/or membranes or reverse osmosis facilities to remove small  
6       particles, salts, minerals, and/or organic material; f) disinfection processes that could include  
7       chloramines, ozone, ultra-violet processes, other processes, or a combination of processes; g)  
8       emergency power generation engines with onsite fuel storage, and h) administration buildings  
9       with parking lots. The height of most of the building could range from one to four stories.
- 10       ♦ New electric distribution lines could be constructed to serve the treatment plants and pumping  
11       plants. The electric distribution lines could be above ground on poles or buried in cables  
12       underground.

13       Construction activities would include activities as described for intakes/diversions in subsection 2.2.1.2.1,  
14       except that the activities would be more extensive because the treatment plant site would be larger and the  
15       facilities would be more complex than the intake/diversion facilities.

16       Operations and maintenance activities would include use of electricity for all processes and operational  
17       lights; trucks trips or railroad car trips to deliver materials and to haul sediment, solids, and debris to  
18       permitted disposal sites; vehicle trips for employees; lights that may be used on an as-needed basis; and  
19       operation of heating and ventilation systems that could increase noise on adjacent parcels.

### 20       2.2.1.2.3    Conveyance Facilities for Surface Water Projects

21       Conveyance facilities could be required between intakes/diversions, water treatment plants, reservoir or  
22       groundwater storage, or users.

23       Conveyance facilities could include underground pipelines or tunnels, above-ground canals, and pumping  
24       plants along the conveyance alignments. Pipelines are generally constructed by excavating a trench,  
25       placing a pipe in the trench, and placing rock and soil around the pipe to restore the ground surface. A  
26       tunnel is constructed without excavating a trench and can be installed at greater depths than pipelines and  
27       in areas that cannot be excavated, such as stream or railroad crossings.

28       Conveyance for surface water projects could include construction and operations of the following new  
29       facilities:

- 30       ♦ New pipelines/tunnels to convey water between facilities. The pipelines would be constructed in  
31       underground trenches. The tunnels would be constructed underground without limited  
32       construction of trenches. Conditions on the ground would be restored to pre-construction  
33       conditions except for the placement of manhole or valve covers to provide access to the pipeline.
- 34       ♦ New canals to convey water between facilities. The canals could be constructed with levees  
35       located above-ground at heights of less than 5 feet to more than 20 feet. A trench could be  
36       constructed between the levees that could be less than 5 feet to more than 10 feet deep. The  
37       canals could be lined with concrete or other impervious materials or be constructed of earth with  
38       clay layers within the levee walls to avoid seepage of water out of the levees. Valves and other  
39       flow controlling structures could be located along the canal that could be as high as a one story  
40       building on top of the levee. Bridges could be constructed across the canals to maintain  
41       transportation because the canals frequently block surface streets and separate parcels of land.  
42       Canals could include siphons to cross major streams or other surface water features, highways, or  
43       other major surface structures.
- 44       ♦ Pumping plants could be constructed along pipelines, tunnels, or canals. Pumping plants  
45       generally would be constructed within a one or two story building. New electric distribution lines

1           could be constructed to serve the pumping plants. The electric distribution lines could be above  
2           ground on poles or buried in cables underground.

3 Construction activities would include activities as described for intakes/diversions in subsection 2.2.1.2.1.  
4 Construction activities also would include erection of bridges over canals; and construction of siphons  
5 under streams and rivers, major roadways, and major utility corridors by open trenching across these  
6 features or tunneling under these features.

7 Operations and maintenance activities would include use of electricity for all processes and operational  
8 lights; trucks trips to deliver materials and to haul sediment and debris to permitted disposal sites; vehicle  
9 trips for employees; lights that may be used at the pumping plants on an as-needed basis; and operation of  
10 heating and ventilation systems that could increase noise on adjacent parcels.

#### 11 2.2.1.2.4 Surface Water Reservoir Projects

12 New surface water reservoirs or storage projects generally are constructed within tributary watersheds of  
13 major rivers or upstream of existing reservoirs along the major river. The facilities generally include main  
14 dam(s) located across the main stream or river beds. If only part of the tributary watershed is to be  
15 inundated, smaller auxiliary dams would be located along the rim of the reservoir to prevent the water  
16 from spilling into adjacent watersheds.

17 Water supplies to be stored in the reservoirs would include water from the local watershed. Many new  
18 reservoirs are constructed to store water conveyed from nearby rivers or other water supplies, such as  
19 canals that convey State Water Project (SWP) and Central Valley Project (CVP) water supplies from the  
20 Delta.

21 Surface water reservoir projects could include construction and operations of the following new facilities:

- 22       ♦ Main dams and smaller auxiliary dams. The main dam could have an emergency spillway to  
23       allow for rapid water release in case of an emergency. Access roads could be constructed along  
24       the reservoir rim and across the dams.
- 25       ♦ Inlet structures to convey water from other sources not in the local watershed into the reservoir,  
26       and outlet structures, including spillways and pipelines, to convey water from the reservoir to  
27       water treatment plants or directly to the users. Hydroelectric generation facilities could be  
28       constructed on the inlet and outlet structures. The hydroelectric generation facilities would  
29       include substations to provide a connection to the electrical transmission grid.
- 30       ♦ New electric distribution lines could be constructed to serve the reservoir facilities, including  
31       pumping plants and hydroelectric generation substations. The electric distribution lines could be  
32       above ground on poles or buried in cables underground.

33 Construction activities would include site preparation, excavation, and construction of structures as  
34 described for intakes/diversions in subsection 2.2.1.2.1. Construction activities for the dams would  
35 require major excavation, hauling of soils and rock into the construction site for placement in the dam,  
36 concrete placement, and possibly pile driving especially for inlet and outlet structures. At many locations,  
37 soil and rock to be placed in the dam would be excavated from the inundation area of the reservoir.  
38 Recreation facilities also could be part of a reservoir project, including boat launches, campgrounds,  
39 picnic areas, trails, and access roads and utilities to serve these sites.

1 Operations and maintenance activities would include use of electricity for safety and operational lights,  
2 pumping plants, and operation of the dam and hydroelectric equipment; trucks trips to deliver materials  
3 and to haul sediment and debris to permitted disposal sites; vehicle trips for employees; periodic dredging  
4 near intake or outlet structures; and maintenance of roads and recreation facilities.

5 Operations of the reservoirs could affect stream flows in the watershed in which the dam is constructed or  
6 in the rivers from which the water to be stored is diverted. Frequently, dams located in tributary  
7 watersheds are operated to release water into the streams to maintain pre-construction flow conditions in  
8 the stream. However, surface water flow patterns and water quality conditions would be modified in the  
9 larger rivers or waterways (including the Delta) where water is diverted to be conveyed into the reservoir,  
10 as described in subsection 2.2.1.2.1.

#### 11 *Small-scale Surface Water Storage Projects*

12 The Proposed Project encourages DWR, in coordination with the California Water Commission, federal  
13 Bureau of Reclamation (Reclamation), SWRCB, and Department of Public Health to identify surface  
14 water storage projects that could be implemented in the next 5 to 10 years (WR R7). These projects have  
15 been referred to in the Fifth Staff Draft Delta Plan as “small-scale storage projects” to be implemented by  
16 local and regional water agencies. In some cases, local water agencies would implement this type of  
17 project to provide emergency water supplies in case of drought or inability to obtain water from the Delta.  
18 In other cases, a small-scale storage project could be used to store flows that occur in only part of the  
19 year, such as recycled wastewater or recycled stormwater flows (these projects are described in  
20 subsection 2.2.1.5).

#### 21 *Large-scale Surface Water Storage Projects: Department of Water Resources Surface Water Storage* 22 *Investigation Project*

23 The Proposed Project recommends that DWR complete the ongoing Surface Water Storage Investigation  
24 projects and implementation of recommendations (WR R6). These projects could include construction of  
25 major new dams and auxiliary structures that could require more than 10 years to plan, design, and  
26 construct due to their size, complexity, and need for extensive technical engineering and environmental  
27 analyses. These projects are being planned to serve more than one local water supply agency and could  
28 provide water to multiple regions of California.

29 The 2000 CALFED Bay-Delta Programmatic Record of Decision (ROD) recommended expansion of  
30 Shasta Lake, Los Vaqueros Reservoir, and groundwater storage; construction of a new surface water  
31 storage facility in the Delta (Delta Wetlands Project); and evaluation of new reservoirs in the Sacramento  
32 Valley near Sites (North-of-the-Delta Offstream Storage Project) and in the San Joaquin River basin  
33 (Upper San Joaquin River Basin Storage Project) (CALFED 2000). Initially, studies were conducted as  
34 part of the CALFED Integrated Storage Investigation. The Surface Water Storage Investigation was  
35 initiated following the adoption of Proposition 50 in 2002 that provided funds for the studies (DWR and  
36 Reclamation 2006).

37 Federal funding was provided in 2004 (Public Law 108-361) to complete studies for four of the storage  
38 projects identified in the CALFED ROD: Shasta Lake Water Resources Investigation, North-of-the-Delta  
39 Offstream Storage Investigation (Sites Reservoir), Los Vaqueros Expansion Investigation, and the Upper  
40 San Joaquin River Basin Storage Investigation (Temperance Flats Reservoir).

1 Following the initial phases of the Surface Water Storage Investigation projects, DWR determined that  
2 the State could not participate in the Shasta Lake Water Resources Investigation due to a State law that  
3 does not allow State agencies to participate in programs that would inundate a portion of the McCloud  
4 River upstream of the McCloud River Bridge (Public Resources Code section 5093.542(c)). DWR also  
5 suspended work on the Delta Wetlands Project because additional studies were required and, in 2006, no  
6 potential participants indicated a willingness to pursue the project and share in the cost of subsequent  
7 investigations (DWR and Reclamation 2002).

8 Therefore, the DWR Surface Water Storage Investigation programs currently include:

- 9 ♦ North-of-the-Delta Offstream Storage Investigation (Sites Reservoir)
- 10 ♦ Los Vaqueros Reservoir Expansion Investigation
- 11 ♦ Upper San Joaquin River Basin Storage Investigation (Temperance Flats Reservoir)

12 DWR and Reclamation prepared Initial Alternatives Information Reports and Reclamation prepared Plan  
13 Formulation Reports as part of the ongoing planning phases of these projects. These reports summarized a  
14 range of options for each of the investigations and summarized initial benefits and impacts of the storage  
15 projects. The DWR report, *CALFED Surface Storage Investigations Progress Report* (DWR 2010a),  
16 projects completion of environmental documentation by mid-2013 and decisions on the investigations by  
17 December 2014. The progress report stated that because many of the planning, biological, and regulatory  
18 conditions have changed since the Initial Alternatives Information Reports and Plan Formulation Reports  
19 were completed, the final range of options to be considered in 2014 could be substantially different.  
20 General locations of these projects are shown in Figure 2-1.

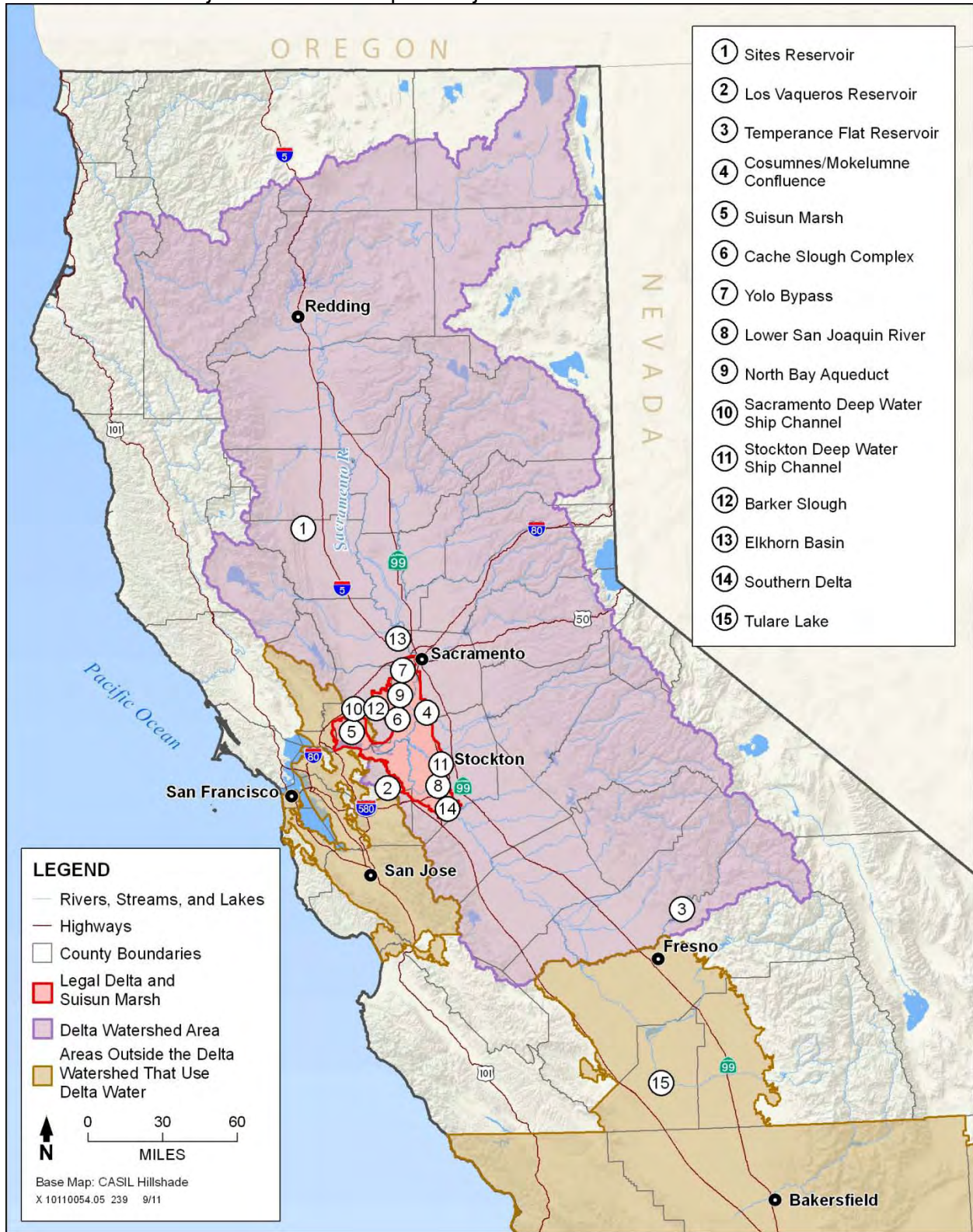
21 Project-specific environmental reviews are being completed by DWR, Reclamation, and local agencies  
22 for the North-of-the-Delta Offstream Storage Investigation (Sites Reservoir) and Upper San Joaquin River  
23 Basin Storage Investigation (Temperance Flat Reservoir). This environmental analysis uses information  
24 presented in the Initial Alternatives Information Reports and Plan Formulation Reports to describe  
25 potential options that could be developed pursuant to North-of-the-Delta Offstream Storage and Upper  
26 San Joaquin River Basin Storage investigations. For the Los Vaqueros Reservoir Expansion, this  
27 environmental analysis uses the most recent information available on that project presented in an EIS/EIR  
28 for the Phase 1 expansion of Los Vaqueros reservoir as prepared by CCWD, Reclamation, and Western.  
29 The potential options being considered for these three projects are described in the following subsections.

#### 30 North-of-the-Delta Offstream Storage Investigation

31 The North-of-the-Delta Offstream Storage Investigation evaluated the feasibility of construction of a  
32 surface water storage reservoir in the north western Sacramento River valley to provide additional water  
33 supply and improve water supply reliability for local water supply agencies and water supply agencies  
34 throughout the state. Water would be diverted from the Sacramento River during high flow conditions,  
35 stored in Sites Reservoir, and be available for use throughout the year and subsequent years (DWR and  
36 Reclamation 2008a).

37

1 **Figure 2-1**  
2 **General Locations of Projects Named in the Proposed Project or Alternatives**  
3  
4



1 While it is not clear what specific elements of this program would be implemented in the future, in the  
2 latest report (DWR and Reclamation 2008a) DWR and Reclamation considered eight options for  
3 operation and use of Sites Reservoir, including options to improve water supplies, provide water for  
4 environmental enhancement, improve water quality in the Sacramento River and the Delta, and a  
5 combination of these options. These initial options were defined to provide a range of facilities and  
6 operations criteria for diversion, storage, and use of Sacramento River water that could be diverted at the  
7 existing Glenn-Colusa Canal and Tehama Colusa Canal intakes or at a new Sacramento River intake near  
8 Moulton Weir. The initial options could include all or a portion of these facilities:

- 9 ♦ Construction of a new 1.27 to 1.8 million acre-foot Sites Reservoir with two major dams and nine  
10 smaller dams in a valley located about 10 miles west of the town of Maxwell. The reservoir could  
11 inundate up to 14,000 acres. The final reservoir size would be determined by 2014.
- 12 ♦ Use of the Glenn-Colusa Irrigation District intake (currently under construction) and 40 miles of  
13 the existing canal to convey water from the Sacramento River to a new Terminal Regulating  
14 Reservoir. Minor reshaping of approximately 13 miles of the canal with replacement of bridges,  
15 siphons, and check structures. Construction of a new 2,000 acre-foot Terminal Regulating  
16 Reservoir, new pumping plant, and new pipeline to transfer water from the Glenn-Colusa  
17 Irrigation District canal to Funks Reservoir. The Terminal Regulating Reservoir would inundate  
18 approximately 200 acres.
- 19 ♦ Use of Tehama Colusa Canal intake (currently under construction) and 38.5 miles of the existing  
20 canal to convey water from the Sacramento River to Funks Reservoir. Construction of a new  
21 8-mile pipeline to convey water from Stony Creek to Tehama Colusa Canal.
- 22 ♦ Construction of a new intake and pumping plant on the Sacramento River near Moulton Weir,  
23 and a 13-mile pipeline (Delevan Pipeline) to convey water from the Sacramento River to Funks  
24 Reservoir.
- 25 ♦ Construction of an enlarged Funks Reservoir to increase volume of stored water from 1,170 acre-  
26 feet up to 5,290 acre-feet. The final reservoir size would be determined by 2014. It is not known  
27 if the additional capacity would be provided by deepening and/or widening the existing reservoir.
- 28 ♦ Construction of a new Sites Pumping Plant at the enlarged Funks Reservoir to convey water  
29 through a new 3,300-foot pipeline into Sites Reservoir.
- 30 ♦ Construction of new hydropower generation facilities at the Sites Pumping Plant, Terminal  
31 Regulating Reservoir, and the Sacramento River Pumping Plant.
- 32 ♦ Relocation or construction of new roads and bridges to provide access within the inundation area  
33 of Sites Reservoir.
- 34 ♦ Construction of approximately 4.5 miles of transmission lines.
- 35 ♦ Construction of new recreation facilities within the Sites Reservoir area for boat launch sites,  
36 picnic tables, campfire rings and barbecues for overnight camping, restrooms, trails, and  
37 swimming and fishing.

#### 38 Los Vaqueros Reservoir Expansion Investigation - Phase 2

39 Los Vaqueros Reservoir is a 100,000 acre-foot off-stream storage reservoir located west of the Delta in  
40 Contra Costa County. Water is diverted into the reservoir from the Delta at existing Rock Slough, Old  
41 River, and Victoria Canal (also known at the Alternative Intake Project) intakes.



1 CCWD, Reclamation, and Western evaluated options for the Los Vaqueros Reservoir Expansion Project.  
2 Following the completion of a Draft EIS/EIR in 2009 (CCWD, Reclamation, and Western 2009), Contra  
3 Costa Water District and Reclamation decided to expand the reservoir in two phases because the district  
4 had an immediate need to protect the local water supply quality and reliability (CCWD, Reclamation, and  
5 Western 2010). Phase 1, currently under construction, will expand the reservoir from 100,000 acre-feet to  
6 160,000 acre-feet.

7 DWR, Reclamation, and CCWD are continuing to evaluate the options for a larger expansion of  
8 Los Vaqueros Reservoir to develop additional water supplies for environmental water management for  
9 fish protection, habitat management, and other environmental water needs; increase water supply  
10 reliability within the San Francisco Bay Area during drought or other water shortage situations; and  
11 improve water quality. While it is not clear what specific elements of the Los Vaqueros Reservoir  
12 Expansion Investigation would be implemented in the future, in the latest report (CCWD, Reclamation,  
13 and Western 2009) DWR, Reclamation, Western, and CCWD considered three options to expand Los  
14 Vaqueros Reservoir to 275,000 acre-feet with use of the water for environmental and water supply  
15 reliability benefits. The initial options could include all or a portion of these facilities:

- 16 ♦ Construction of an expanded reservoir by raising the dam from the existing 190-feet (for  
17 100,000 acre-foot capacity) up to 282 feet to increase storage volume up to 275,000 acre-feet.
- 18 ♦ Construction of a new Delta Intake and Pump Station along Old River.
- 19 ♦ Construction of an expanded Old River Intake and Pump Station at the existing pumping plant.
- 20 ♦ Construction of a 10-mile new pipeline parallel to the existing pipelines from the new Old River  
21 Pumping Plant to the reservoir, and an expanded Transfer Facility to convey water from the  
22 pipeline into the reservoir.
- 23 ♦ Construction of a new 9-mile pipeline from Los Vaqueros Reservoir to the existing Bethany  
24 Reservoir to provide water into the existing South Bay Aqueduct.
- 25 ♦ Construction of transmission lines to the new and expanded pumping plants.

26 While it is not clear if these options will be implemented, this EIR evaluates the types of impacts that  
27 could occur if the actions identified in the *Draft EIS/EIR for Los Vaqueros Reservoir Expansion Project*  
28 for expansion of the reservoir to 275,000 acre-feet proceed.

### 29 Upper San Joaquin River Basin Storage Investigation

30 The purpose of the Upper San Joaquin River Basin Storage Investigation is to evaluate the feasibility of  
31 construction of a surface water storage reservoir in the upper San Joaquin River watershed to expand  
32 water storage capacity, improve water supply reliability and flexibility, and enhance San Joaquin River  
33 water temperature and flow conditions to support anadromous fish restoration efforts. Initial studies  
34 evaluated 17 reservoir sites and over 24 reservoir operations and capacity options. The *Upper San*  
35 *Joaquin River Basin Storage Investigation Plan Formulation Report* (DWR and Reclamation 2008b)  
36 identified the following reservoir options at a site in the San Joaquin River named “Temperance Flats.”

- 37 ♦ Temperance Flat Reservoir to provide 1,260,000 acre-feet of storage at River Mile 274 (6.8 miles  
38 upstream of Friant Dam) with and without a Trans Valley Canal.
- 39 ♦ Temperance Flat Reservoir to provide 690,000 acre-feet of storage at River Mile 279 (11.6 miles  
40 upstream of Friant Dam) with and without a Trans Valley Canal.

1 The initial options could include all or a portion of these facilities:

- 2 ♦ Construction of a new Temperance Flat Reservoir to provide 690,000 acre-feet to 1,260,000 acre-  
3 feet of storage through construction of 545 to 665-foot high dam located on the San Joaquin River  
4 upstream of Friant Dam. The reservoir would extend 13.6 to 18.5 miles upstream of Friant Dam  
5 to Kerckhoff Dam.
- 6 ♦ Construction of 7 miles of a new hydroelectric generation facility at Millerton Lake (created by  
7 Friant Dam) and tunnels to convey water to and from the facility.
- 8 ♦ Construction of modifications to the Kerckhoff Project hydroelectric generation facilities.
- 9 ♦ Construction of 5 miles of permanent access roads and 10 miles of temporary roads.
- 10 ♦ Construction of a new 50-mile Trans Valley Canal to convey water from the Temperance Flat  
11 Reservoir to the existing Friant-Kern Canal and California Aqueduct.

12 While it is not clear if these options will be implemented, this EIR evaluates the types of impacts that  
13 could occur if these actions identified in the *Upper San Joaquin River Basin Storage Investigation Plan*  
14 *Formulation Report* for implementation of the Temperance Flat Reservoir proceed.

### 15 **2.2.1.3 Groundwater Projects**

16 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
17 WR R4, WR R5, WR R7, WR R8, WR R9, WR R10, and ER P1, encourage development of sustainable  
18 groundwater programs that could require construction of:

- 19 ♦ Wells and other groundwater storage facilities
- 20 ♦ Wellhead water treatment plants
- 21 ♦ Conveyance facilities for groundwater projects

22 Wells and other groundwater storage facilities include withdrawal, recharge, and monitoring wells.  
23 Conveyance facilities include pipelines, tunnels, canals, and pumping plants. Groundwater generally can  
24 be used for municipal, industrial, and agricultural uses.

25 Historically, groundwater has been a primary source of water for agriculture not located near rivers and  
26 for municipalities because groundwater treatment requirements were less expensive than surface water  
27 treatment. However, continued use of groundwater in some areas of California has led to substantial  
28 reductions in available groundwater (also known as “groundwater overdraft”). In other areas of  
29 California, groundwater has become contaminated due to agricultural, municipal, and industrial land uses.  
30 In these situations, water users have become increasingly dependent on SWP and CVP Delta water  
31 supplies to supplement local groundwater.

32 In areas with groundwater overdraft, groundwater storage could be improved by injecting surface water  
33 into the groundwater using recharge wells or percolating surface water into the groundwater from shallow  
34 basins. Groundwater storage also could be improved through periodic use of surface water by water  
35 supply agencies to allow natural recharge of the groundwater (known as “conjunctive use”).

36 In areas with contaminated groundwater, wells could be drilled in different locations or at different depths  
37 to access groundwater with better water quality, or wellhead water treatment plants could be constructed.

38 The Proposed Project recommends that groundwater monitoring data be collected and considered in  
39 development of future updates of Bulletin 118 by DWR. Bulletin 118 was last updated in 2003.  
40 Bulletin 118 presents available information from DWR, U.S. Geological Survey, and water supply



1 agencies throughout California (DWR 2003). The purpose of the report is to provide decision makers with  
2 information to protect, manage, and increase sustainable use of California's groundwater resources.  
3 Bulletin 118 could be used by water supply agencies to improve management of wells and other  
4 groundwater storage facilities.

#### 5 2.2.1.3.1 Wells and Other Groundwater Storage Facilities

6 Wells are holes drilled into the groundwater. Pipes are installed in the holes with sealant materials placed  
7 between the outside of the pipes and the holes to prevent groundwater in one elevation from mixing, and  
8 possibly contaminating, groundwater at different elevations. Screens and gravel could be placed in the  
9 wells to minimize sands from being pumped with the groundwater. The pipes are connected to pumps  
10 located near the ground surface to either withdraw groundwater or to inject surface water to recharge the  
11 groundwater. Wells can be less than 100 feet to more than 1,000 feet in depth depending upon the  
12 geologic and groundwater conditions.

13 New or expanded groundwater storage facilities could include new withdrawal wells to expand the  
14 capacity of the facility or relocate wells in areas without contaminated groundwater, new recharge wells  
15 or shallow basins to improve groundwater storage, or new monitoring wells to provide an understanding  
16 of groundwater elevation changes and prevent adverse impacts on surrounding groundwater users.

17 Wells and other groundwater storage facility projects could include construction and operations of the  
18 following new facilities:

- 19 ♦ New groundwater withdrawal wells could be drilled and pipes (also known as casings) would be  
20 installed and sealed in the well. Pumps would be installed on the wells.
- 21 ♦ New groundwater recharge wells could be drilled and pipes (also known as casings) would be  
22 installed and sealed in the well. Pumps would be installed on the wells. In some cases, the same  
23 well and pump could be used for both withdrawals and recharge. Filters could be included to  
24 remove silt and other debris to avoid clogging the groundwater recharge well.
- 25 ♦ New monitoring wells could be drilled and pipes (also known as casings) would be installed and  
26 sealed in the well. This type of well is primarily used to monitor groundwater elevations and does  
27 not necessarily include pumps. In many situations, groundwater monitoring could be  
28 accomplished using the withdrawal or recharge wells.
- 29 ♦ New shallow basins could be excavated as part of groundwater storage facilities. Water would be  
30 placed in the basins and allowed to percolate into the groundwater. Soil removed from the  
31 excavated basin could be used to form the surrounding levees. The basins could cover several  
32 acres to several hundred acres depending upon the geographical and geological characteristics.
- 33 ♦ New groundwater recharge facilities with injection wells use the wells to force the water from a  
34 canal or pipeline into the groundwater. Wells could be constructed over an area of 1 acre to  
35 several hundred acres depending upon the geographical and geological characteristics. Buried  
36 pipelines convey water between the wells.
- 37 ♦ New electric distribution lines could be constructed to serve the new wells (withdrawal, recharge,  
38 and monitoring). The electric distribution lines could be above ground on poles or buried in  
39 cables underground.

40 Construction activities would include removal of existing buildings, vegetation, and debris from the  
41 construction site. Materials would be hauled offsite for disposal at permitted sites. Excavation and grading  
42 could occur for structures that include filters and pumping equipment and shallow basins. Some of the  
43 soils may be reused onsite. However, some soils would be hauled offsite for disposal at permitted sites.  
44 Rock, soil, and other materials could be hauled into the site for shallow basin levees. Other construction

1 activities would involve pile driving for structures, construction of structures including placement of  
2 concrete, and establishment of dewatering equipment to remove groundwater in excavated areas including  
3 treatment of the groundwater to remove silt prior to discharge into the stream or river. The facilities  
4 would include lighting, pavement for parking and roads, and fencing.

5 Operations and maintenance activities would include use of electricity for all processes and operational  
6 lights; trucks trips or railroad car trips to deliver materials and to haul sediment, solids, and debris to  
7 permitted disposal sites; vehicle trips for employees; and lights that may be used on an as-needed basis.

#### 8 *Department of Water Resources Bulletin 118 Update*

9 The DWR Bulletin 118, *California's Groundwater*, was modified in 2003 (DWR 2003) to update the  
10 Bulletin 118-80 that was prepared in 1980. Bulletin 118's major findings were:

- 11 ♦ Groundwater provides 30 percent of the State's water supply in an average year, although the  
12 amount of groundwater extracted annually is not always accurately known.
- 13 ♦ Opportunities for local agencies to manage groundwater resources increased following passage of  
14 Assembly Bill 3030 in 1992 (Water Code section 10750 et seq.) and more agencies have  
15 developed groundwater management programs.
- 16 ♦ Groundwater overdraft was estimated at 1 to 2 million acre-feet/year.
- 17 ♦ Surface water and groundwater are integrated resources.
- 18 ♦ Groundwater quality and quantity are interdependent and should be addressed in an integrated  
19 manner.
- 20 ♦ Land use decisions that reduce natural groundwater recharge areas can reduce groundwater  
21 storage and impact groundwater quality.

22 Bulletin 118 summarized available information related to wells and storage programs and groundwater  
23 quality. The report recommended that additional local groundwater management plans should be  
24 developed to address groundwater storage and water quality, monitoring programs should be  
25 implemented, and local water supply agencies should work with local land use agencies to minimize  
26 future impacts on groundwater recharge capabilities. Bulletin 118 also recommended that DWR should  
27 identify groundwater basins or subbasins that have management plans, all agencies should improve data  
28 collection and analysis for all groundwater basins, and agencies that replace water sold for water transfers  
29 manage the groundwater in accordance with groundwater management plans. It also was recommended  
30 that Bulletin 118 be updated every 5 years; however, this has not occurred.

#### 31 **2.2.1.3.2 Wellhead Water Treatment Plants**

32 In areas with contaminated groundwater, wellhead treatment plants could be developed to remove silt,  
33 minerals, nitrates, salts, pathogens and/or organic compounds that could remain from use of solvents,  
34 pesticides and herbicides, and other chemicals that are retained in the groundwater. The treatment plants  
35 would use chemical and filtration treatment, and possibly disinfection processes depending upon the use  
36 of the treated water. Solids from the treatment plants generally are hauled to offsite disposal areas.

37 Wellhead water treatment plant projects could include construction and operations of the following new  
38 facilities:

- 39 ♦ The treatment plant could include a) pumping plants and pipelines throughout the site, b) filters to  
40 remove silt, b) basins to mix chemicals to remove smaller solids and other materials, c) chemical  
41 handling and storage facilities, d) filtration processes (such as sand, carbon, and other materials)  
42 and/or membranes or reverse osmosis facilities to remove small particles, salts, minerals, and/or

1 organic material; e) additional structures to include collect and dewater solids removed in the  
2 filtration processes; f) additional structures to collect and treat liquid (“brine”) from the  
3 membrane or reverse osmosis processes that includes the salts, minerals, and/or organic materials;  
4 g) disinfection processes, if necessary, that could include chloramines, ozone, ultra-violet  
5 processes, other processes, or a combination of processes; and h) emergency power generation  
6 engines with onsite fuel storage, if necessary. The height of most of the building could range from  
7 one to four stories.

8 ♦ Many wellhead treatment plants are small and do not require separate administration buildings.  
9 However, if the treatment plant is designed for a large wellfield or located in a remote part of a  
10 water supply agency’s service area, the facility could include administration buildings with  
11 parking lots.

12 ♦ New electric distribution lines could be constructed to serve the treatment plants and pumping  
13 plants. The electric distribution lines could be above ground on poles or buried in cables  
14 underground.

15 Construction and operations and maintenance activities would include activities as described for surface  
16 water treatment plants in subsection 2.2.1.2.2.

### 17 2.2.1.3.3 Conveyance Facilities for Groundwater Projects.

18 New pipelines or canals would be used to convey water from surface water streams, pipelines, or canals  
19 to groundwater recharge facilities or to provide surface water to water supply agencies that implemented  
20 conjunctive use programs. Pipelines or canals would be used to convey raw water from the wells to users  
21 or surface water treatment plants. Pipelines would be used to convey treated water from wellhead water  
22 treatment plants to users.

23 Construction and operations and maintenance activities for the conveyance facilities for groundwater  
24 projects would include activities as described for surface water project conveyance facilities in  
25 subsection 2.2.1.2.3.

### 26 2.2.1.4 Ocean Desalination Projects

27 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
28 WR R4, WR R5, WR R7, and ER P1, encourage development of ocean desalination programs that could  
29 require construction of:

- 30 ♦ Desalination water intakes and brine outfalls
- 31 ♦ Water treatment plants
- 32 ♦ Conveyance facilities

33 Conveyance facilities for ocean desalination facilities include pipelines, tunnels, and pumping plants.

#### 34 2.2.1.4.1 Desalination Water Intakes and Brine Outfalls

35 Ocean desalination facilities are located along the ocean or adjacent estuaries. The desalination facility  
36 could use existing intake and outfall structures, such as intakes and outfalls operated for cooling water  
37 systems of power plants constructed along the shoreline or wastewater treatment plant outfalls. If new  
38 intakes are required, the intake pipelines could be constructed into the estuary or ocean with a partially or  
39 fully buried pipeline along the seabed. Pursuant to federal, State, and local regulations, the intakes would  
40 be designed to reduce entrainment and entrapment of fish and invertebrates. In some cases, depending  
41 upon the location and the size of the facility, wells could be constructed along the beach instead of an  
42 intake pipe, and the soil would prevent entrainment and entrapment of fish and invertebrates. The intakes  
43 would extend from the ocean or estuary to the desalination treatment plant. A pumping plant would be  
44 located along the shoreline to convey the water through the intake to the desalination treatment plant.

1 The desalination treatment plant would generate a brine stream that could range in capacity from 10 to  
2 50 percent of the water diverted from the ocean. The brine stream would contain the salts, minerals, and  
3 other chemicals that would be removed from the ocean water by the treatment plant. The brine salinity  
4 would be related to the water source. Brine streams from ocean waters would have higher salinity than  
5 brine streams from estuaries or brackish water bodies. Brine streams from processes that treat low-salinity  
6 water possibly could be discharged to a wastewater treatment plant outfall. Brine streams from treatment  
7 plants that rely on ocean water, could require separate outfalls into the ocean. The outfall would include  
8 equipment to diffuse and dilute the brine stream in the ocean.

9 Water intakes and brine outfalls could include construction and operations of the following new facilities:

- 10 ♦ Intakes could be constructed into the estuary or ocean with a partially or fully buried pipeline  
11 located on the seabed or buried under the sea bed. Screening equipment to minimize entrainment  
12 and entrapment of fish and invertebrates would be required for intakes located above the sea bed.
- 13 ♦ Pumping plants could be constructed along the shoreline to convey water from the ocean to the  
14 desalination treatment plant. The height of the building could range from one to two stories.
- 15 ♦ Outfalls for brine discharge would include a partially or fully buried pipeline with equipment to  
16 diffuse the brine in the water in a manner that provides adequate mixing and dilution.
- 17 ♦ New electric distribution lines could be constructed to serve the pumping plants. The electric  
18 distribution lines could be above ground on poles or buried in cables underground.

19 Construction activities along the shoreline would include removal of existing buildings, vegetation, and  
20 debris from above-ground construction sites. Materials would be hauled offsite for disposal at permitted  
21 sites. Excavation and grading would occur along the shorelines. Some of the soils may be reused onsite.  
22 However, some soils would be hauled offsite for disposal at permitted sites. Rock, soil, and other  
23 materials would be hauled into the site. Other construction activities for the pumping plants would  
24 involve pile driving and construction of structures, including placement of concrete; establishment of  
25 dewatering equipment to remove groundwater in excavated areas; and treatment of the groundwater to  
26 remove silt prior to discharge into the stream or river. Erosion control methods, such as revegetation,  
27 would be required for all disturbed surfaces along shoreline. The pumping plant facilities would include  
28 lighting, pavement for parking and roads, and fencing.

29 Construction activities in the ocean or estuary could include dredging of pipeline trenches from barges, or  
30 placement of the pipe on the sea bed with further placement of large boulders over the pipe. Construction  
31 of intakes and outfalls would be completed from barges or boats.

32 Operations and maintenance activities could include periodic dredging around the intakes or outfalls and  
33 replacement of rock over the pipe, especially after major storms or damage from boating activities;  
34 electricity for the pumping plants; vehicle trips for employees; lights that may be used on an as-needed  
35 basis; and operation of pumping plant heating and ventilation systems that could increase noise on  
36 adjacent parcels.

#### 37 2.2.1.4.2 Ocean Desalination Water Treatment Plants

38 The desalination treatment plants generally use filters, membranes, and/or reverse osmosis processes to  
39 remove salts, minerals, and other chemical in the water. The process generates a brine stream, as  
40 described in subsection 2.2.1.4.1.

1 Ocean desalination water treatment plants could include construction and operations of the following new  
2 facilities:

- 3 ♦ The treatment plant could include a) pumping plants and pipelines throughout the site, b) basins  
4 for mixing of chemicals, c) chemical handling and storage facilities, d) structures to include  
5 filtration, membranes, and/or reverse osmosis facilities; e) additional structures to provide  
6 disinfection processes that could include use of ozone, chloramines, or ultra-violet processes, or a  
7 combination of these processes; f) emergency power generation engines with onsite fuel storage,  
8 and g) administration buildings with parking lots. The height of most of the building could range  
9 from one to four stories.
- 10 ♦ New electric distribution lines could be constructed to serve the treatment plants. The electric  
11 distribution lines could be aboveground on poles or buried in cables underground.

12 Construction activities for the treatment plant would include activities similar to those described for  
13 surface water treatment plants in subsection 2.2.1.2.2.

14 Operations and maintenance activities for ocean desalination water treatment plants would include use of  
15 electricity for all processes and operational lights. Desalination treatment plants generally require  
16 substantially more electricity than conventional water treatment plants. The membranes or reverse  
17 osmosis equipment would require periodic replacement. Brine streams from the treatment process could  
18 be discharged into the ocean, as described in subsection 2.2.1.4.1, or further concentrated and hauled to  
19 permitted disposal sites. Other operations and maintenance activities could include vehicle trips for  
20 employees; lights that may be used on an as-needed basis; and operation of heating and ventilation  
21 systems that could increase noise on adjacent parcels.

#### 22 2.2.1.4.3 Conveyance Facilities for Ocean Desalination Projects.

23 New pipelines would be used to convey treated water from the desalination water treatment plants to the  
24 users.

25 Construction and operations and maintenance activities for the conveyance facilities for ocean  
26 desalination projects would include activities as described for conveyance facilities for surface water  
27 projects in subsection 2.2.1.2.3.

#### 28 2.2.1.5 *Recycled Wastewater and Stormwater Projects*

29 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
30 WR R4, WR R5, WR R7, and ER P1, encourage development of recycled wastewater and stormwater  
31 projects that could require construction of:

- 32 ♦ Recycled wastewater or recycled stormwater treatment plants
- 33 ♦ Conveyance facilities

34 Conveyance facilities for recycled wastewater and stormwater facilities include pipelines, tunnels, and  
35 pumping plants.

36 Current Urban Water Management Plans describe existing use of recycled wastewater and identify the  
37 potential for increased use by 2020. Many urban communities have been reluctant to implement recycling  
38 on a large-scale due to the cost and community opinions about the reuse of wastewater. However,  
39 increased use of recycled wastewater by 200,000 acre-feet/year by 2020 is mandated by the SWRCB  
40 Recycled Water Policy (Resolution No. 2009-0011). The SWRCB also has declared (Water Code  
41 sections 13550 et seq.) that it is a waste and unreasonable use of water not to use recycled water when  
42 recycled water of adequate quality is available and the facilities are funded and approved. Recycled  
43 wastewater can be used for irrigation, industrial uses, and non-drinking water indoor uses such as toilets.

1 Plumbing modifications are required for these direct uses to prevent co-mingling with other drinking  
2 water supplies. Recycled wastewater cannot be used directly for drinking water, but it can be stored for  
3 specific periods of time in groundwater storage facilities and then used for drinking water.

4 Use of recycled stormwater is only beginning, and is generally related to the need to treat municipal  
5 stormwater before discharging it the water into surface water bodies. Recycled stormwater could be used  
6 for irrigation, groundwater recharge, or drinking water, depending upon the level of treatment provided.  
7 The SWRCB has established a goal to increase use of recycled stormwater by 500,000 acre-feet/year by  
8 2020 (SWRCB Resolution No. 2009-0011).

#### 9 2.2.1.5.1 Recycled Water Treatment Plants

10 Treatment processes for recycled wastewater projects and recycled stormwater projects are slightly  
11 different. Generally, recycled wastewater projects require modification of existing wastewater treatment  
12 plants to add filtration, membrane filtration, reverse osmosis, and/or disinfection. In some cases, it may be  
13 advantageous to construct a new wastewater treatment plant within a community if the existing treatment  
14 plant is not is sufficiently close proximity to the recycled wastewater users.

15 Recycled stormwater projects generally require diversion structures to divert stormwater from storm  
16 drains or canals into a stormwater treatment plant. Recycled stormwater treatment plants use the same  
17 processes as recycled wastewater treatment plants and processes to remove solids, oils, and/or grease.

18 Recycled wastewater and stormwater treatment plants could include construction and operations of the  
19 following new facilities:

20 ♦ Construction of modifications to existing wastewater treatment plants to provide advanced  
21 treatment levels could include a) additional pumping plants and pipelines; b) structures to include  
22 filtration processes using filter media (such as sand, carbon, and other materials) and/or  
23 membranes or reverse osmosis facilities to remove small particles, salts, minerals, and/or organic  
24 material; c) additional structures to collect and dewater solids removed in the filtration processes;  
25 d) additional chemical handling and storage facilities; e) additional structures to collect and treat  
26 liquid (“brine”) from the membrane or reverse osmosis processes that includes the salts, minerals,  
27 and/or organic materials; and f) additional structures to provide disinfection processes that could  
28 include use of ozone, chloramines, or ultra-violet processes, or a combination of these processes.  
29 The height of most of the buildings could range from one to four stories.

30 ♦ If necessary, new wastewater treatment plants to treat raw wastewater flows could be constructed  
31 to provide recycled wastewater to users located at great distances from existing wastewater  
32 treatment plants. New treatment plants could include the facilities described above plus  
33 a) structures to include settling basins to remove solids and aeration basins to reduce organic  
34 materials in the wastewater, and b) structures to include facilities to dewater solids removed from  
35 the wastewater. The height of most of the building could range from one to four stories.

36 ♦ New recycled stormwater treatment could include a) pumping plants and pipelines throughout the  
37 site, b) structures to include settling basins to remove solids, oils, and grease, c) structures to  
38 include facilities to dewater solids removed from the wastewater, d) chemical handling and  
39 storage facilities, and e) small storage buildings. Additional facilities to remove organic materials  
40 or provide filtration, membrane filtration, or reverse osmosis, as described above for recycled  
41 wastewater treatment plants, also could be constructed. The height of most of the building would  
42 range from one to two stories. The recycled stormwater from such a facility would be used  
43 primarily for irrigation.

44 Construction activities for the treatment plants would include activities similar to those described for  
45 surface water treatment plants in subsection 2.2.1.2.2.

1 Operations and maintenance activities for recycled wastewater and stormwater treatment plants would  
2 include activities similar to those described for surface water treatment plants in subsection 2.2.1.2.2.  
3 Operations and maintenance activities for recycled wastewater and stormwater treatment plants with  
4 membranes or reverse osmosis equipment also would include activities similar to those described for  
5 ocean desalination water treatment plants in subsection 2.2.1.4.2. Operations and maintenance activities  
6 for recycled stormwater plants also would include truck trips to haul sediment, oil, and grease removed  
7 from the stormwater to permitted disposal sites.

#### 8 **2.2.1.5.2 Recycled Water Conveyance Facilities**

9 New pipelines, tunnels, and pumping plants would be used to convey recycled wastewater or stormwater  
10 from the treatment plants to the users or surface water or groundwater storage facility.

11 Construction and operations and maintenance activities for the conveyance facilities for ocean  
12 desalination projects would include activities as described for conveyance facilities for surface water  
13 projects in subsection 2.2.1.2.3.

#### 14 **2.2.1.6 Water Transfers**

15 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
16 WR R4, WR R5, WR R7, and ER P1, encourage the use of water transfers to improve regional self-  
17 reliance and reduce reliance on the Delta.

18 Water transfers allow water users with surplus total water supplies to sell a portion of their water supply  
19 to water users that do not have adequate water supplies. The surplus water supplies could occur because a  
20 water user may have substantial amounts of water in surface water or groundwater storage, a water user  
21 may have implemented water use efficiency methods to reduce water demands, or an agricultural water  
22 user may decide not to plant certain crops and thereby reduce the water demand. Water transfers can be  
23 temporary, such as a one-year transfer; long-term for multiple years; or permanent with the modification  
24 of a water contract or water right. Urban water users and agricultural water users have been relying upon  
25 water transfers for the past 15 years. Many of the water transfers have been temporary for periods of one  
26 or two years. It is feasible that longer term transfers or permanent transfers of water rights or contract  
27 could be used to increase local reliable water supplies.

28 Water transfers have historically relied upon storage and conveyance of the water in existing facilities.  
29 Therefore, water transfers do not result in new construction. Site-specific environmental analyses are  
30 required by the SWRCB for the transfer of water exceeding a 1-year period. The environmental analyses  
31 for water transfers generally focus on potential adverse impacts on adjacent land uses and water users due  
32 practices such as land fallowing, improved water use efficiency, and groundwater substitution that are  
33 used to make water available for transfer. The environmental analyses also consider potential adverse  
34 impacts on other beneficial users of conveying the water from seller to buyer, including concerns about  
35 impacts of the changes in seasonal flow patterns on availability of water from return flows, water surface  
36 elevations, water quality changes, and changes to in-water recreational opportunities.

#### 37 **2.2.1.7 Water Use Efficiency and Conservation Program Implementation**

38 The Proposed Project policies and recommendations, including WR P1, WR R1, WR R2, WR R3,  
39 WR R4, WR R5, WR R7, and ER P1, encourage water use efficiency and conservation programs to  
40 improve regional self-reliance and reduce reliance on the Delta.

41 Water use efficiency programs, as defined in this EIR, include modifications to plumbing fixtures and  
42 irrigation systems by individual water users; and leak detection and repair programs and incentive pricing  
43 programs by water supply agencies.

1 Urban Water Management Plans completed in 2011 identify a wide range of actions to reduce statewide  
2 water demand by 2020. The State law requires statewide urban water use to be reduced 20 percent by  
3 2020. Many of the urban water agencies identify public outreach, regulatory programs for residential  
4 plumbing retrofits, leak detection and repair, and regulatory water waste prohibition programs in their  
5 Urban Water Management Plans. Many urban agencies also adopted or proposed to adopt incentive  
6 pricing programs, including conservation-oriented rate structures to encourage more efficient water use  
7 without causing a shortfall in agency revenues. These programs generally do not require new construction  
8 except for plumbing modifications within an existing structure, and generally do not require site-specific  
9 environmental analyses.

10 Agricultural water supply agencies are developing Agricultural Water Management Plans by December  
11 2012 to address water use efficiency methods. Programs for agricultural users could involve replacement  
12 of spray or flood irrigation methods with drip irrigation or other efficient irrigation methods. These  
13 programs generally do not require new construction except for in-field plumbing modifications with  
14 placement of drippers or buried hoses within an agricultural field. These programs generally do not  
15 require site-specific environmental analyses.

### 16 **2.2.1.8 Delta Conveyance—Bay Delta Conservation Plan**

17 The Delta Plan recommends that agencies involved complete the BDCP by December 31, 2014. (ER R8).  
18 The Delta Plan does not, however, contain any recommendations concerning the content of the BDCP. The  
19 BDCP is likely to be a major project involving large-scale improvements in water conveyance and large-  
20 scale ecosystem restorations in the Delta. When completed, it must be incorporated into the Delta Plan if it  
21 meets certain statutory requirements. Completion of the BDCP planning process and implementation of the  
22 projects now under consideration in that process would have impacts on the Delta and would affect the  
23 coequal goals. Water Code section 85320 establishes a process for incorporation of the BDCP into the Delta  
24 Plan. If the BDCP is incorporated into the Delta Plan, it will become part of the Delta Plan and, therefore,  
25 part of the basis for future consistency determinations.

26 Section 23 of this EIR includes a separate description and analysis of potential actions that may be  
27 considered in the development of the BDCP and the associated EIR/EIS.

## 28 **2.2.2 Delta Ecosystem Restoration**

29 The Proposed Project encourages increased Delta ecosystem restoration. The Proposed Project includes  
30 various policies and recommendations that address ecosystem restoration and flood management  
31 simultaneously. The Proposed Project also encourages the reduction of nonnative invasive species and  
32 stressors.

33 The Proposed Project encourages a flow regime in the Delta and the upstream tributaries that supports  
34 ecosystem and public trust resources by recommending that the SWRCB adopt and implement updated  
35 flow objectives for the Delta by June 2014, and develop flow criteria for high-priority tributaries in the  
36 Delta watershed by June 2018. (ER P1). In the meantime, existing flow objectives will be used to  
37 determine a covered action's consistency with the Delta Plan.

38 The Proposed Project does not direct the construction of specific projects, nor would projects be  
39 implemented under the direct authority of the Council. However, the Proposed Project seeks to improve  
40 the Delta ecosystem by encouraging various actions and projects, which if taken, could lead to  
41 construction and/or operation of projects that could improve the Delta ecosystem. Such projects and their  
42 features could include the following:

- 43 ♦ Floodplain restoration (construction and operation)
- 44 ♦ Riparian habitat restoration (construction and operation)
- 45 ♦ Tidal marsh habitat restoration (construction and operation)



- 1       ♦ Stressor management
  - 2       ♦ Invasive species management (including removal of invasive vegetation)
- 3 Floodplain, riparian, and tidal marsh restoration could involve levee modification, removal, degradation;  
4 grading; associated infrastructure (pumping plants and weirs/gates); and dredging.
- 5 Development of flow criteria and objectives by the SWRCB to improve the Delta ecosystem could lead to  
6 the same types of projects described in subsection 2.2.1 to develop reliable water supplies.
- 7 The number and location of all potential projects that will be implemented is not known at this time. Nine  
8 possible projects, however, are known to some degree and are named in the Proposed Project: Cache  
9 Slough Complex Habitat Restoration Project; Cosumnes-Mokelumne Rivers Confluence Habitat  
10 Restoration Project; Lower San Joaquin River Bypass Proposal Habitat Restoration Project; Suisun Marsh  
11 Habitat Management, Preservation, and Restoration Plan; Yolo Bypass Habitat Restoration Project;  
12 Variance for USACE Vegetation Policy; Sacramento-San Joaquin Delta Conservancy (Delta  
13 Conservancy) Strategic Plan; DFG's Stage Two Actions for Non-native Invasive Species; and Water  
14 Quality Control Plan Update for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

### 15 **2.2.2.1 Overview Delta Ecosystem Restoration**

16 The Proposed Project will encourage increased and elevation-appropriate ecosystem restoration in the  
17 Delta (ER P2) in accordance with DFG Ecosystem Restoration Program (ERP) (DFG 2011)  
18 recommendations for the Delta Ecological Management Zone. DFG encourages all agencies, groups, or  
19 individuals interested in resource conservation and management in the Delta to use this document as a  
20 shared vision to coordinate and integrate actions. In addition, covered actions of all types would have to  
21 avoid or mitigate adverse impacts to ecosystem restoration opportunities within the Delta (ER P3).

22 The Proposed Project requires the use of adaptive management in ecosystem restoration covered actions  
23 in the Delta (G P1). ER R2, ER R3, ER R4, and ER R5 encourage further ecosystem restoration by  
24 recommending other agencies complete and/or implement various plans and processes including  
25 development of the Strategic Plan by the Delta Conservancy (ER R2); negotiation of habitat credits with  
26 water supply agencies by DFG, USFWS, and NMFS (ER R3); negotiation of a variance to allow  
27 vegetation to remain on the waterside of Delta levees for which the USACE is responsible (ER R4); and  
28 development of Safe Harbor Agreements by USFWS with landowners that participate in programs to  
29 contribute in the recovery of listed threatened and endangered species (ER R5).

30 ER R1 encourages ecosystem restoration in five identified areas as a priority: the Yolo Bypass, Cache  
31 Slough, Suisun Marsh, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River. In  
32 addition to these policies and recommendations promoting increased ecosystem restoration, the Proposed  
33 Project includes policies and recommendations that prevent encroachment into Delta floodways (RR P1);  
34 prevent encroachment into specific floodplains in the Yolo Bypass, Cosumnes-Mokelumne rivers  
35 confluence, and Lower San Joaquin River (RR P2); and encourages development of a flood bypass in the  
36 Lower San Joaquin River (RR R1). General locations of these programs are presented in Figure 2-1.

37 The Proposed Project includes various policies and recommendations that address ecosystem restoration  
38 and flood management simultaneously. The Proposed Project requires covered actions to use setback  
39 levees and other strategies, where feasible, to increase floodplain and riparian habitat (ER P4), and  
40 recommends that DWR develop criteria for where setback levees should be located (RR R4). Setback  
41 levees expand the floodplain area within channels and provide habitat on the waterside of the levee by  
42 relocating the levees into the landside of the existing levee.

1 The Proposed Project encourages the reduction of nonnative invasive species and stressors. The Proposed  
2 Project requires covered actions to avoid or mitigate the potential for new introduction of or improved  
3 habitats for nonnative invasive species (ER P5), and encourages other agencies to prioritize the reduction  
4 of the adverse impacts of nonnative invasive species and stressors on native species and natural  
5 communities (ER R6, ER R7).

6 The Proposed Project will encourage the management of “stressors” and the reduction of nonnative  
7 invasive species. “Stressors” are actions or physical features in the environment that impair the function  
8 or the use of desirable habitat for ecosystem restoration or recovery. The *Draft Conservation Strategy for*  
9 *Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and*  
10 *San Joaquin Valley Regions* (DFG 2011) identified water intake/diversion structures, physical barriers  
11 (such as levees, weirs, or gates), nonnative invasive species, and poor water quality as the primary  
12 stressors in the Delta Ecological Management Zone. ER R7 encourages DFG, DWR, SWRCB, and other  
13 agencies to develop recommendations to reduce stressors, including nonnative invasive species.

14 Covered actions of all types would be required to avoid or mitigate conditions that could potentially cause  
15 introduction of new nonnative invasive species or improve habitat conditions for existing nonnative  
16 invasive species (ER P5). ER R6 encourages DFG to prioritize and fully implement recommendations to  
17 reduce the potential for nonnative invasive species as defined in the *Draft Conservation Strategy for*  
18 *Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and*  
19 *San Joaquin Valley Regions* (DFG 2011).

20 ER P1 recommends that the SWRCB adopt and implement updated flow objectives for the Delta by June  
21 2014, and develop flow criteria for high-priority tributaries in the Delta watershed by June 2018 (ER P1).  
22 In the meantime, existing flow standards will be used for determining a covered action’s consistency with  
23 the Delta Plan.

24 The policies and recommendations included in the Proposed Project are presented in Appendix C.

### 25 **2.2.2.2 Floodplain, Riparian Habitat, and Tidal Marsh Restoration**

26 The Proposed Project includes policies and recommendations that encourage Delta ecosystem restoration  
27 within three major types of habitats: floodplain, riparian habitat, and tidal marsh restoration. Many of the  
28 construction and operations activities to create or expand these habitats are similar, as described below.  
29 Activities to create these habitats also could be beneficial to reducing risks of floods in the Delta, such as  
30 the use of setback levees to expand the floodplain.

31 The Proposed Project does not require specific projects for Delta ecosystem restoration; rather it contains  
32 broad requirements and recommendations to encourage ecosystem restoration. Given both the general  
33 nature of the Proposed Project policies and recommendations and the uncertainty concerning the extent to  
34 which the Proposed Project will result in any particular action, it is unclear what types of projects will  
35 actually be implemented as a result of the Proposed Project policies and recommendations. Nevertheless,  
36 this EIR assumes that the Proposed Project will lead to an increase in Delta ecosystem restoration  
37 projects.

38 The types of projects that may be developed for ecosystem restoration can best be seen by looking at  
39 recommendations in ongoing ecosystem restoration projects in the Delta for the Suisun Marsh and  
40 Cosumnes-Mokelumne rivers confluence. Information from available plans for these projects was  
41 considered in identifying a range of options for Delta ecosystem restoration.

### 1 2.2.2.1 Floodplain Restoration

2 The Proposed Project policies and recommendations including ER P2, ER P3, ER R1, ER R2, ER R4,  
3 ER R5, RR P1, RR P2, RR R1, and RR R4 encourage removal of levees to expand the floodplain which  
4 could require the following types of construction activities:

- 5 ♦ Levee modifications, removal, or degradation
- 6 ♦ Grading
- 7 ♦ Associated infrastructure, such as pumping plants and weirs/gates
- 8 ♦ Dredging

9 Floodplain restoration improves the ecological function of a floodplain as a complex habitat with  
10 backwaters, wetlands, sloughs, and meander channels that convey and store water. The habitat ranges  
11 from semi-arid landscapes, especially in dry seasons, to wide expanses of deep water during floods.  
12 Modification of the levees in the floodplain expands areas that are subject to seasonal inundation  
13 compared to pre-restoration conditions of continuously dry landscapes on landside of levees and  
14 continuously wet landscapes on waterside of levees.

15 Floodplain restoration programs in the Delta primarily could be designed for flood management and  
16 habitat purposes. Floodplain restoration could be designed to allow continued farming in a manner that  
17 would be compatible with the restoration area biological objectives through wildlife-friendly agricultural  
18 practices, such as minimal use of persistent herbicides and pesticides.

#### 19 *Levee Modifications, Removal, or Degradation*

20 Floodplain restoration could require expansion of the floodplain into areas currently protected by levees.  
21 Because the Delta and surround Central Valley topography is relatively flat, existing levees may require  
22 modification or relocation to protect adjacent lands that will not become part of the floodplain restoration  
23 project. Levee modification could include construction of new levees that would connect to existing  
24 levees or increasing the flood protection level of existing levees through increasing the height or width of  
25 an existing levee. Levee removal or degradation activities would occur to allow inundation of lands  
26 currently on the landside of existing levees. Levee degradation also could include converting a  
27 conventional levee into a setback levee to expand the floodplain.

28 Levee modification, removal, or degradation projects could include construction and operation of the  
29 following features:

- 30 ♦ Modified levees, or possibly new levees, could be constructed within an island if only a portion of  
31 the island is to be included in the floodplain restoration area. The modified levees would be  
32 connected into existing levees in a manner that would maintain or improve flood protection of the  
33 land that would not be inundated in the floodplain restoration. Depending upon specific site  
34 conditions, portions of the existing levee could require excavation and replacement.
- 35 ♦ Levee modifications, or new levees, could involve the removal of vegetation and excavation of  
36 levee materials. Excess earthen materials could be temporarily stockpiled, then re-spread on the  
37 surface of the new levee slopes where applicable, or disposed of offsite.
- 38 ♦ A typical levee to provide flood protection to adjacent lands would have a broad-based, generally  
39 asymmetrical triangular cross-section. The levee height, as measured from the adjacent ground  
40 surface on the landside and vertically up to the elevation of the levee crest, could range from  
41 10 to over 40 feet high to provide adequate freeboard over anticipated water surface elevations.  
42 The width of the levee (toe of levee to toe of levee) could range from approximately 200 to  
43 500 feet if the widths are similar to existing levees along the Sacramento River. To reduce  
44 erosion potential on the top of the levee, a paved or gravel access road could be constructed.

- 1       ♦ Levee modifications also could include excavation of watersides of the slopes to allow placement  
2       of slope protection, such as riprap or geotextile fabric, and to modify slopes to provide levee  
3       stability.
- 4       ♦ Levee removal or degradation to lower the levee and provide opportunities for seasonal or  
5       periodic inundation of lands during high flows or high tides could involve removal of material in  
6       the upper sections of an existing levee, re-contouring of the levee slopes to provide stability for  
7       the shorter levee, and placement of erosion protection on the slopes and specifically on the top of  
8       the levee that had not previously been subject to tidal action. To reduce erosion potential on the  
9       new top of levee, a paved or gravel access road could be constructed with short retaining walls  
10      (less than a foot in height) on each edge of the top surface to reduce undercutting of the roadway  
11      by high tides. Levee modifications also could include excavation of watersides of the slopes to  
12      allow placement of slope protection, such as riprap or geotextile fabric, and to modify slopes to  
13      provide levee stability. Erosion and scour protection also could be placed on the landside of the  
14      levee and continued for several feet onto the land area away from the levee toe.
- 15      ♦ Excavation of levee breaches would be designed to maintain flow velocities, minimize  
16      establishment of nonnative submerged and floating aquatic vegetation, and minimize  
17      establishment of habitat for nonnative predatory fish. Breaches could be less than 10 feet to over  
18      100 feet in length. The edges of the breaches would be protected from erosion and related failure  
19      of the adjacent levee. Erosion protection could include geotextile fabrics, rock revetments, riprap,  
20      or other material selected during future evaluations for each location. Aggregate rock could be  
21      placed on the remaining levees to provide an access road to the breach location.
- 22      ♦ Construction of a setback levee would initially require construction of a new levee on land  
23      adjacent to the existing levee or river bank. The new levee would be as described above for a  
24      modified or new levee and connected to existing levee or river bank. Following construction of  
25      the new levee, portions of the old levee would be removed to create low benches on the new  
26      setback levee to support emergent vegetation and riparian vegetation. Riparian and emergent  
27      vegetation could be planted along the modified, removed, or degraded levees. Weed eradication  
28      could be used prior to revegetation. Large woody material, such as tree trunks and stumps, could  
29      be anchored into constructed low benches. Native riparian vegetation (e.g., Fremont Cottonwood,  
30      Goodings' Willow, Box Elder) could be planted if site-specific restored floodplain conditions  
31      indicate that such plantings would substantially increase the establishment of riparian forest and  
32      scrub. Irrigation systems and water supplies could be necessary to establish native vegetation.  
33      Irrigation system construction could include placement of aboveground or belowground irrigation  
34      piping.
- 35      ♦ Neighboring levees could require modification to accommodate increased flows or to reduce  
36      effects of changes in water elevation or velocities along channels in the expanded floodplain.

37 Construction activities would include removal of existing buildings, vegetation, and debris from the site  
38 to be inundated. Materials would be hauled offsite for disposal at permitted sites. Excavation and grading  
39 would occur at locations of new, modified, or degraded levees, including construction within the river  
40 bed. Some of the soils may be reused onsite. However, some soils would be hauled offsite for disposal at  
41 permitted sites. Rock, soil, and other materials would be hauled into the site.

42 Operations and maintenance activities would include periodic dredging of sediment from riverbed  
43 adjacent to openings in the levees or along areas with degraded levees. Sediment removal on the  
44 floodplain also could occur periodically when the water recedes. Periodic levee maintenance could  
45 include replacement of soil or rock along the top or the sides of the levee, vegetation removal, and litter  
46 removal.

## 1 *Grading*

2 Floodplain restoration could require grading and revegetation. If feasible, the grading would occur prior  
3 to modification, removal, or degradation of existing levees.

4 Grading actions could include construction and operation of the following features:

- 5 ♦ Removal of existing buildings, vegetation, and debris from the wetland site prior to grading.  
6 Excavation and grading of land would be coordinated with the USACE, DWR, Central Valley  
7 Flood Protection Board, and other flood management agencies. Grading would be designed to  
8 maintain or improve flood carrying capacity while reducing the risk of fish stranding as the water  
9 recedes and conveying water into adjacent tidal marshes. Channel geometry could be modified in  
10 unconfined channel reaches or along channels in order to restore seasonally inundated floodplain  
11 habitat and create backwater habitat.
- 12 ♦ Weed eradication could be used prior to revegetation using passive or active techniques in the  
13 floodplain. Passive revegetation techniques could include altering the hydrologic regime to  
14 promote the establishment of desirable native vegetation. Active revegetation techniques may  
15 include direct seeding and planting of seedlings or containerized stock. Prior to revegetation,  
16 undesirable vegetation species could be treated and/or removed from the restoration site. Disking  
17 and ripping could be required to allow for water filtration and deeper penetration and faster  
18 growth of plant roots. Direct seeding could be done by broadcasting, hydroseeding, or with a drill  
19 seeder. Soil amendments could also be applied to the revegetated area. If possible, woody riparian  
20 vegetation would be placed to provide cover and food web support.

21 Construction activities would include removal of existing buildings, vegetation, and debris from the site  
22 to be inundated. Materials would be hauled offsite for disposal at permitted sites. Excavation and grading  
23 would occur within the floodplain to be inundated. Some of the soils may be reused onsite. However,  
24 some soils would be hauled offsite for disposal at permitted sites. Rock, soil, and other materials would  
25 be hauled into the site.

26 Operations and maintenance activities would include periodic sediment, vegetation, and litter removal on  
27 the floodplain when the water recedes. Channels and the floodplain could require periodic grading to  
28 maintain drainage and improve flood carrying capacity while reducing the risk of fish stranding as the  
29 water recedes and conveying water into adjacent tidal marshes.

## 30 *Associated Infrastructure*

31 Floodplain restoration could require construction of associated infrastructure such as pumping plants or  
32 weirs or gates at levee breaches.

33 Pumping plants could be used to expand the floodplain without modification of existing levees. Flood  
34 waters could be conveyed into the expanded floodplain through a pumping plant, and again pumped out  
35 of the expanded floodplain back into the river as the flood waters recede.

36 Weirs or operable gates could be installed at levee breaches to control the amount of flow that is  
37 conveyed into the expanded floodplain. A weir is a wall that could be constructed along the levee breach  
38 to prevent water from entering the floodplain until the water in the river rises higher than the height of the  
39 wall. A weir is a passive device. An operable gate could be constructed along the levee breach to control  
40 the timing and amount of water allowed into the expanded floodplain.

1 Associated infrastructure projects could include construction and operation of the following features:

- 2 ♦ Excavation and regrading of levees or river banks at the site of the new infrastructure
- 3 ♦ Construction of concrete structures along the levee to allow for installation of pumping plants,
- 4 weirs, or operable gates

5 Construction and operations and maintenance activities for the associated infrastructure projects would  
6 include activities as described for intake facilities for surface water projects in subsection 2.2.1.2.1.

### 7 *Dredging*

8 Floodplain restoration could require dredging to allow for levee modifications, removal, or degradation.  
9 Dredging also could be required to deepen the channels in the floodplain. Delta dredging activities  
10 currently are implemented in accordance with Central Valley Regional Water Quality Control Board  
11 (Central Valley RWQCB) Order No. R5-2004-006 to allow dredging that does not cause exceedance of water  
12 quality objectives and allows placement of dredge spoils on Sherman Island, Bradford Island, Spud  
13 Island, Roberts Island, and a specific area within Stockton.

14 Dredging projects could include construction and operation of the following features:

- 15 ♦ Removal of sediment and other materials with channel dredging generally using a dredge located  
16 on the levees or within the landside of the levee or located on a barge with tugboats
- 17 ♦ Placement of dredge spoils on a barge for transport to a disposal site or placement of dredge  
18 spoils on adjacent lands for drying before placement of dredged material on lands or levees using  
19 several basins to allow dredge spoils to dry for several months
- 20 ♦ Hauling of dredge spoils by barge or trucks to an area for placement or to permitted disposal sites

21 Construction activities could include one of two different types of dredging methods: hydraulic dredging  
22 and mechanical dredging:

- 23 ♦ Hydraulic dredging utilizes barge-mounted pumps equipped with hydraulic cutter jets to mobilize  
24 sediments and a siphon with a pump to move the water and dredge spoils, referred to as slurry, to  
25 settling ponds for dewatering. This type of dredging minimizes sediment in waterways; however,  
26 it requires management of large volumes of water.
- 27 ♦ Mechanical dredging utilizes barge-mounted clamshell-type buckets or land-based drag line  
28 buckets to excavate the dredge spoils. This dredging methodology would result in more sediment  
29 in the waterway than hydraulic dredging. However, the amount of water to be removed from the  
30 sediment prior to transport and disposal would be less.
  - 31 • The clamshell dredging method would excavate a water-sediment mix from the channel  
32 bottom with a clamshell bucket and deposit it into a drying basin or onto a barge to be  
33 transported to a drying basin. The operation may be staged from a barge floating in the  
34 channel or from the top of the levee, depending on restrictions in habitat and channel width.  
35 The clamshell dredging method can cause greater disruption to channel vegetation than  
36 hydraulic dredging when the bucket scrapes layers of sediments from the channel bottom.
  - 37 • The dragline dredging method would excavate a water-sediment mix from the channel  
38 bottom with a bucket and deposit it either into a drying basin or onto a barge to be transported  
39 to a drying basin.

40 Operations and maintenance activities would include periodic dredging to continue to remove sediment  
41 with the dredged material hauled or placed on permitted locations.

#### 1 2.2.2.2 Riparian Habitat Restoration

2 The Proposed Project policies and recommendations including ER P2, ER P3, ER R1, ER R2, ER R4,  
3 ER R5, RR P1, RR P2, RR R1, and RR R4 encourage modification of levees to expand the riparian  
4 habitat which could require the following types of construction activities:

- 5 ♦ Levee modifications, removal, or degradation
- 6 ♦ Dredging

7 The Proposed Project also encourages the USACE to work with DWR and DFG to develop a variance  
8 process to allow vegetation to remain on Delta levees in a manner that does not compromise structural  
9 integrity but does continue to provide riparian habitat (ER R4).

10 Riparian habitat restoration would not result in grading outside of the activities described for levee  
11 modifications, removal, or degradation activities. Riparian habitat restoration also would not result in  
12 construction of pumping plants, weirs, or operable gates.

13 Riparian habitat restoration along the channel margins could be established within the floodplains, tidal  
14 marshes, and along the main river channels.

##### 15 *Levee Modifications, Removal, or Degradation*

16 Construction activities and operations and maintenance activities for levee modifications, removal, or  
17 degradation would include the same activities as described for floodplain restoration projects in  
18 subsection 2.2.2.2.1.

##### 19 *Dredging*

20 Construction and operations and maintenance activities for dredging would include the same activities as  
21 described for floodplain restoration projects in subsection 2.2.2.2.1.

##### 22 *Variance for U.S. Army Corps of Engineers Vegetation Policy*

23 Historically, the USACE has allowed brush and small trees to be located on the waterside of federal flood  
24 management project levees if the vegetation would preserve, protect, and/or enhance natural resources,  
25 and/or protect rights of Native Americans, while maintaining the safety, structural integrity, and  
26 functionality of the levee (DWR 2011a). After Hurricane Katrina in 2005, the USACE-proposed  
27 requirements to remove substantial vegetation from these levees throughout the nation were published in  
28 *ETL 1110-2-571 Guidelines For Landscape Planting and Vegetation Management at Levees, Floodwalls,*  
29 *Embankment Dams, and Appurtenant Structures* (ETL) (USACE 2009). This policy requires federally  
30 authorized levee systems that have maintenance agreements with the USACE (including Delta levees  
31 along the Sacramento and San Joaquin rivers) and other levees that are eligible for the federal  
32 Rehabilitation and Inspection Program (Public Law 84-99) to remove vegetation as follows:

- 33 ♦ Removal of all vegetation from the upper third of the waterside slope of the levee, the top of the  
34 levee, landside slope of the levee, or within 15 feet of the toe of the levee on the landside (“toe” is  
35 where the levee slope meets the ground surfaces).
- 36 ♦ Removal of all vegetation over 2 inches in diameter on the lower two-thirds of the waterside  
37 slope of the levee and within 15 feet of the toe of the levee on the waterside along benches above  
38 the water surface.

39 In 2009, the USACE and other federal, State, and local agencies adopted guidelines temporary  
40 exemptions specifically for the Central Valley, including Delta levees along the Sacramento and  
41 San Joaquin rivers until further evaluations could be completed to define potential variances from the new  
42 guidance (USACE, FEMA, USFWS, NOAA, DWR, CVFPB, DFG, SAFCA, RD 2068 2009).

1 In 2010, the USACE issued a draft policy guidance letter, *Draft Process for Requesting a Variance from*  
2 *Vegetation Standards for Levees and Floodwalls--75 Fed. Reg. 6364-68* (USACE 2010), that includes  
3 rigorous procedures for State and local agencies to follow for variances on a site-specific basis. If the  
4 variances are granted, vegetation would be allowed as follows:

- 5 ♦ Vegetation would be allowed on the lower two-thirds of the waterside slope of the levee and  
6 within 15 feet of the toe of the levee on the waterside along benches above the water surface.
- 7 ♦ Vegetation would still need to be removed on the upper third of the waterside slope of the levee,  
8 the top of the levee, landside slope of the levee, or within 15 feet of the toe of the levee on the  
9 landside (“toe” is where the levee slope meets the ground surfaces).

10 The Proposed Project encourages the USACE to work with DWR and DFG to develop a variance process  
11 to allow Delta levee vegetation to remain in a manner that does not compromise structural integrity but  
12 does continue to provide habitat value (ER R4).

### 13 2.2.2.3 Tidal Marsh Habitat Restoration

14 The Proposed Project policies and recommendations, including ER P2, ER P3, ER R1, ER R2, ER R5,  
15 RR P1, RR P2, RR R1, and RR R4, encourage removal of levees to expand inundated areas to support  
16 tidal marsh habitat which could require the following types of construction activities:

- 17 ♦ Levee modifications, removal, or degradation
- 18 ♦ Grading
- 19 ♦ Dredging

20 Tidal marsh habitat restoration would not include construction of pumping plants, weirs, or operable  
21 gates.

22 Tidal marsh habitat restoration would include saline, brackish, and fresh water restoration programs in the  
23 Delta primarily would be designed for habitat purposes.

#### 24 *Levee Modifications, Removal, or Degradation*

25 Tidal marsh habitat restoration could require levee modifications, removal, or degradation to allow  
26 inundation of areas currently protected by levees. As described for floodplain restoration in  
27 subsection 2.2.2.2.1, existing levees may require modification or relocation to protect adjacent lands that  
28 will not become part of the tidal marsh habitat restoration project. Levee modification could include  
29 construction of new levees that would connect to existing levees or increasing the flood protection level  
30 of existing levees through increasing the height or width of an existing levee.

31 Construction activities and operations and maintenance activities for levee modifications, removal, or  
32 degradation would include the same activities as described for floodplain restoration projects in  
33 subsection 2.2.1.1.

#### 34 *Grading*

35 Tidal marsh habitat restoration could require grading and revegetation. If feasible, the grading would  
36 occur prior to modification, removal, or degradation of existing levees. Channel geometry could be  
37 regraded in unconfined channel reaches or along channels in order to restore tidal marsh habitat and  
38 create a range of channel sizes.



1 Grading actions could include construction and operation of the features described for floodplain  
2 restoration in subsection 2.2.2.2.1 plus the following features:

- 3 ♦ Excavation and grading of land to create dendritic tidal channels, changes in elevations to allow  
4 for drainage during tidal cycles, low-flow channels to allow fish to escape as the tide recedes, and  
5 placement of soil in subsided or low elevation areas to avoid areas with deep water. Soil could be  
6 moved from higher elevations in the construction site to increase elevation in the subsided lands.  
7 Soil also could be imported to increase the ground elevation. In some areas, tules could be planted  
8 and farmed for several years to raise the elevation of subsided lands.
- 9 ♦ Excavation of deep holes on the land side of levees at the location of levee breaches could be  
10 constructed to trap sediment and silt as the water enters the tidal marsh.
- 11 ♦ Riparian habitat restoration could be established along the edges of tidal freshwater marshes, as  
12 described in subsection 2.2.2.2.2.

13 Operations and maintenance activities for graded areas of the tidal marsh would include the same  
14 activities as described for floodplain restoration grading projects in subsection 2.2.2.2.1.

#### 15 *Dredging*

16 Construction and operations and maintenance activities for dredging would include the same activities as  
17 described for floodplain restoration projects in subsection 2.2.2.2.1.

#### 18 **2.2.2.2.4 Delta Ecosystem Habitat Restoration Projects**

19 The Proposed Project encourages implementation of habitat restoration projects in the following areas  
20 (ER R1).

- 21 ♦ Cache Slough Complex
- 22 ♦ Cosumnes River-Mokelumne River Confluence
- 23 ♦ Lower San Joaquin River Floodplain
- 24 ♦ Suisun Marsh
- 25 ♦ Yolo Bypass

26 The Proposed Project also encourages the Delta Conservancy to develop and adopt criteria for  
27 prioritization and integration of large-scale ecosystem restoration in the Delta and Suisun Marsh  
28 considering sustainability, best available science, processes for ownership and management of these  
29 lands, and development of a habitat credit program for programs implemented in multiple phases (ER R2  
30 and ER R3).

#### 31 *Cache Slough Complex*

32 The Cache Slough area includes Liberty Island, Little Holland Tract, Prospect Island, Little Egbert Tract,  
33 and surrounding waterways with levees designed at restricted heights to allow overtopping by flood  
34 flows. Liberty Island and Little Holland Tract levees were breached and have remained flooded since  
35 1998 and 1983, respectively. These islands and tracts are owned by public agencies or entities that  
36 conserve the land uses for habitat restoration. Restoration activities in Cache Slough could include  
37 restoration of a mosaic of deep open water, shallow subtidal, tidal marsh, riparian, perennial grasslands,  
38 and vernal pool habitats. Some of the properties are in public ownership or are protected for conservation  
39 purposes, including Prospect Island, Liberty Island, portions of Decker Island, and portions of Calhoun  
40 Cut in the Calhoun Cut Ecological Reserve, to reestablish tidal circulation and protect adjacent grassland  
41 and vernal pool habitat. The Cache Slough complex also includes Little Egbert Tract, which includes  
42 seasonal floodplain to the south of Liberty Island.

1 No specific environmental analyses have been completed for Cache Slough at this time. It is difficult to  
2 predict which of the properties in Cache Slough will become available for ecosystem restoration. The  
3 DFG *Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological*  
4 *Management Zone and the Sacramento and San Joaquin Valley Regions* (DFG 2011) recommended  
5 ecosystem restoration in Cache Slough to primarily include riparian and tidal marsh habitat restoration.

6 Typical construction activities could include removal or partial removal of levees, excavation of channels  
7 to promote water circulation, construction or modification of exterior levees to protect adjacent levees or  
8 to isolate portions of islands and tracts from the restoration area, and demolition of existing structures that  
9 would not be compatible with ecosystem restoration.

#### 10 *Cosumnes River–Mokelumne River Confluence*

11 The Proposed Project encourages implementation of the ongoing DWR North Delta Flood Control and  
12 Ecosystem Restoration Project (DWR 2010b). This study evaluated floodplain restoration options within  
13 the overall confluence of the Cosumnes and Mokelumne rivers and recommended floodplain restoration  
14 to be focused in the vicinity of McCormack-Williamson Tract, Dead Horse Island, New Hope Tract, and  
15 Grizzly Island. McCormack-Williamson Tract, Dead Horse Island, and New Hope Tract are surrounded  
16 by the Cosumnes and Mokelumne rivers and the adjacent Lost and Snodgrass sloughs. Grizzly Island is  
17 surrounded by Bear and Grizzly sloughs, which drain to the Mokelumne River.

18 DWR completed an EIR for this program. Currently, USACE is completing an Environmental Impact  
19 Statement (EIS) and a feasibility study. The DFG *Conservation Strategy for Restoration of the*  
20 *Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin*  
21 *Valley Regions* (DFG 2011) recommended ecosystem restoration in the Cosumnes River-Mokelumne  
22 River confluence to include floodplain, riparian habitat, and tidal marsh habitat restoration.

23 Typical construction activities would include levee breaching along the Mokelumne River, levee  
24 degradation along Dead Horse Slough, and levee modification to lower the levee along Snodgrass Slough  
25 to expand the floodplain onto McCormack-Williamson Tract. Levees on Dead Horse Island and possibly  
26 other locations along Mokelumne River would be modified to improve flood protection to existing islands  
27 that would not become part of the expanded floodplain. Dredging also could occur along the sloughs that  
28 surround the McCormack-Williamson Tract. The proposed program also includes levee breaching or  
29 levee degradation along Bear Slough to expand the floodplain onto Grizzly Island. Excavation and  
30 grading also is recommended to occur on Grizzly Island.

#### 31 *Lower San Joaquin River Flood Bypass Proposal*

32 The Proposed Project encourages implementation of floodplain restoration along the San Joaquin River  
33 between Mossdale and Stockton by expansion and restoration of the channels located to the south and  
34 west of Paradise Cut, south of Stewart Tract, and upstream and downstream of the Interstate 5 crossing of  
35 the San Joaquin River. This program has been proposed by the South Delta Levee Protection and Channel  
36 Maintenance Authority, South Delta Water Agency, The River Islands Development Company,  
37 Reclamation District 2062, San Joaquin Resource Conservation District, American Rivers, American  
38 Lands Conservancy, and Natural Resources Defense Council (American Rivers and The River Islands  
39 Development Company 2011).

40 No specific environmental analyses have been completed for Lower San Joaquin River Flood Bypass at  
41 this time. It is difficult to predict which of the properties along the Lower San Joaquin River will become  
42 available for ecosystem restoration. The DFG *Conservation Strategy for Restoration of the Sacramento-*  
43 *San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions*  
44 (DFG 2011) recommended ecosystem restoration in the Lower San Joaquin River area to primarily  
45 include riparian and tidal marsh habitat restoration.

1 Typical construction activities could include levee modification, removal, and degradation; excavation of  
2 channels to promote water circulation; and construction or modification of exterior levees to protect  
3 adjacent levees or to isolate portions of islands and tracts from the restoration area.

#### 4 *Suisun Marsh*

5 Suisun Marsh is a tributary marsh located to the west (downstream) of the confluence of the Sacramento  
6 and San Joaquin rivers. It is the largest contiguous brackish water marsh in western North America.  
7 Numerous plans have been evaluated and some plans have been implemented to restore the Suisun Marsh  
8 (Reclamation, USFWS, and DFG 2010). Currently, Reclamation, USFWS, DFG, and federal and State  
9 agencies are developing the Suisun Marsh Habitat Management, Preservation, and Restoration Plan. The  
10 Draft EIS/EIR was published in October 2010. The EIR/EIS considered restoration of 700 to 9,000 acres  
11 of tidal marsh with 42,000 to 52,000 acres of managed wetlands.

12 The EIS/EIR has not been completed for Suisun Marsh at this time. It is difficult to predict which  
13 properties in Suisun Marsh will become available for ecosystem restoration. The DFG *Conservation*  
14 *Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the*  
15 *Sacramento and San Joaquin Valley Regions* (DFG 2011) recommended ecosystem restoration in Suisun  
16 Marsh to primarily include riparian and tidal marsh habitat restoration.

17 Typical construction activities could include removal or partial removal of levees, excavation and grading  
18 of channels to promote water circulation, and construction or modification of exterior levees to protect  
19 adjacent levees or to isolate portions of islands and tracts from the restoration area.

#### 20 *Yolo Bypass*

21 The Yolo Bypass is a floodplain that extends from a location along the Sacramento River near the  
22 confluence with the Feather River in a southern direction to Cache Slough (described below). The  
23 floodplain was converted into a floodplain bypass by the USACE through construction of levees along the  
24 western portion of the floodplain and the Sacramento Deep Water Ship Channel along the eastern portion  
25 of the floodplain. Water enters the bypass over the Fremont Weir along the Sacramento River near  
26 Knights Landing and the Sacramento Weir along the Sacramento River near the confluence with the  
27 American River. Flows from Cache and Putah creeks and several other tributaries also enter the Yolo  
28 Bypass. Most of the Yolo Bypass is managed by the USACE and Central Valley Flood Protection Board.  
29 These agencies do not allow construction within the floodway that would increase the base flood  
30 elevation (designed for 100-year flood protection). The Yolo Bypass also includes the Yolo Bypass  
31 Wildlife Management Area operated by DFG.

32 Several studies are currently underway to evaluate ecosystem restoration in the Yolo Bypass, including  
33 development of a Habitat Conservation Plan and Natural Communities Conservation Plan by the Lower  
34 Yolo Bypass Planning Forum (Yolo Bypass Planning Forum 2009 and 2010). No specific environmental  
35 analyses have been completed for the overall Yolo Bypass at this time. It is difficult to predict which  
36 areas of the Yolo Bypass will become part of an ecosystem restoration program. The DFG *Conservation*  
37 *Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the*  
38 *Sacramento and San Joaquin Valley Regions* (DFG 2011) recommended ecosystem restoration in Yolo  
39 Bypass to primarily include floodplain and tidal marsh habitat restoration.

40 Typical construction activities could include levee modification, grading, installation of weirs or operable  
41 gates to allow fish passage from the Sacramento River through the Yolo Bypass, and dredging.  
42 Restoration could include establishment of a mosaic of seasonal floodplain, riparian, perennial grasslands,  
43 and vernal pool habitats with tidal marsh areas.

## 1 *Sacramento–San Joaquin River Delta Conservancy Strategic Plan*

2 The Delta Conservancy is one of the State agencies responsible for implementing ecosystem restoration in  
3 the Delta, in collaboration and cooperation with local governments and interested parties. The Delta  
4 Conservancy’s coequal responsibilities are for environmental protection and the economic well-being of  
5 Delta residents in a complementary manner. The Delta Conservancy is required to work with local  
6 agencies to protect and preserve Delta agriculture and working landscapes, and assist the Delta regional  
7 economy through targeted investments. The Delta Conservancy adopted an *Interim Strategic Plan* (Delta  
8 Conservancy 2011) to provide a framework for development of the Strategic Plan by 2013. The *Interim*  
9 *Strategic Plan* identifies several near-term strategies to accomplish the coequal responsibilities, including  
10 development of a climate change and sea level rise policy, development of criteria for willing seller  
11 provisions for land protections, participation in regional water resources planning efforts for flood  
12 management and water supplies, development of partnerships to accomplish the goals, and establishment  
13 of funding mechanisms.

14 The Delta Conservancy Strategic Plan will address the Delta Conservancy’s role and proposed actions  
15 regarding land use, recreation, water and flood management, and habitat conservation and protection  
16 within the Delta and Suisun Marsh, including criteria and priorities for projects and programs to  
17 accomplish the Delta Conservancy Strategic Plan. The Delta Conservancy Strategic Plan is required by  
18 law to be consistent with the *Delta Plan*, the Delta Protection Commission *Resource Management Plan*,  
19 the Central Valley Flood Protection Board *Central Valley Flood Protection Plan*, the Suisun Marsh  
20 Preservation Act of 1977, and the associated *Habitat Management, Preservation, and Restoration*  
21 *Plan for the Suisun Marsh*.

### 22 **2.2.2.3 Stressor Management and Invasive Species Management**

23 The Proposed Project does not require specific projects to reduce stressors, including nonnative invasive  
24 species; rather it contains broad requirements and recommendations to encourage activities that would  
25 reduce the potential for stressors, including nonnative invasive species. Given both the general nature of  
26 the Proposed Project policies and recommendations and the uncertainty concerning the extent to which  
27 the Proposed Project will result in any particular action, it is unclear what types of projects will actually  
28 be implemented as a result of the Proposed Project policies and recommendations. Nevertheless, this EIR  
29 assumes that the Proposed Project will lead to an increase in Delta projects to reduce stressors, including  
30 nonnative invasive species.

31 The types of projects to reduce stressors can best be seen by looking at recommendations in the  
32 *Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management*  
33 *Zone and the Sacramento and San Joaquin Valley Regions* (DFG 2011). Information from this report was  
34 considered in identifying a range of options for projects to reduce stressors related to surface water  
35 intakes/diversions with fish screens; removal of levees, weirs, and gates that reduce fish passage; and  
36 reduce nonnative invasive species, as described below. A range of options to reduce stressors related to  
37 poor water quality is discussed in subsection 2.2.3.

#### 38 **2.2.2.3.1 Stressor Management**

39 The Proposed Project policies and recommendations, including ER P5, ER R6, and ER R7, encourage  
40 development of programs to reduce other ecological stressors on aquatic habitat in the Delta that could  
41 require construction or implementation of the following programs:

- 42 ♦ Surface water intakes/diversions with fish screens
- 43 ♦ Removal of levees, weirs, and gates that reduce fish passage
- 44 ♦ Reduce nonnative invasive species

### 1 *Surface Water Intakes/Diversions with Fish Screens*

2 Many surface water intakes/diversions in the Delta do not include fish screens. Fish become entrained in  
3 these intakes/diversions and removed from the streams and rivers. Some of these intakes/diversions are  
4 small and may not produce the same type of stressors as larger intakes/diversions (DFG 2011). Federal,  
5 State, and local agencies have completed or are preparing studies to identify critical intakes/diversions  
6 that could include fish screens (DFG 2011). The Proposed Project encourages this type of evaluation and  
7 prioritization of the results (ER R7).

8 Construction and operations and maintenance activities for surface water intakes/diversions with fish  
9 screens would include the same activities as described for surface water intakes/diversions for surface  
10 water projects in subsection 2.2.1.2.1.

### 11 *Removal of Levees, Weirs, and Gates that Reduce Fish Passage*

12 Fish passage in the Delta could be affected by physical barriers such as levees, weirs, and gates in riparian  
13 corridors and along the floodplains. Floodplain restoration programs, such as restoration of the Yolo  
14 Bypass (as described in subsection 2.2.2.2.4), could improve fish passage throughout the Delta.

15 Construction and operations and maintenance activities to reduce physical barriers in the floodplain could  
16 improve fish passage as described for floodplain restoration projects in subsection 2.2.2.2.1 and  
17 specifically for Yolo Bypass as described in subsection 2.2.2.2.4.

### 18 *Reduce Nonnative Invasive Species*

19 The Proposed Project policies and recommendations, including ER P5, ER R6, and ER R7, encourage  
20 implementation of “Stage 2 Actions for Nonnative Invasive Species” presented in the *Conservation*  
21 *Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the*  
22 *Sacramento and San Joaquin Valley Regions* (DFG 2011). These actions include the following goals to  
23 prevent establishment of new nonnative invasive species in the Delta and to reduce the adverse impacts in  
24 the Delta of already established nonnative invasive species.

- 25 ♦ Action 1: Continue implementing the CALFED *Non-native Invasive Species Strategic Plan* and  
26 DFG’s *California Aquatic Invasive Species Management Plan* (CAISMP) to prevent new  
27 introductions; limit or eliminate nonnative invasive species populations; and reduce economic,  
28 social and public health impacts of nonnative invasive species infestation.
- 29 ♦ Action 2: Continue funding the Department of Boating and Waterways *Egeria densa* mapping  
30 program. Also, begin investigating whether non-chemical means of control are possible.
- 31 ♦ Action 3: Continue research and monitoring programs to increase understanding of the invasion  
32 process and the role of established nonnative invasive in the Delta’s ecosystems including:
  - 33 • Investigate invasions by *Egeria* or *Microcystis* to newly restored areas.
  - 34 • Investigate recreating habitats that have a high variability in abiotic factors (e.g. salinity,  
35 flows, depth, etc.) as a means of limiting the overbite and Asian clams and *Egeria*.
- 36 ♦ Action 4: Continue studies on the effectiveness of local treatment of zebra and quagga mussels  
37 using soil bacterium.
- 38 ♦ Action 5: Standardize methodology for sampling programs to measure changes in nonnative  
39 invasive populations over a specific timeframe.
- 40 ♦ Action 6: Collect and analyze water quality sampling data (e.g. salinity and water temperature)  
41 for correlation analysis between nonnative invasive distribution and habitats.

- 1       ♦ Action 7: Complete an assessment of existing nonnative invasive introductions and identify those  
2       with the greatest potential for containment or eradication; this assessment also would be used to  
3       set priority control efforts.
- 4       ♦ Action 8: Establish a program to monitor for new invasions of nonnative wildlife, and develop  
5       responses to quickly contain and control them.
- 6       ♦ Action 9: Continue investigating potential parasite(s) as a means to control invasive clam or  
7       mussel populations.

8       The CALFED *Non-native Invasive Species Strategic Plan* and the CAISMP (DFG 2008) focus on  
9       development of a monitoring program and methods to reduce transfer of invasive species on boats or  
10      other methods that could transfer species in the water. Programs to reduce non-native invasive species and  
11      other stressors to aquatic habitat could include the following activities:

- 12      ♦ Removal of debris and abandoned vessels and structures in the waterways that provide cover for  
13      nonnative predator fish. The materials would be hauled to a permitted landfill.
- 14      ♦ Removal of existing structures or prevention of new structures to be constructed in the waterways  
15      to reduce establishment of nonnative invasive vegetation.
- 16      ♦ Removal of nonnative invasive vegetation with mechanical harvesters and herbicide applications.
- 17      ♦ Inspection of boats that enter portions of the Delta for nonnative clams and plants.
- 18      ♦ Regulation of the discharge of ballast water from ships and boats in the Delta.
- 19      ♦ Enforcement of illegal harvest of spring-run Chinook salmon during migration and summer  
20      holding periods in the Delta and Delta watershed.

21      These programs would not appear to result in construction of new facilities.

#### 22      **2.2.2.4    Modification of Flow Objectives and Flow Criteria in the Delta and Delta** 23      **Watershed**

24      The SWRCB is responsible for regulation of activities and factors that affect water quality of the waters  
25      of the State. In 2006, the SWRCB adopted a *Water Quality Control Plan Update for the San Francisco*  
26      *Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) (SWRCB 2006). The Bay-Delta Plan  
27      contains the existing flow objectives and criteria governing the Delta. Requiring covered actions to  
28      comply with these flow objectives and criteria would not constitute a change from existing requirements.

29      In 2008, the SWRCB acknowledged the need to update the Bay-Delta Plan and conduct a comprehensive  
30      review of water rights and other requirements to protect fish and wildlife beneficial uses and the public  
31      trust. The SWRCB adopted the *Strategic Workplan for Activities in the San Francisco Bay/Sacramento-*  
32      *San Joaquin Delta Estuary (Strategic Workplan)* (SWRCB 2008a) to provide a framework to complete  
33      these activities. It was anticipated in 2008, that many of these activities would be complete by 2013. The  
34      *Strategic Workplan* indicated that the Bay-Delta Plan Update would consider the BDCP as part of the  
35      analysis; and that if the BDCP was complete by the end of 2010, the Bay-Delta Plan Update would be  
36      complete in 2011.

37      In August 2008, the SWRCB initiated the Bay-Delta Plan update with a notice of a public workshop. In  
38      August 2009, the SWRCB adopted a Staff Report recommending that the water quality control planning  
39      process include review of the following:

- 40      ♦ Delta Outflow Objectives
- 41      ♦ Export/Inflow Objectives

- 1       ♦ Delta Cross Channel Gate Closure Objectives
- 2       ♦ Suisun Marsh Objectives
- 3       ♦ Reverse Flow Objectives (Old and Middle River Flow Objectives)
- 4       ♦ Floodplain Habitat Flow Objectives
- 5       ♦ Changes to the Monitoring and Special Studies Program
- 6       ♦ Other Changes to the Program of Implementation

7       As part of the Bay-Delta Plan update, the initial focus by the SWRCB was to develop flow objectives for  
8       the San Joaquin River and salinity objectives for the southern Delta. Flow and water quality objectives are  
9       scheduled to be complete by June 2012.

10       In 2009, the State adopted SBX7 1 that requires the SWRCB to develop new flow criteria for the Delta  
11       ecosystem to protect public trust resources and a prioritized schedule to complete instream flow studies  
12       for the Delta and high priority streams in the Delta watershed as identified by DFG. In 2010, the SWRCB  
13       completed the *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem* (SWRCB  
14       2010a) and *Instream Flow Studies for the Protection of Public Trust Resources: A Prioritized Schedule  
15       and Estimate of Costs* (SWRCB 2010b). The flow criteria report presented flow criteria to protect the  
16       Delta and its ecological resources. Flow criteria do not have regulatory effect but provide information to  
17       the SWRCB that may be used in the development of future flow and water quality objectives and water  
18       rights decisions, as described in subsection 2.2.1.1. The Bay-Delta Plan Update will need to consider the  
19       flow criteria recommendations, in addition to other requirements of other beneficial uses, to develop  
20       modified water quality objectives.

#### 21       2.2.2.4.1   Changes to Delta Flow Patterns and Water Supply

22       ER P1 requires covered actions to be consistent with the SWRCB existing flow objectives and encourages  
23       the SWRCB to develop updated flow objectives for the Delta and high-priority tributaries in the Delta  
24       watershed. While it is uncertain whether the SWRCB will follow the recommendations to complete the  
25       flow objectives and flow criteria by 2014 and 2018, respectively, this EIR assumes that SWRCB will  
26       meet the recommended deadlines.

27       Specific details of future flow objectives and criteria also are unclear at this time. ER P1 encourages the  
28       SWRCB to consider public trust resources in development of Delta flow objectives, and this could  
29       encourage a more natural flow regime in the Delta. ER P1 also encourages the SWRCB to adopt flow  
30       criteria by June 2018 for high-priority Delta watershed tributaries identified in the *Instream Flow Studies  
31       for the Protection of Public Trust Resources: A Prioritized Schedule and Estimate of Costs* (SWRCB  
32       2010b). These flow criteria, to support salmon and steelhead in the Delta watershed, would not have  
33       regulatory effect but could be used by the SWRCB to develop future flow objectives and water rights  
34       decisions for the high-priority tributaries. It is possible that new flow objectives and related water rights  
35       decisions to be adopted by the SWRCB could change limit Delta exports during some portions of the year  
36       and this could result in less water available to SWP and CVP water users that are located outside the  
37       Delta and use Delta water.

38       In response to a potential reduced availability of Delta water supplies during some portion of the year, the  
39       water supply agencies located outside of the Delta that use Delta water could implement projects as  
40       described in subsection 2.2.1 to increase local and regional water supplies.

### 41       2.2.3   Water Quality Improvement

42       The Proposed Project encourages improved water quality in the Delta and Central Valley for drinking  
43       water supplies and environmental beneficial uses.

1 The Proposed Project does not direct the construction of specific projects, nor would projects be  
2 implemented under the direct authority of the Council. However, the Proposed Project seeks to improve  
3 water quality by encouraging various actions which, if taken, could lead to construction and/or operation  
4 of:

- 5 ♦ Water treatment plants
- 6 ♦ Conveyance facilities
- 7 ♦ Wastewater treatment plants
- 8 ♦ Recycle wastewater treatment plants
- 9 ♦ Municipal stormwater treatment facilities
- 10 ♦ Agricultural runoff treatment
- 11 ♦ Wellhead treatment facilities
- 12 ♦ Wells

13 Conveyance facilities could include pipelines and pumping plants. Treatment of agricultural runoff could  
14 include management plans to eliminate agricultural runoff and facilities to capture, treat, and reuse the  
15 runoff flows. Wells could include withdrawal, recharge, and monitoring wells.

16 The number and location of all potential projects that will be implemented is not known at this time. Six  
17 possible projects, however, are known to some degree and are named in the Proposed Project: Central  
18 Valley Drinking Water Policy, Central Valley Salinity Alternatives for Long-Term Sustainability  
19 Program (CV-SALTS), Water Quality Control Plan Update for the San Francisco Bay/Sacramento-San  
20 Joaquin Delta Estuary, SWRCB *Strategic Workplan* (SWRCB 2008a), SWRCB regulatory processes with  
21 research and monitoring, and North Bay Aqueduct Alternative Intake.

### 22 ***2.2.3.1 Overview of Improved Drinking Water and Environmental Water Quality*** 23 ***Programs***

24 The Proposed Project will encourage increased emphasis on improved water quality for drinking water  
25 and environmental beneficial uses through several of its policies and recommendations, including  
26 WQ R1, WQ R2, WQ R3, WQ R4, WQ R5, WQ R6, WQ R7, WQ R8, WQ R9, and WQ R10. The  
27 Proposed Project recommends that the Central Valley RWQCB adopt and implement the Central Valley  
28 Drinking Water Policy by 2014 (WQ R1); and that the SWRCB and Central Valley RWQCB develop a  
29 strategic workplan to protect groundwater beneficial uses, including drinking water, by December 31,  
30 2012 (WQ R3). Drinking water and environmental water quality also would be improved under the  
31 Proposed Project, which encourages the SWRCB and Central Valley RWQCB to require all water  
32 diverters and wastewater dischargers in the Delta or Delta watershed to participate in CV-SALTS  
33 (WQ R5).

34 The Proposed Project also encourages prioritization of funding from the Department of Public Health,  
35 SWRCB, and DWR for water and wastewater facilities to serve small and disadvantaged communities  
36 (WQ R4) and improve drinking water and environmental water quality.

37 The Proposed Project encourages improved drinking water quality for the SWP North Bay Aqueduct  
38 water users (portions of Solano County Water Agency and Napa County Flood Control and Water  
39 Conservation District) through the implementation of the North Bay Aqueduct Alternative Intake Project  
40 to construct an alternative intake in the upper reaches of the Delta. The alternative intake would be used  
41 when water quality at the existing intake/diversion in Barker Slough (part of the Cache Slough complex)  
42 is poor or diversion operations are limited because Delta smelt are present (WQ R2).

43 The Proposed Project also encourages the SWRCB, Central Valley RWQCB, and the San Francisco Bay  
44 Regional Water Quality Control Board (San Francisco Bay RWQCB) to adopt water quality objectives  
45 for nutrients in the Delta and Delta watershed by January 1, 2014; Total Maximum Daily Load and Basin



1 Plan Amendments for diazinon and chlorpyrifos by January 1, 2013, pyrethroids by January 1, 2016, and  
2 selenium and methylmercury; and water quality objectives for selenium (WQ R6). The Proposed Project  
3 encourages the SWRCB, Central Valley RWQCB, and San Francisco Bay RWQCB to conduct special  
4 studies of pollutants including emerging contaminants and causes of toxicity in Delta waters and  
5 sediments by January 1, 2014 (WQ R9). To reduce the potential for pollutants being discharged into the  
6 receiving waters, the Proposed Project encourages the Central Valley RWQCB to require agencies that  
7 discharge wastewater effluent or urban runoff to determine if all or part of the discharged flows can be  
8 recycled by January 1, 2014 (WQ R8).

9 The Proposed Project encourages the SWRCB, Central Valley RWQCB, San Francisco Bay RWQCB,  
10 DWR, DFG, and other agencies to implement a Delta Regional Monitoring Program to coordinate  
11 monitoring, reporting, and assessment efforts (WQ R7).

12 The Proposed Project encourages all proponents of actions affecting water quality in the Suisun Marsh to  
13 comply with existing requirements of the San Francisco Bay Conservation and Development Commission  
14 and consult with the San Francisco Bay RWQCB early in the development of their actions (WQ R10).

15 The recommendations included in the Proposed Project are presented in Appendix C.

#### 16 2.2.3.1.1 Development of Drinking Water and Environmental Water Quality Policies and 17 Objectives

18 The Proposed Project encourages completion of the policies and programs that have been initiated by  
19 State agencies to improve drinking water and environmental water quality, as described below. These  
20 policies and programs could lead to construction and/or operation of projects described in  
21 subsections 2.2.3.1.2 through 2.2.3.1.9.

##### 22 *Central Valley Drinking Water Policy*

23 The Central Valley RWQCB is developing a Drinking Water Policy for surface waters in the Central  
24 Valley. Current policies and plans lack water quality objectives for some drinking water constituents of  
25 concern, including some disinfection byproduct precursors and pathogens, and do not include strategies to  
26 effectively protect drinking water.

27 The SWRCB is responsible for designating beneficial uses of surface water and groundwater, including  
28 use of waters for drinking water. Under the SWRCB *Sources of Drinking Water Policy* (Resolution No.  
29 88-63) as part of the Central Valley RWQCB *Water Quality Control Plan for the Sacramento River and*  
30 *San Joaquin River Basins* (Central Valley RWQCB 2009), most of the surface waters and groundwater in  
31 the Central Valley have been designated as sources for municipal drinking water. The SWRCB Bay-Delta  
32 Plan (as described in subsection 2.2.2.3) designated the Delta as sources of municipal and industrial water  
33 supplies. This designation requires maintenance of high quality water in accordance with an  
34 antidegradation policy to avoid the presence of biostimulatory, toxic, taste or odor producing, or chemical  
35 substances or fecal coliform concentrations that adversely affect drinking water quality.

36 In 2008, the Central Valley RWQCB initiated a process to amend the Basin Plan to increase protection of  
37 drinking water quality through additional monitoring by dischargers for drinking water constituents of  
38 concern, establishment of new narrative or numeric water quality objectives for dischargers to maintain  
39 current drinking water quality conditions, and establishment of new narrative or numeric water quality  
40 objectives for dischargers to improve drinking water quality conditions. The priority drinking water  
41 constituents of concern include organic carbon, pathogens (including *Cryptosporidium*, and *Giardia*),  
42 salinity, bromide, and nutrients. The Basin Plan amendment process is under way.

1 In addition to the Basin Plan amendment process, the Central Valley RWQCB committed to improve  
2 drinking water quality through other programs. In 2010, the Central Valley RWQCB adopted Resolution  
3 R5-2010-0079 to commit to development of the Central Valley Drinking Water Policy. The Central  
4 Valley RWQCB also is participating in programs to reduce salinity and nitrates in surface water and  
5 groundwater (as described below).

#### 6 *Central Valley Salinity Alternatives for Long-term Sustainability*

7 The CV-SALTS is a joint effort initiated in 2006 among the Central Valley RWQCB, SWRCB, and  
8 stakeholders to address salinity and nitrate problems in Central Valley surface water and groundwater to  
9 improve water quality and economic sustainability. Participation is voluntary. In 2008, the Central Valley  
10 Salinity Coalition was formed as a stakeholder group to work with the SWRCB and Central Valley  
11 RWQCB in the CV-SALTS program. The program is focusing on methods to reduce the amount of  
12 salinity and nitrates that enters the surface water and groundwater from municipal wastewater and  
13 stormwater and agricultural runoff and drainage, and to reduce chemicals that percolate into the  
14 groundwater from the application of chemicals within municipal and agricultural areas.  
15 Recommendations from CV-SALTS and the Central Valley Salinity Coalition will be considered by the  
16 SWRCB and Central Valley RWQCB in development of the flow and water quality objectives in the  
17 Basin Plan and Bay-Delta Plan updates.

#### 18 *Water Quality Control Plan Update and Strategic Workplan*

19 As described in subsection 2.2.2.3, the SWRCB is responsible for regulation of activities and factors that  
20 affect the water quality of the waters of the State. The SWRCB is in the process of updating the Bay-  
21 Delta Plan, including consideration of the need to modify water quality objectives to improve drinking  
22 water and environmental water quality. The SWRCB prepared the *Strategic Workplan* (SWRCB 2008a),  
23 as described in subsection 2.2.2.3, to provide a framework for the Bay-Delta Plan update. The *Strategic*  
24 *Workplan* addressed the need for the Central Valley Drinking Water Policy, as described above, to  
25 consider water quality objectives that threaten drinking water including pathogens, organic carbon, and  
26 bromide. The *Strategic Plan* anticipated that this policy would be adopted by 2010.

27 The *Strategic Workplan* also addressed the need adopt sediment quality objectives for the Delta and other  
28 estuaries and enclosed bays in California. Currently, the SWRCB is proposing to amend the *Water*  
29 *Quality Control Plan for Enclosed Bays and Estuaries* (SWRCB 2008b) to protect resident finfish and  
30 wildlife from detrimental effects caused by exposure to pollutants in sediment and humans exposed to  
31 contaminants through consumption of fish and shellfish. These programs were initially estimated to be  
32 complete in 2010; however, limited funding has delayed completion of these efforts.

#### 33 *Water Quality Objectives Regulatory Processes for Pesticides, Selenium, and Methylmercury*

34 The SWRCB and the San Francisco Bay and Central Valley RWQCBs are currently engaged in  
35 regulatory processes to address water quality issues in the Delta that could result in the development of  
36 new or modified water quality objectives for a numerous constituents including salinity, nutrients,  
37 pesticides, and potential emerging contaminants that may require further studies if their effects are  
38 determined to be adverse to beneficial uses of the water. These agencies also are working with the  
39 U.S. Environmental Protection Agency to develop water quality objectives for selenium and  
40 methylmercury.

41 As part of that program, Central Valley RWQCB has adopted or is considering adoption of Total  
42 Maximum Daily Load objectives for the following constituents:

- 43 ♦ Diazinon on Upper Sacramento River is adopted.
- 44 ♦ Diazinon and chloropyrifos for the Sacramento County urban creeks is adopted.

- 1       ♦ Diazinon and chloropyrifos for the San Joaquin River is adopted.
- 2       ♦ Diazinon and chloropyrifos for the Delta is adopted.
- 3       ♦ Pesticide TMDL for the Central Valley is pending.
- 4       ♦ Selenium for the San Joaquin River, Grasslands, and Salt Slough is adopted.
- 5       ♦ Mercury for the Delta is pending.
- 6       ♦ Dissolved oxygen for the Stockton Deep Water Ship Channel, Phase I is adopted. Phase II is
- 7       pending.
- 8       ♦ Dissolved oxygen and pathogens for Stockton urban sloughs is pending.
- 9       ♦ Salt and Boron for the San Joaquin River Phase I is adopted. Phase II is pending.

10       These pending programs are scheduled to be completed; however, limited funding may delay completion  
11       of these efforts.

#### 12   2.2.3.1.2   Water Treatment Plants

13       In many areas of the Central Valley, communities rely upon groundwater that has been contaminated by  
14       naturally occurring chemicals, such as arsenic; or pollutants from municipal, industrial, or agricultural  
15       activities, such as nitrates. If surface water is available from local streams and rivers or from SWP or CVP  
16       water supplies, surface water could be substituted for the contaminated groundwater. Use of surface water  
17       would require surface water treatment plants as well as intake/diversion facilities.

18       Construction activities and operations and maintenance activities of surface water treatment plants could  
19       be implemented as described in subsection 2.2.1.2.2. If necessary, construction activities and  
20       operations and maintenance activities of intakes/diversions could be implemented as described in  
21       subsection 2.2.1.2.1.

#### 22   2.2.3.1.3   Conveyance Facilities

23       Substitution of surface water supplies, recycled wastewater, and recycled stormwater for contaminated  
24       groundwater would require facilities to convey water from the stream or river or SWP or CVP water  
25       supplies to the treatment plant and users. Conveyance facilities also could be required to move  
26       contaminated surface water, wastewater, stormwater, or agricultural runoff and drainage water (as  
27       described in subsection 2.2.3.1.7) to treatment and disposal facilities.

28       Conveyance facilities also could be used to develop a new intake/diversion location in an area that has  
29       higher water quality or reduces adverse impact to the aquatic habitat compared to existing  
30       intake/diversion facilities. This type of conveyance project is being considered for the North Bay  
31       Aqueduct Alternative Intake project to improve water quality during periods when water quality at the  
32       existing intake is of less desirable quality for drinking water, as described below.

33       Construction activities and operations and maintenance activities of conveyance facilities could be  
34       implemented as described in subsection 2.2.1.2.3.

#### 35   *North Bay Aqueduct Alternative Intake Project*

36       The SWP North Bay Aqueduct diverts water from Barker Slough (tributary of Cache Slough) to provide  
37       water to the Solano County Water Agency and Napa County Flood Control and Water Conservation  
38       District. Water quality at the intake is reduced following rain events due to runoff from agricultural and  
39       urban areas (DWR 2009a). The intake also is located in habitat for Delta smelt and longfin smelt.  
40       Biological opinions to protect these State and federally listed species have limited operations of the intake  
41       when these fish are present.

1 DWR, Solano County Water Agency, and Napa County Flood Control and Water Conservation District  
2 are currently completing an engineering evaluation and environmental documentation to construct an  
3 alternative intake/diversion structure, pumping plant, and a 25- to 35-mile long pipeline to convey water  
4 from the Sacramento River near West Sacramento to the existing North Bay Regional Water Treatment  
5 Plant northeast of Fairfield. The project would be developed to reduce biological effects of the existing  
6 Barker Slough intake/diversion, improve water quality, and improve water supply reliability. It is  
7 anticipated that the existing intake would continue to operate during some portion of the year. The Draft  
8 EIR is scheduled for completion in 2011.

9 The Proposed Project (WQ R2) encourages DWR to implement the North Bay Alternative Intake Project  
10 by July 1, 2012. While it is uncertain whether DWR will follow the recommendation, the EIR assumes  
11 that DWR will complete the evaluations and implement a program to improve drinking water quality and  
12 water supply reliability for the North Bay Aqueduct water users.

#### 13 2.2.3.1.4 Wastewater Treatment Facilities

14 In many areas of the Central Valley, inadequate wastewater treatment could cause contamination of  
15 surface water and/or groundwater. Wastewater treatment plants could improve drinking water and  
16 environmental water quality. Wastewater treatment plants also could require implementation of  
17 conveyance facilities. Treated wastewater could be discharged to surface water or groundwater storage, or  
18 to users of recycled wastewater.

19 Wastewater treatment plants could include a) pumping plants and pipelines throughout the site;  
20 b) structures including settling basins to remove solids and aeration basins to reduce organic materials in  
21 the wastewater; c) structures including facilities to dewater solids removed from the wastewater;  
22 d) structures to provide disinfection processes that could involve use of ozone, chloramines, or ultra-violet  
23 processes, or a combination of these processes; e) if necessary, structures including filtration processes  
24 using filter media (such as sand, carbon, and other materials) and/or membranes or reverse osmosis  
25 facilities to remove small particles, salts, minerals, and/or organic material; f) additional structures to  
26 collect and dewater solids removed in the filtration processes; g) chemical handling and storage facilities;  
27 and h) additional structures to collect and treat liquid (“brine”) from the membrane or reverse osmosis  
28 processes involving salts, minerals, and/or organic materials. The height of most of the building could  
29 range from one to four stories.

30 Construction activities and operations and maintenance activities of wastewater treatment plants could be  
31 implemented as described in subsection 2.2.1.5.1.

#### 32 2.2.3.1.5 Recycle Wastewater Treatment Facilities

33 Wastewater treatment processes could be modified to provide recycled wastewater, as described in  
34 subsection 2.2.1.5.1, to reduce the discharge of chemicals along with treated wastewater into streams and  
35 rivers or to provide a substitute water supply for contaminated groundwater. Recycled wastewater  
36 treatment plants also could require implementation of conveyance facilities.

37 Construction activities and operations and maintenance activities of recycled wastewater treatment plants  
38 could be implemented as described in subsection 2.2.1.5.1.

#### 39 2.2.3.1.6 Municipal Stormwater Treatment Facilities

40 To reduce discharge of chemicals with stormwater into streams and rivers or to provide a substitute water  
41 supply for contaminated groundwater, recycled stormwater treatment processes could be implemented, as  
42 described in subsection 2.2.1.5.2. Recycled stormwater treatment plants also could require  
43 implementation of conveyance facilities.

1 Construction activities and operations and maintenance activities of recycled stormwater treatment plants  
2 could be implemented as described in subsection 2.2.1.5.2.

### 3 2.2.3.1.7 Agricultural Runoff Treatment Facilities

4 Water quality can be affected by constituents from agricultural operations in several ways. Groundwater  
5 can be affected by chemicals applied on the ground surface that percolate into the groundwater. Surface  
6 waters can be affected by chemicals that seep out of the groundwater into the streams and rivers, by  
7 surface water flows from drains, and by surface water that flows off of agricultural lands either during  
8 irrigation or rain storms. In the past 20 years, agricultural practices in the United States have been  
9 modified to reduce the extent of contamination of groundwater due to application of chemicals that could  
10 adversely affect groundwater quality. However, many chemicals remain in the soil and continue to  
11 contribute to poor groundwater quality.

12 In the Central Valley, many acres of land have been fallowed to reduce potential surface water and  
13 groundwater contamination by naturally occurring chemicals, including selenium. However, selenium and  
14 other chemicals continue to be present in surface water flows. Programs such as CV-SALTS and  
15 participation in Basin Plan updates are currently working to develop overall programs to improve water  
16 quality due to agricultural operations. It is not known at this time what types of actions would be  
17 implemented to reduce water quality effects of agricultural practices. However, the following types of  
18 programs could be implemented in the future:

- 19 ♦ Land fallowing, or growing of non-irrigated crops, in areas with high concentrations of  
20 constituents of concern in the agricultural runoff or drainwater.
- 21 ♦ Modification of drain and canal facilities to capture agricultural runoff or drainwater for  
22 subsequent treatment and disposal. The treatment facilities for agricultural runoff could include  
23 a) pumping plants and pipelines throughout the site, b) structures including settling basins to  
24 remove solids, b) basins for mixing of chemicals to remove smaller solids and other materials,  
25 c) chemical handling and storage facilities, and d) structures including filtration processes using  
26 filter media (such as sand, carbon, and other materials) to remove small particles, salts, minerals,  
27 and/or organic material. The height of most of the building could range from one to two stories.
- 28 ♦ Reuse of untreated or treated agricultural runoff or drainwater by irrigating high-salt tolerant  
29 crops.
- 30 ♦ Disposal of treated flows by injection into high salinity groundwater that cannot be used for  
31 beneficial uses.

32 Construction of canals to convey flows to treatment plants could result in construction activities and  
33 operations and maintenance activities similar to those described in subsection 2.2.1.2.3.

34 Construction of treatment plant facilities could result in construction activities and operations and  
35 maintenance activities similar to those described in subsection 2.2.1.5.1.

### 36 2.2.3.1.8 Wellhead Treatment Facilities

37 As described in subsection 2.2.3.1.2, in many areas of the Central Valley, communities rely upon  
38 groundwater that has been contaminated. The contaminated groundwater could be replaced with surface  
39 water supplies or the groundwater could be treated. Groundwater treatment, or wellhead treatment, could  
40 be implemented as described in subsection 2.2.1.3.2.

41 Construction activities and operations and maintenance activities of wellhead treatment plants could be  
42 implemented as described subsection 2.2.1.3.2.

### 1 2.2.3.1.9 Wells

2 New wells could be drilled in locations with good groundwater quality to replace wells with contaminated  
3 groundwater to improve drinking water quality. Groundwater recharge programs also could be  
4 implemented in some cases to dilute the contaminants in the groundwater, depending upon the type and  
5 extent of the contamination and the local hydrogeologic conditions.

6 Construction activities and operations and maintenance activities of wells could be implemented as  
7 described subsection 2.2.1.3.1.

## 8 2.2.4 Flood Risk Reduction

9 The Proposed Project encourages increased protection of floodways and floodplains and programs to  
10 reduce the risk to life and property from floods in the Delta. The Proposed Project includes various  
11 policies and recommendations that address flood management and ecosystem restoration simultaneously,  
12 as described in subsection 2.2.2.

13 The Proposed Project does not direct the construction of specific projects, nor would projects be  
14 implemented under the direct authority of the Council. However, the Proposed Project seeks to improve  
15 the Delta flood management by encouraging various actions and projects which, if taken, could lead to  
16 construction and/or operation of:

- 17 ♦ Setback levees
- 18 ♦ Floodplain expansion
- 19 ♦ Levee maintenance
- 20 ♦ Levee modification
- 21 ♦ Dredging
- 22 ♦ Stockpiling of materials
- 23 ♦ Subsidence reversal
- 24 ♦ Reservoir operation

25 Setback levees and levee modification could involve levee modification and construction and  
26 maintenance of levees.

27 The number and location of all potential projects that will be implemented is not known at this time.  
28 Three possible projects, however, are known to some degree and are named in the Proposed Project:  
29 Sacramento Deep Water Ship Channel Maintenance, Stockton Deep Water Ship Channel Maintenance,  
30 and *A Framework for Department of Water Resources Investments in Delta Integrated Flood*  
31 *Management* (DWR 2011b).

### 32 2.2.4.1 Overview of Flood Risk Reduction in the Delta Programs

33 The Proposed Project encourages protection of floodways and floodplains from encroachment (RR P1  
34 and RR P2) and development of flood bypasses (RR P2 and RR R1) in a manner that is coordinated with  
35 policies and recommendations for Delta Ecosystem Restoration (ER P2), as described in subsection 2.2.2.  
36 The Proposed Project also encourages DWR to define locations for development of setback levees  
37 (RR R4) in a manner that encourages Delta Ecosystem Restoration (ER P4). While it is uncertain whether  
38 DWR, Central Valley Flood Protection Board, and local flood management agencies will follow the  
39 recommendation, the EIR assumes that these agencies will implement such protections, especially for the  
40 Yolo Bypass, Cosumnes and Mokelumne rivers confluence, and the Lower San Joaquin River near  
41 Paradise Cut, and encourage use of setback levees in the Delta to expand the floodway. The types of  
42 actions that could occur with these activities could be as described in subsection 2.2.2.2.4 for the Yolo  
43 Bypass, Cosumnes and Mokelumne rivers confluence, and Lower San Joaquin River.

- 1 The Proposed Project encourages the USACE to complete the evaluations and implement  
2 recommendations for dredging of the Sacramento Deep Water Ship Channel and Stockton Deep Water  
3 Ship Channel as well as other areas of the Delta (RR R2).
- 4 The Proposed Project requires the use of more stringent levee design criteria (RR P3) for structures in  
5 non-urban areas (defined as communities of less than 10,000 per Government Code section  
6 65865.5(a)(3)) located outside of the legacy communities of Freeport, Clarksburg, Courtland, Hood,  
7 Locke, Walnut Grove, Isleton, or Ryde, not including developments of less than five parcels. In order for  
8 major development in these areas to be consistent with the Proposed Project, the non-urban areas located  
9 outside of the legacy communities would be required to increase the level of flood protection from  
10 100-year flood protection to 200-year flood protection. The Proposed Project encourages the development  
11 of specific flood protection plans for legacy communities (RR P3). The Proposed Project also encourages  
12 the California State Parks to develop specific flood protection plans for State recreation facilities  
13 (RR R3).
- 14 The Proposed Project encourages DWR to complete by January 1, 2013, *A Framework for Department of*  
15 *Water Resources Investments in Delta Integrated Flood Management* (DWR 2011b) to guide investments  
16 between 2010 and 2030 to improve integrated flood management in the Delta for maintenance, facility  
17 improvements, new structural facilities and non-structural solutions, habitat enhancement, emergency  
18 preparedness with response and recovery, subsidence reversal, and studies (RR P4 and RR R5).
- 19 The Proposed Project encourages State and federal agencies to implement recommendations of the Delta  
20 Multi-Hazard Coordination Task Force; and develop catastrophic incident plans, mass evacuation plans,  
21 communications plans during emergencies, and a Delta Multi-Agency Coordination System plan. The  
22 Proposed Project also encourages emergency response plans to be prepared by local agencies and  
23 regulated utilities and training programs consistent with the Statewide Emergency Management System  
24 and the National Incident Management System. The Proposed Project encourages continued use and  
25 expansion of emergency stockpiles of levee repair materials in the Delta (RR R6). The Proposed Project  
26 encourages DWR to convene a working group to identify response actions to respond to levee failures  
27 (RR R7).
- 28 The Proposed Project encourages the Legislature to adopt requirements to provide immunity for public  
29 safety flood protection activities (such as those provided to police and fire protection services) (RR R8),  
30 and require all residences, businesses, and industries in flood-prone areas to purchase flood insurance  
31 (RR R9). The Proposed Project also encourages the Legislature to create a Delta Flood Risk Management  
32 Assessment District to provide flood protection and emergency response services (RR R10).
- 33 The Proposed Project encourages State agencies not to renew or enter into agricultural leases on lands in  
34 the Delta if the lease would promote or contribute to subsidence, such as continued agricultural  
35 cultivation of some islands with peat soils, unless the lessee participates in subsidence-reversal or  
36 reduction programs (RR R11).
- 37 RR R12 encourages federal, State, and local agencies and utilities to consider reoperation of upstream  
38 reservoirs that are operated for water supply, hydroelectric power generation, recreation, and  
39 environmental requirements for flood protection.

40 The policies and recommendations included in the Proposed Project are presented in Appendix C.

#### 41 **2.2.4.2 Levee and Floodplain Expansion Projects**

42 Levee and floodplain expansion projects could involve construction of setback levees, floodplain  
43 expansion and levee modification, levee maintenance programs, dredging, and completion of ongoing  
44 studies to identify levee maintenance needs and emergency response procedures.

1 **2.2.4.2.1 Setback Levees**

2 As described in subsection 2.2.2.2.1, setback levees could be used to expand the floodplain through  
3 relocation of an existing levee towards the landside of the levee. The existing levee would be degraded to  
4 provide floodplain and riparian habitat restoration.

5 Construction activities and operations and maintenance activities of setback levees could be implemented  
6 as described subsection 2.2.2.2.1.

7 **2.2.4.2.2 Floodplain Expansion and Levee Modifications**

8 As described in subsection 2.2.2.2.1, expansion of floodplains as part of floodplain restoration and/or  
9 flood management programs could include implementation of levee modifications, removal, degradation;  
10 grading; associated infrastructure, such as pumping plants and weirs/gates; and dredging.

11 Construction activities and operations and maintenance activities of floodplain expansion could be  
12 implemented as described subsection 2.2.2.2.1.

13 **2.2.4.2.3 Levee Maintenance**

14 As described in subsection 2.2.2.2.1, levee maintenance could include periodic replacement of soil or  
15 rock along the top or the sides of the levee, vegetation removal, and litter removal. Maintenance activities  
16 also could include periodic dredging of sediment near the waterside of the levee.

17 Operations and maintenance activities for levees could be implemented as described subsection 2.2.2.2.1.

18 **2.2.4.2.4 Dredging**

19 Periodic dredging to improve flood management capabilities could include activities as described  
20 subsection 2.2.2.2.1.

21 Currently, the USACE and other federal, State, and local agencies are considering major dredging  
22 projects to deepen the Sacramento Deep Water Ship Channel and the Stockton Deep Water Ship Channel.

23 *Deepening of the Sacramento Deep Water Ship Channel*

24 The USACE is currently conducting evaluations and environmental impact studies of deepening the  
25 Sacramento Deep Water Ship Channel. The USACE and the Port of West Sacramento issued a *Draft*  
26 *Supplemental Environmental Impact Statement and Environmental Impact Report for the Sacramento*  
27 *River Deep Water Ship Channel* in February 2011 (USACE and Port of West Sacramento 2011). The  
28 EIS/EIR evaluated options for channel deepening to provide an average depth of approximately 33 feet  
29 below mean lower low water. The channel deepening and selective widening could result in dredging of  
30 4 to 5.2 million cubic yards of dredged material that could be placed in specific areas adjacent to the ship  
31 channel or on Decker Island. The project could require relocation of utility pipelines constructed under  
32 the existing ship channel.

33 *Deepening of the Stockton Deep Water Ship Channel*

34 The USACE is currently conducting evaluations and environmental impact studies of deepening the  
35 San Francisco Bay to Stockton Deep Water Ship Channel. The USACE initiated the environmental  
36 documentation process in 2008 (USACE 2008). The Stockton Deep Water Ship Channel extends along  
37 the San Joaquin River from Chipps Island to the Port of Stockton. Portions of the channel have been  
38 deepened in previous programs. Additional deepening is required to improve efficient transportation of  
39 goods.



#### 2.2.4.2.5 Completion of Ongoing Studies to Identify Levee Maintenance and Improvement Needs and Establish Emergency Response Procedures

RR P4 and RR R5 encourage DWR to complete *A Framework for Department of Water Resources Investments in Delta Integrated Flood Management* (DWR 2011b) to define State interests related to flood and levee management in the Delta, develop a levee condition assessment methodology, and prioritize funding recommendations, as described below. RR R6 and RR R7 encourage DWR, California Emergency Management Agency, USACE, and local flood management agencies to complete and implement plans for emergency preparedness and response procedures. RR R8 encourages changes to current legislation to facilitate participation by local agencies in flood management and RR R9 encourages mandatory participation in flood insurance programs in flood prone areas. RR R10 encourages establishment of a Delta-wide district that could fund and implement flood management plans, collect monitoring data, coordinate emergency notifications, and implement emergency preparedness and response programs. While it is uncertain whether the agencies will follow the recommendations, the EIR assumes that the agencies will implement these programs.

Construction activities and operations and maintenance activities of flood management plans identified in *A Framework for Department of Water Resources Investments in Delta Integrated Flood Management* and other related programs described in this subsection could be implemented as described above.

#### *A Framework for Department of Water Resources Investments in Delta Integrated Flood Management*

The DWR FloodSAFE program is currently preparing *A Framework for Department of Water Resources Investments in Delta Integrated Flood Management* (DWR 2011b) to guide investments between 2010 and 2030 to improve integrated flood management in the Delta for maintenance, facility improvements, new structural facilities and non-structural solutions, habitat enhancement, emergency preparedness with response and recovery, subsidence reversal, and studies. The emergency preparedness and response recommendations will be considered by Delta counties that are currently the central authorities for coordinating activities in a complex emergency. The draft recommended approach to guide investments in Delta integrated flood management is based on the following principles:

- ◆ Encourage projects that provide benefits for multiple areas of State interest and, where feasible, give preference to projects that address three or more areas of State interest.
- ◆ Where feasible, give preference to projects that help preserve opportunities for priority actions identified in other large-scale planning efforts, such as BDCP, the Central Valley Flood Protection Plan, and the Delta Plan. DWR intends to coordinate with other related planning efforts before making decisions related to investments for major upgrades to Delta levees, new integrated flood management facilities, or extensive habitat enhancement.
- ◆ Where feasible, give preference to projects that provide the highest benefit, considering both economic or ecosystem benefits.
- ◆ Use existing programs and develop new programs that encourage the addition of project components which help protect, restore and enhance the natural environment through integration of related ecosystem functions and environmental stewardship with flood management projects in the Delta.
- ◆ Regularly determine and publish DWR priorities to guide currently available funding toward projects which the DWR believes provide the most value in areas of State interest.
- ◆ Leverage DWR investments by securing federal and local cost-sharing. Where needed, DWR may choose to fund 100 percent of some project costs to ensure that State interests are being addressed adequately.

1       ♦ Generally in order to receive funding from DWR, quantifiable project benefits should exceed the  
2       State contribution, thus assuring that DWR's contribution yields a net benefit. Although  
3       ecosystem benefits of projects are typically not economically quantifiable, integrated flood  
4       management projects should be structured to achieve ecosystem benefits in the most  
5       economically efficient manner. Some programs may not require project-by-project economic  
6       justification.

7       Funding priority recommendations would consider the following benefits analysis categories:

8       ♦ Localized Flood Protection with cost-sharing with local agencies for urban and urbanizing areas,  
9       small communities, agriculture, and critical infrastructure of statewide significance (highways,  
10       water supplies, electrical transmission lines). The draft document recommends that urban areas  
11       have a higher priority than small communities, and the third priority would be for agricultural  
12       lands.

13       ♦ Levee Network that is critical to preserving hydraulic function of the Delta including conveyance  
14       of water supplies through the Delta with appropriate water quality and protection of Delta  
15       communities. The draft document recommends that levees that protect water quality and water  
16       supplies have a higher priority than levees that provide flood water conveyance, and the third  
17       priority would be for cultural, historic, aesthetic, and recreational resources.

18       ♦ Ecosystem Conservation features incorporated into flood management programs including  
19       development of channel margins along levees, floodplain and wetland habitat, and projects that  
20       provide a net habitat enhancement on a Delta-wide basis. The draft document recommends that  
21       levees which protect existing channel margin habitat and allow for net expansion of channel  
22       margin habitat have a higher priority than levees which protect existing floodplains and provide  
23       net enhancement of floodplains.

### 24    2.2.4.3    *Stockpiling of Materials*

25       Stockpiling of materials throughout the Delta would reduce the response time to repair levees. To rapidly  
26       respond to an impending or existing levee failure, rock and soil must be removed from permitted quarries  
27       and hauled to the levee failure location. Stockpiling of material allows for the quarrying and hauling  
28       operations to be completed prior to the levee failure. The stockpiled material can be stored on lands  
29       throughout the Delta. Facilities to provide stockpiled materials could include barge loading facilities and  
30       land for the stockpiles.

31       Stockpile programs could include the use of existing DWR barge loading facilities on Rough and Ready  
32       Island at the Port of Stockton, and DWR rock stockpile areas (2 to 4 acres in size) Rough and Ready  
33       Island and near the communities of Hood, and Rio Vista. The rock quarries could be located throughout  
34       Northern California. Rock could be hauled to the barge loading facility or the stockpile areas by truck,  
35       rail, or barge (DWR 2007a).

36       Additional stockpile areas could include construction and operations of the following new facilities:

37       ♦ Removal of existing buildings, vegetation, and debris removed from the stockpile sites. Materials  
38       would be hauled offsite for disposal at permitted sites, which could include municipal solid waste  
39       landfills; composting businesses for disposal of vegetation; recycling businesses for disposal of  
40       wood, metal, and concrete; and hazardous waste disposal sites for asbestos from abandoned  
41       buildings or pipelines and other potentially hazardous materials such as fuel tanks.

- 1       ♦ Excavation and regrading of the stockpile sites and placement of gravel over the stockpile site.
- 2       ♦ Construction of piers for barge landings that could involve pile driving for piers and construction
- 3       of piers and barge landing facilities. New electric distribution lines could be constructed to serve
- 4       the stockpile sites. The electric distribution lines could be above ground on poles or buried in
- 5       cables underground.

6       Operations and maintenance activities would include use of electricity for lights, trucks trips to deliver

7       and haul materials; vehicle trips for employees; and dust control measures if soils are stored at the

8       stockpile locations.

#### 9       **2.2.4.4    Subsidence Reversal**

10       RR R11 encourages State agencies not to renew or enter into agricultural leases on Delta and Suisun

11       Marsh islands where agricultural activities increase the potential for subsidence unless the lessee

12       participates in subsidence-reversal or reduction programs. Agricultural subsidence reversal programs are

13       being studied on several Delta islands, including Twitchell Island. These programs provide for ponds to

14       grow tules that are grown and then decompose following the growing season. The decomposed tules raise

15       the ground elevation. Similar programs could be considered using rice. Dredge spoils, rice straw bales,

16       and other materials also could be considered to raise the ground elevation.

17       If these agricultural leases are not renewed, the State lands could become infested with weeds that could

18       lead to fire hazards.

19       Establishment of tule ponds or rice ponds on islands that currently are used for other crops could result in

20       the construction and operations of the following new facilities:

- 21       ♦ New levees within an island to establish non-tidal tule ponds to allow cultivation of tules to
- 22       reduce subsidence rates and provide biomass to raise the ground elevation. The levees could be
- 23       constructed as described in subsection 2.2.2.2.1.
- 24       ♦ New surface water intakes/diversions to provide water to the non-tidal tule pond. The
- 25       intakes/diversions could be constructed as described in subsection 2.2.1.2.1.
- 26       ♦ Placement of dredged material could require activities as described in subsection 2.2.2.2.1.

27       Operations and maintenance activities of the tule ponds would include harvesting and placement of the

28       tules and debris removal. Operations and maintenance activities for levees and intakes/diversions could be

29       as described in subsections 2.2.2.2.1 and 2.2.1.2.1, respectively.

30       The subsided islands also could be used for ecosystem restoration through implementation of activities as

31       described in subsections 2.2.2.2.1 through 2.2.2.2.3.

#### 32       **2.2.4.5    Reservoir Operations**

33       RR R12 encourages federal, State, and local agencies and utilities to consider reoperation of upstream

34       reservoirs that are operated for water supply, hydroelectric power generation, recreation, and

35       environmental requirements for flood protection. These types of programs are currently being evaluated

36       by DWR (DWR 2011c). While it is uncertain whether the agencies will follow the recommendations, the

37       EIR assumes that the agencies will implement these types of programs.

1 Actions that could occur to reoperate upstream reservoirs could include the following activities.

- 2 ♦ Use of real-time monitoring data to integrate flood protection, water supplies, and ecosystem  
3 protection.
- 4 ♦ Reoperation of reservoir releases based upon surface water storage operations and release of  
5 flows for storage in groundwater storage programs.
- 6 ♦ Modification or expansion of surface water or groundwater storage facilities.
- 7 ♦ Modification of conveyance facilities to facilitate transfers or to connect existing conveyance  
8 facilities to improve overall water supply management of a region.

9 Construction activities and operations and maintenance activities that could be implemented for future  
10 reservoir reoperation programs could include surface water storage, groundwater storage, and conveyance  
11 facilities as described in subsections 2.2.1.2.4, 2.2.1.3.1, and 2.2.1.2.3, respectively.

## 12 **2.2.5 Protection and Enhancement of Delta as an Evolving Place**

13 The Proposed Project encourages the Delta Protection Commission to complete the *Economic*  
14 *Sustainability Plan for the Sacramento-San Joaquin Delta* (Economic Sustainability Plan) (Delta  
15 Protection Commission 2011) in accordance with the requirements of Public Resources Code  
16 section 29759, including recommendations from California State Parks and other State agencies.

17 The Proposed Project also encourages the Delta Protection Commission to complete the evaluation and  
18 implement recommendations for designation of the Delta and Suisun Marsh as a National Heritage Area,  
19 as defined in federal Senate Bill 29 and House of Representative Bill 486 (DP R2).

20 The Proposed Project does not direct the construction of specific projects, nor would projects be  
21 implemented under the direct authority of the Council. However, the Proposed Project seeks to protect  
22 and enhance the unique cultural, recreational, natural resources, and agricultural values of the California  
23 Delta as an evolving place by encouraging various actions which, if taken, could lead to construction  
24 and/or operation of:

- 25 ♦ Gateways, bike lanes, parks, trails, and marinas; and facilities to support wildlife viewing,  
26 angling, and hunting opportunities (construction, maintenance, and use)
- 27 ♦ Additional retail and restaurants in legacy towns to support tourism (construction and use)

28 The number and location of all potential projects that will be implemented is not known at this time.  
29 Three possible projects, however, are known to some degree and are named in the Proposed Project as  
30 locations for future State parks: Barker Slough, Elkhorn Basin, and Southern Delta.

### 31 **2.2.5.1 Overview of the Economic Sustainability Plan**

32 The Proposed Project encourages the Delta Protection Commission to complete the Economic  
33 Sustainability Plan in accordance with the requirements of Public Resources Code section 29759 (DP R1)  
34 to inform the Council about policies for economic sustainability in the Delta. The Economic  
35 Sustainability Plan describes key elements of the Delta economy, considers strategies to enhance the  
36 economy and the impacts of several ongoing proposals for the Delta Plan on the region's economic  
37 sustainability, including extensive ecosystem restoration or construction of major water supply  
38 conveyance facilities (Delta Protection Commission 2011). The Economic Sustainability Plan also  
39 describes several proposals and strategies to promote both economic sustainability in the Delta and the  
40 coequal goals for the state, such as strengthening the Delta's levees and establishing emergency response  
41 systems. The Economic Sustainability Plan recommends the following actions that could directly affect  
42 the physical resources of the Delta:

- 1       ♦ Improve core, non-project Delta levees to the Public Law 84-99 standard by 2015 using the  
2       existing Delta levee subventions and special project programs; and improve many Delta Levees  
3       beyond the Public Law 84-99 that addresses earthquake and sea-level rise risks, improve flood  
4       fighting and emergency response, and allow for vegetation on the water side of levees to improve  
5       habitat.
- 6       ♦ Transfer responsibility for coordination of regional emergency management and response and  
7       recovery to a regional agency.
- 8       ♦ Maintain or enhance the value of Delta agriculture.
- 9       ♦ Initiate a process to streamline local, State, and federal regulations and permitting.
- 10      ♦ Create a Delta and/or Legacy Communities “brand” to enhance awareness; and designate the  
11      Delta as a National Heritage Area (described below).
- 12      ♦ Create flood bypass and habitat improvements in the Yolo Bypass, McCormack-Williamson  
13      Tract, and the lower San Joaquin River near Paradise Cut.
- 14      ♦ Improve water quality and freshwater outflow in the Delta.

15 The Economic Sustainability Plan is estimated to be complete by December 2011.

16 California State Parks completed the *Recreation Proposal for the Sacramento-San Joaquin Delta and*  
17 *Suisun Marsh* in August 2011 to provide input into the Economic Sustainability Plan in accordance with  
18 Water Code section 85301(c)(1). Recommendations from this report are included in the Proposed Project  
19 (DP R2, DP R3, DP R4, DP R5, and DP R6).

20 The recommendations included in the Proposed Project are presented in Appendix C.

### 21 ***2.2.5.2 Gateways, Bike Lanes, Parks, Trails, and Marinas; and Facilities to Support*** 22 ***Wildlife Viewing, Angling, and Hunting Opportunities***

23 The Proposed Project encourages implementation of recommendations of the *Recreation Proposal for the*  
24 *Sacramento-San Joaquin Delta and Suisun Marsh* prepared by California State Parks to inform the Delta  
25 Protection Commission during preparation of the Economic Sustainability Plan. The *Recreation Proposal*  
26 *for the Sacramento-San Joaquin Delta and Suisun Marsh* (California State Parks 2011) describes future  
27 Delta recreational opportunities.

28 The Proposed Project encourages implementation of recommendations from the *Recreation Proposal for*  
29 *the Sacramento-San Joaquin Delta and Suisun Marsh* that the Delta be established and managed as a  
30 National Heritage Area (DP R2). This designation could lead to partnerships and funding to increase  
31 recognition and cultural understanding of the Delta. The programs could include interpretive signage,  
32 historic preservation, regional branding, and heritage trail development to support the Delta’s agricultural  
33 economy and culture.

34 The Proposed Project encourages implementation of recommendations from the *Recreation Proposal for*  
35 *the Sacramento-San Joaquin Delta and Suisun Marsh* and encourages the Department of Transportation  
36 to partner with local agencies to develop “gateways” and other transportation improvements for bicycles  
37 and pedestrian (DP R3). “Gateways” are communities on the edge of the Delta or Suisun Marsh with  
38 access to major transportation routes. Gateway communities should include retail establishments and/or  
39 visitor centers to provide supplies and information to visitors about recreation opportunities available in  
40 an area, and supplies for the recreational opportunities. Gateway communities could be located along  
41 major transportation routes, such as Interstate 5 and State Routes 4 and 12, and could include Antioch,  
42 Brentwood, Clarksburg, Oakley, Pittsburg, Rio Vista, Sacramento, Stockton, and Suisun City. Parks also

1 could serve as gateways to the waterways, such as Solano County’s Sandy Beach Park near Rio Vista or  
2 Belden’s Landing boat launch in Suisun Marsh. Gateways could provide a center to park vehicles and  
3 connect with bike lanes, trails, and waterways.

4 The Proposed Project encourages State agencies to participate with local agencies to improve existing  
5 recreational facilities in the Delta and develop new recreational facilities including facilities near Barker  
6 Slough, Elkhorn Basin, and in the Southern Delta (DP R6) in accordance with recommendations in the  
7 *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh* (DP R4).

8 The Proposed Project encourages DFG to work with other agencies and stakeholders to develop wildlife  
9 viewing, angling, and hunting opportunities (DP R5). As an example, the *Recreation Proposal for the*  
10 *Sacramento-San Joaquin Delta and Suisun Marsh* recommends developing partnerships with other  
11 entities to increase boating, fishing, and hunting opportunities at Franks Tract State Recreational Area.

12 The Proposed Project encourages the Department of Boating and Waterways to develop an updated  
13 marine patrol strategy to accommodate more visitors to the Delta (DP R6).

14 The recommendations included in the Proposed Project are presented in Appendix C.

15 The Proposed Project does not direct the construction of specific projects, nor would projects be  
16 implemented under the direct authority of the Council. However, the Proposed Project seeks to improve  
17 the Delta by encouraging various actions, which if taken, could lead to construction and/or operation of  
18 projects. Construction activities for gateways, trails, marinas, and other visitor facilities could include  
19 removal of existing buildings, vegetation, and debris from the construction site. Materials would be  
20 hauled offsite for disposal at permitted sites. Excavation, grading, and placement of rock, bark, or paving  
21 materials would occur at these site. Piers for marinas could be constructed using pile driving.  
22 Construction activities for marinas and visitor centers could include building of new structures or  
23 rebuilding of the exterior and the interior of existing structures. Pile driving could be used to improve the  
24 structural integrity of buildings and marinas. Some of the excavated soils could be reused onsite.  
25 However, some soils would be hauled offsite for disposal at permitted sites. Rock, soil, and other  
26 materials would be hauled into the site.

27 Operations and maintenance activities could include debris removal, restroom maintenance, replacement  
28 of rock or mulch along trails, replacement of paving materials in parking lots, vegetation removal, and  
29 periodic dredging of sediment near the marinas.

#### 30 2.2.5.2.1 Future State Park: Barker Slough

31 Land along Barker Slough (in the Cache Slough area of the Delta) could be developed jointly with DFG,  
32 Department of Boating and Waterways, and Solano County to restore wildlife habitat and develop picnic  
33 site, trails, interpretative services, and facilities for kayaks and other small paddlecraft (California State  
34 Parks 2011).

#### 35 2.2.5.2.2 Future State Park: Elkhorn Basin

36 Land at the northern end of Yolo Bypass could be used to develop a State park, which is referred to as  
37 “Elkhorn Basin” in the *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh*.  
38 The Elkhorn Basin park (estimated to be about 1,500 acres) could be created through partnerships with  
39 landowners, land trusts, and Yolo County along the Sacramento River for campsites, picnic sites, trails,  
40 interpretive services, and fishing. The park could be developed as a “basecamp.” A basecamp is a park,  
41 resort, or town that could provide interpretative services and recreational equipment as well as visitor  
42 accommodations through parking lots, restrooms, picnic sites, boat ramps, campgrounds, and  
43 communities where visitors can stay for a limited time.

### 1 2.2.5.2.3 Future State Park: Southern Delta

2 Land in the southern Delta, possibly located at a 200-acre area currently serving as a site for construction  
3 spoils along Old River, could be developed as a base camp through a partnership with San Joaquin  
4 County, DFG, and Department of Boating and Waterways to provide picnic sites, trails, interpretive  
5 services, and campsites. The *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun*  
6 *Marsh* also recommended a park along Wright-Elmwood Tract (possibly a 1,300-acre site near Stockton)  
7 to be developed in partnership with DFG and Stockton stakeholders to provide Delta access for recreation  
8 and habitat restoration.

### 9 2.2.5.3 Additional Retail Stores and Restaurants in Legacy Towns to Support 10 Tourism

11 Establishment of gateways and base camps in the Delta could increase the demand for improvements to  
12 and possible expansion of buildings in the legacy towns to support tourism.

13 The Proposed Project does not direct the construction of specific projects, nor would projects be  
14 implemented under the direct authority of the Council. However, the Proposed Project seeks to improve  
15 the Delta by encouraging various actions which, if taken, could lead to construction and/or operation of  
16 projects. Construction activities for retail stores and restaurants in legacy towns could include removal of  
17 existing materials and debris from the construction site. Materials would be hauled offsite for disposal at  
18 permitted sites. Construction activities could include building new structures or rebuilding of the exterior  
19 and the interior of existing structures. Pile driving could be used to improve the structural integrity of  
20 buildings. Parking lots could be constructed or expanded.

21 Operations and maintenance activities could include debris removal, building maintenance, replacement  
22 of paving materials in parking lots, vegetation removal, and hauling of materials to the buildings and from  
23 the buildings. Use activities would include additional traffic if currently abandoned or under-utilized  
24 buildings were restored and/or remodeled.

## 25 2.2.6 Recommendations for Financing Framework

26 The Proposed Project includes policies and recommendations to provide Reliable Water Supplies, Delta  
27 Ecosystem Restoration, Water Quality Improvement, Flood Risk Reduction, and Protection and  
28 Enhancement of Delta as an Evolving Place. The Delta Plan also includes recommendations for a Finance  
29 Plan Framework to generate ongoing revenue and capital construction funds if other agencies decide to  
30 implement these policies and recommendations. The Finance Plan Framework is based on the following  
31 key tenets:

- 32 ♦ Beneficiaries (those who benefit from the water resources of the Delta and its watershed) should  
33 pay for the benefits they receive.
- 34 ♦ Stressors (those whose actions adversely affect the Delta ecosystem) should pay for the harm they  
35 cause the ecosystem.

36 The Proposed Project includes recommendations for the Finance Plan Framework to develop funds in the  
37 first five years of Delta Plan implementation. All of these funding mechanisms would require  
38 authorization, appropriations, and/or approvals by agencies other than the Council.

39 The Proposed Project encourages the Public Utilities Commission to impose fees on regulated private  
40 utilities for emergency response and flood protection, and encourages the Governor to require that State  
41 agencies set aside a reasonable amount of funds for flood protection and disaster prevention (FP R1).

- 1 The Proposed Project encourages the Legislature to establish a Delta Flood Risk Management  
2 Assessment District, and allocate funds from Propositions 1E and 84 for flood management  
3 improvements and acquisition of land or flood easements in the San Joaquin/South Delta floodplain  
4 (FR R2 and FR R3).
- 5 The Proposed Project encourages the Legislature to establish long-term non-General Fund and non-  
6 general obligation bonds to support DWR's Delta Levees Subventions and Special Projects, FloodSAFE,  
7 and the Central Valley Flood Protection Board (FR R4).
- 8 The Proposed Project encourages DWR to prepare an assessment of the state's water infrastructure needs  
9 that could form the basis for future State bond funding decisions (FR R5).
- 10 The Proposed Project encourages the Legislature to authorize the Council to develop reasonable user fees  
11 and stressor fees to provide funds for the operational costs of the Council, Delta Conservancy, and Delta  
12 Protection Commission (FR R6). The Proposed Project also encourages funding of the Delta Conservancy  
13 at a level of at least \$50 million to initiate ecosystem restoration (FR R8) and for the Delta Conservancy  
14 to establish a carbon offset program as a revenue source for Delta islands (FR R9). The Proposed Project  
15 also encourages the Legislature to provide funding to the Delta Protection Commission to implement the  
16 Economic Sustainability Plan recommendations (FR R10).
- 17 The Proposed Project encourages the Legislature to amend Assembly Bill 3030 and Senate Bill 1938 to  
18 allow local agencies to assess fees under Proposition 218 (FR R7).
- 19 The Proposed Project encourages the Legislature to consider a reasonable payment-in-lieu-of-taxes  
20 program to replace lost local government revenues resulting from the removal of properties from property  
21 tax rolls for ecosystem habitat or water supply purposes in the Delta (FR R11).
- 22 The Proposed Project encourages the Legislature to consider a statewide public goods charge for water  
23 (FR R12).
- 24 The Proposed Project encourages DWR to complete a Delta-wide comparative benefit/cost analysis based  
25 on recommendations for prioritized State investments for levee operations, maintenance, and  
26 improvements in the Delta developed in accordance with RR P4.
- 27 The Finance Plan Framework relies upon other agencies to authorize or to establish mechanisms for the  
28 development of funding and/or collection of funds, steps which would not result in changes in physical  
29 conditions in the environment in addition to those that are already discussed and analyzed in this EIR.  
30 These recommendations to other agencies to establish funding mechanisms would not commit the  
31 Council to any particular physical projects or activities and would not result in physical impacts. For these  
32 reasons, the Finance Plan Framework recommendations are not considered separately in this EIR.

## 33 **2.3 Alternatives to the Proposed Project**

34 The alternatives to the Proposed Project as considered in this EIR were developed based on information  
35 collected during the scoping process and during development of the First Staff Draft Delta Plan through  
36 Fifth Staff Draft Delta Plan.

### 37 **2.3.1 Development of Alternatives to the Proposed Project**

38 In accordance with the CEQA Guidelines (Title 14 California Code of Regulations section 15000 et seq.),  
39 EIRs must evaluate a range of reasonable alternatives to the project, or the location of the project, which  
40 could feasibly attain most of the basic objectives of the project and avoid or substantially lessen any of the  
41 significant effects of the project. (CEQA Guidelines section 15126.6(a)(1).) "Feasible" is defined in the  
42 CEQA Guidelines as capable of being accomplished in a successful manner within a reasonable period of



1 time, taking into account economic, environmental, legal, social, and technological factors. (CEQA  
2 Guidelines section 15364.) Additional factors that may be taken into account when determining the  
3 feasibility of alternatives are listed in CEQA Guidelines section 15126.6(f)(1).

4 As described in Section 1, this EIR is a program-level EIR due to the broad nature of the proposed Delta  
5 Plan. The Council will consider the EIR as part of its deliberations on adoption of the Delta Plan. The  
6 Delta Plan contains regulatory policies and recommendations; however, the Council does not have  
7 authority to construct, own, or operate any facilities. Rather, the Council will use the Delta Plan as the  
8 basis for determination of consistency of other agencies' covered actions with the Plan, as required by  
9 Water Code section 85225 et seq. The Delta Plan could encourage other agencies to make decisions that  
10 may cause physical changes in the environment, which are also evaluated in this EIR. This is discussed in  
11 the description of the Proposed Project in previous subsections and in more detail in Section 2B.

### 12 **2.3.1.1 Delta Plan Project Objectives and Purpose**

13 The project objectives and purpose for the Proposed Project are set forth in Section 1.1.

### 14 **2.3.1.2 Scoping Process**

15 The purpose of scoping is to provide an open process for determining environmental issues to be  
16 addressed, alternatives to be considered, and the need to focus on specific issues during the impacts  
17 analysis. Scoping provides an opportunity to involve other agencies, stakeholders, and the public early in  
18 the decision-making process to identify concerns and collect information from the public, agencies, and  
19 other stakeholders related to the Delta Plan and the related EIR. According to the CEQA Guidelines,  
20 scoping "has been helpful to agencies in identifying the range of actions, alternatives, mitigation  
21 measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study  
22 issues found not to be important." In addition, scoping "has been found to be an effective way to bring  
23 together and resolve the concerns of affected federal, State, and local agencies, the proponent of the  
24 action, and other interested persons including those who might not be in accord with the action on  
25 environmental grounds."

26 On December 10, 2010, the Council issued a Notice of Preparation (NOP) to prepare an EIR. A copy of  
27 the NOP is included in Appendix E. Scoping comments were due to the Council by January 28, 2011 at  
28 5:00 p.m. Seven public scoping meetings were held throughout California from January 18, 2011, to  
29 January 26, 2011. This subsection summarizes the scoping activities.

#### 30 **2.3.1.2.1 Notice of Preparation**

31 The NOP identified the overall Delta Plan Purpose and Objectives, as described in the Delta Reform Act  
32 and summarized in subsection 1.2.

33 The NOP described the planning area as the Primary Planning Area, consisting of the statutory Delta and  
34 Suisun Marsh, as defined in the Act; and the Secondary Planning Area, which consisted of the  
35 geographical areas that provide water to the Delta (Delta watershed and Trinity River watershed from  
36 which water is exported to the Delta watershed) and areas outside of the Delta that use water exported  
37 from the Delta.

38 The NOP contemplated a study period that would extend through the Year 2100 to consider the potential  
39 impacts of two quantifiable long-term goals in the Act. The first reference is from Water Code section  
40 85302(e)(1) to *Restore large areas of interconnected habitats within the Delta and its watershed by 2100*.  
41 The second reference is to the incorporation of the BDCP into the Delta Plan if the BDCP meets the  
42 requirements of Water Code sections 85320 and 85321, including DFG approval of the BDCP as a  
43 Natural Community Conservation Plan (NCCP) and federal approval of the BDCP as a Habitat  
44 Conservation Plan (HCP) pursuant to the federal Endangered Species Act. As of October 1, 2011, the  
45 BDCP applicants' website indicates that the NCCP and HCP permits would be for a 50-year period.

1 The NOP described examples of broad concepts for implementation strategies that could be considered in  
 2 the development of the Delta Plan and the EIR alternatives. The NOP indicated that information collected  
 3 during the scoping process would be used to identify and specifically define and compile a wide range of  
 4 these strategies into alternatives that address all of the goals and policy objectives of the Act.

5 **2.3.1.2.2 Scoping Meetings**

6 Scoping meetings were held in January 2011 throughout California. The locations were selected to  
 7 provide residents and interested parties located in the Delta (Clarksburg), Delta watershed (Chico,  
 8 Sacramento, Stockton, and Merced), and areas that use SWP and CVP water that is exported from the  
 9 Delta (Concord, Merced, and Diamond Bar). Notification of the dates, times, and locations were included  
 10 in the NOP, advertisements in major newspapers that serve communities in the vicinity of the scoping  
 11 meetings, and on the Council website ([www.deltacouncil.ca.gov](http://www.deltacouncil.ca.gov)). Interested parties were encouraged to  
 12 attend the scoping meetings to provide verbal comments. The locations, dates, and number of registered  
 13 attendees and speakers at each scoping meeting are presented in Table 2-1.

14 The scoping meeting format included a brief presentation of the Delta Plan and the related EIR process by  
 15 the Council staff and Council members. Following the presentation, the meetings were opened for  
 16 comments. Comments were recorded and transcribed during the formal comment period of the meeting.

**Table 2-1**  
**Locations and Attendance at Delta Plan EIR Scoping Meetings**

<b>Meeting Location</b>	<b>Date</b>	<b>Registered Attendees</b>	<b>Speakers</b>
Diamond Bar - South Coast Air Quality Management District	January 18, 2011	19	5
Merced - Merced Civic Center	January 19, 2011	15	5
Concord - Concord Senior Center	January 20, 2011	43	10
Sacramento - Resources Building Auditorium	January 24, 2011	92	8
Clarksburg - Clarksburg Middle School	January 24, 2011	55	17
Stockton - San Joaquin County Robert J. Cabral Agricultural Center	January 25, 2011	92	25
Chico - Dorothy F. Johnson Center	January 26, 2011	60	20
<b>Total</b>		<b>376</b>	<b>90</b>

17

18 **2.3.1.2.3 Overview of Scoping Comments**

19 During the scoping process, 3,637 letters and emails were submitted, including 3,519 similar letters  
 20 submitted by readers of the Sierra Club website. Scoping Meeting Transcripts included comments from  
 21 90 commenters. Letters, emails, and transcripts were reviewed, and 897 separate comments were  
 22 identified. The comments were grouped into eight categories, as summarized in Table 2-2. The comment  
 23 letters, emails, and transcripts are available on the Council website.

**Table 2-2**  
**Summary of Comments Received during the Scoping Process**

<b>Concepts Addressed by Scoping Comments</b>	<b>Number of Comments</b>
Delta Plan Development	67
EIR Development	208
Reliable Water Supply	313

**Table 2-2**  
Summary of Comments Received during the Scoping Process

Concepts Addressed by Scoping Comments	Number of Comments
Delta Ecosystem Restoration	120
Water Quality Improvement	46
Flood Risk Reduction	68
Protection and Enhancement of Delta as an Evolving Place	33
Finance Plan	42
Total	897

1

2 The following subsections present a summary of the comments received during the scoping process that  
3 were considered in the development of the range of alternatives and the scope of the EIR.

#### 4 *Delta Plan Development*

5 Some comments were related to the geographic focus of the Delta Plan with respect to inclusion or  
6 exclusion of areas in the Delta watershed and areas outside of the Delta that use Delta water. Some  
7 comments encouraged the Council to be expansive and develop a broad-ranged Delta Plan and other  
8 comments encouraged the Council to use a phased approach with collaborative work groups to develop  
9 and initially implement the Delta Plan. Some comments encouraged the Council to consider many  
10 ongoing programs that address some or all of the Delta Plan objectives.

11 Many comments encouraged the Council to develop and implement the Delta Plan using the best  
12 available science and with an adaptive management program. Some comments encouraged the use of  
13 quantifiable performance measures to identify the successes and the need for further adaptive  
14 management. Some comments requested definitions of provisions in the Delta Plan, including the terms  
15 “reliable water supply” and “Delta ecosystem restoration.”

16 Some comments were related to the need for a description of the Delta Plan, authority of the Council, and  
17 process to be used by the Council to determine consistency of covered actions with the Delta Plan.

#### 18 *EIR Development*

19 Many comments encouraged the EIR analysis to include evaluations of potential impacts using all of the  
20 resource categories that CEQA identifies, especially impacts associated with changes in water  
21 availability, water quality, agricultural land use and production, existing and proposed land use and  
22 habitat conservation plans, local utilities and public services (including continued access), transportation,  
23 recreational opportunities, statewide energy use, and greenhouse gas emissions. Many comments  
24 discussed the need to understand numerical models that could be used in the impact assessment, including  
25 the assumptions, input values, model logic relationships, and limitations of the models. Some comments  
26 encouraged the EIR analysis to expand into a joint document with an EIS under the National  
27 Environmental Policy Act (NEPA). Some comments addressed the need for mitigation measures that  
28 would not result in further adverse impacts, and requested that the EIR consider a range of mitigation  
29 measures to reduce adverse impacts to a level of less than significant.

#### 30 *Reliable Water Supply*

31 Many comments addressed the need for reliable local and regional water supplies. Some comments  
32 addressed the need for water conservation targets that were more aggressive than urban water use targets  
33 in SBX7 7 and the need for specific agricultural water use targets for different geographical areas or  
34 related to specific crops. Other comments stated that the SBX7 7 targets were adequate. Many comments

1 were related to methods to provide local and regional water supplies or reduce water demands from the  
2 Delta, including use of pricing strategies to reduce water demands, new State regulations to facilitate the  
3 use of gray water or rainwater for non-potable indoor plumbing uses, expansion of water recycling with  
4 specific targets, development of desalination facilities in the western Delta and along the California coast  
5 in areas that use Delta water, and reduction in agricultural water demands through land retirement or  
6 conversion to dry land farming. Some comments specifically addressed concerns with water transfers that  
7 adversely affected groundwater (and could cause subsidence in some areas) due to direct or indirect  
8 groundwater substitution of the transferred water. Several comments recommended a new storage facility  
9 in the Tulare Lake Bed. Some comments indicated that implementation of local and regional water  
10 supplies should not be mandated in the Delta watershed or in the Delta because the return flows from  
11 water users return to the watershed or Delta.

12 Many comments were related to the need to identify a “safe yield” of the Delta to specifically define the  
13 water available for all beneficial users in the Delta watershed, Delta, and areas outside of the Delta that  
14 use Delta water. Many comments identified the need to be compliant with water rights laws in tributaries  
15 to the Delta, including Area of Origin laws and consideration for available water supplies in the Trinity  
16 River watershed. Other comments identified the need to eliminate illegal diversions in the Delta as part of  
17 the determination of Delta water needs. Some comments were related to establishing water rights for  
18 ecosystem beneficial uses or prioritizing the water users with regard to municipal and industrial,  
19 agricultural, ecosystem, or recreational uses. Many comments were related to the need to reduce reliance  
20 on the Delta, and other comments addressed the need to only reduce reliance on the Delta for future water  
21 supplies. Some comments described the need to modify SWP and CVP water operations and contracts to  
22 reduce specified contract amounts; and for the SWP operations to modify methods to allocate water  
23 including prioritization of municipal and industrial water supplies compared to agricultural water  
24 supplies.

25 Some comments were related to development of storage facilities in areas outside of the Delta that rely  
26 upon Delta water due to the possibility of catastrophic disruption in Delta water supplies. Many  
27 comments addressed the need to modify upstream storage as climate change and sea level rise occur to  
28 maintain water supplies and flood management. Other comments addressed the transfer of Kern Water  
29 Bank from the SWP to local water users.

30 Many comments were related to conveyance of water through or from the Delta. Several comments  
31 supported continued use of the through Delta conveyance with new fish management facilities at the  
32 south Delta intakes and levee improvements that would also increase flood management along some  
33 waterways. Some comments described the need to eliminate exporting water from the Delta or reducing  
34 the amount exported using existing facilities. Other comments addressed the need to consider the amount  
35 of energy required and associated generation of greenhouse gasses by pumping plants for existing and  
36 new conveyance facilities and additional groundwater pumping if groundwater was substituted in the  
37 Delta watershed for transferred surface water.

38 Many comments discussed that the BDCP was not complete and could not be considered in the EIR. On  
39 the other hand, other comments expressed the need for the Delta Plan and/or its EIR to consider a range of  
40 alternatives to the BDCP conveyance that ranged from a 15,000 cubic feet per second (cfs) conveyance  
41 (previously proposed by State and Federal Water Contractors Water Authority members) to a 3,000 cfs  
42 conveyance plan possibly with an intake in the western Delta. Some comments discussed the need to  
43 identify locations of Delta conveyance facilities to avoid adverse impacts on Delta land use and  
44 communities or to locate the conveyance to an area east of the Delta to avoid areas with potential  
45 seismicity or to use existing canals that serve local communities. Other comments discussed the concern  
46 about less focus on levee maintenance in the southern Delta by the federal and State agencies and  
47 potential increased concentrations of salts and constituents from wastewater treatment plants in the

1 southern Delta due to loss of dilution water from Sacramento River if an isolated conveyance facility  
2 were constructed and existing south Delta intakes were abandoned.

3 Some comments were related to future monitoring programs and whether additional monitoring was  
4 required or could be easily implemented, especially by agricultural water users. Other comments were  
5 related to the need for user-friendly tools to allow for access and use of the collected data.

### 6 *Delta Ecosystem Restoration*

7 Many comments were related to the need for adequate water supplies with good water quality and the  
8 need for quantifiable flow criteria and water quality objectives to protect and restore the ecosystem. Some  
9 comments were related to relying upon or not relying upon current biological opinions to define existing  
10 conditions or future conditions without the Delta Plan. Some comments discussed the relationship of  
11 water rights in the Delta watershed and the Delta and available water supplies in the Delta. Other  
12 comments discussed the need to reoperate, remove, or provide fish passage around upstream reservoirs to  
13 improve habitat in the Delta watershed streams.

14 Many comments were related to habitat restoration and described the potential for restoring tidal  
15 wetlands, subsided islands, and areas that would combine agriculturally friendly practices with habitat.  
16 Many comments were related to the need for future habitat restoration plans to either be consistent with or  
17 not conflict with existing or proposed HCPs and NCCPs. Some comments addressed the need for habitat  
18 restoration plans to address terrestrial species, especially waterfowl, and to not necessarily address  
19 species-specific restoration plans. Some comments were related to the use of Safe Harbor Agreements  
20 with landowners that agree to facilitate habitat restoration or Good Neighbor Agreements with adjacent  
21 lands. Some comments were related to the use of willing seller agreements to establish habitat restoration  
22 instead of the use of eminent domain procedures. Many comments addressed the need for the habitat  
23 restoration to consider future implications of sea level rise and climate change.

24 Some comments addressed concepts to reduce effects of other stressors, including use of fish screens on  
25 diversions and inclusion of provisions in projects and programs to reduce or avoid introduction of  
26 nonnative invasive species. Other comments addressed the need to consider stressors on habitats  
27 downstream of the Delta and Suisun Marsh, including habitats in the Carquinez Straits, San Pablo Bay,  
28 and San Francisco Bay.

### 29 *Water Quality Improvement*

30 Many comments were related to the need to enforce existing water quality requirements not only for the  
31 Central Valley streams and the Delta, but also for Suisun Bay and downstream San Francisco Bay. Some  
32 comments were related to the need to remove sources of water pollution, such as debris and abandoned  
33 vehicles and structures in the waterways. Some comments were related to requirements for upstream  
34 dischargers of constituents to participate in either reduction of the constituents or funding of downstream  
35 water treatment. Other comments described the need to complete ongoing programs to establish water  
36 quality objectives to improve water quality for the ecosystem and drinking water. Comments related to  
37 drinking water quality addressed users of Delta water as well as users throughout the Central Valley.  
38 Many comments were related to disadvantaged communities located in agricultural areas that used  
39 contaminated groundwater and did not have access to higher quality surface water or could not afford  
40 water treatment plants.

41 Many comments discussed the need to reduce salinity in the Delta interior to protect the ecosystem,  
42 community drinking water, and agricultural water supplies. Some comments discussed potential  
43 opportunities to provide adequate water supplies to the ecosystem including construction of a gate in the  
44 Western Delta to prevent seawater intrusion. Other comments were related to the need to implement  
45 habitat restoration in a manner to limit the potential for future water quality degradation including  
46 potential release of methylmercury in areas that are subject to periodic wet/dry cycles.

1 *Flood Risk Reduction*

2 Many comments were related to the need for ongoing protection of existing agricultural land uses,  
3 communities, and infrastructure in the Delta through continued funding of levee programs. Some  
4 comments addressed the need for agricultural areas to improve the levee design criteria in accordance  
5 with Public Law 84-99. Other comments were related to identification and improvement of levees in the  
6 western Delta to protect water quality in the interior Delta from levee failures. Many comments were  
7 related to methods to address flood management including channel dredging with a sediment management  
8 program and establishment of flood bypasses, such as along the San Joaquin River near Paradise Cut.  
9 Other comments were related to the need to evaluate future habitat restoration programs in or near the  
10 floodplain areas to determine if the flood capacity would be affected, including programs in the Yolo  
11 Bypass or near the Cosumnes-Mokelumne rivers confluence. Some comments were related to  
12 establishment of levee vegetation management plans to allow for vegetation on the waterside of the levees  
13 in a manner that would not affect the structural integrity of the levee. Some comment were related to the  
14 need for flood management on islands that were not designed to be periodically flooded, such as islands  
15 with agricultural uses, recreational uses, or managed wetlands. Other comments were related to the need  
16 to expand the program that stockpile rocks in the Delta to facilitate repairs to avoid or reduce the damage  
17 from levee failure.

18 Many comments addressed reoperation of upstream reservoirs in a cooperative manner that would address  
19 water supplies (including those of local water rights holders), downstream flood management, and  
20 recreational users. Some comments addressed the need to establish groundwater spreading areas in the  
21 Delta watershed to reduce flood flows and develop sustainable groundwater programs.

22 *Protection and Enhancement of Delta as an Evolving Place*

23 Many comments addressed that protection and enhancement of the Delta would include protection of  
24 water quality, flood protection, water rights, recreational opportunities (including ability to navigate  
25 through all Delta channels), infrastructure, and land uses. Some comments discussed the need to describe  
26 potential consequences in the Delta of poor water quality and levee failures.

27 Many comments addressed potential conflicts with habitat restoration or new water supply conveyance  
28 facilities and these resources, and the potential loss of sustainable agricultural communities and affordable  
29 communities for the remaining residents especially if eminent domain is used to acquire the land. Many  
30 comments were related to the need for additional recreational opportunities and programs to attract more  
31 visitors to the Delta. Some comments addressed the need to maintain accessibility to all navigable waters  
32 either through not implementing operable gates or providing boat locks at no cost to boaters.

33 *Finance Plan*

34 Many of the comments were related to use of “beneficiary pays” for new conveyance and habitat  
35 restoration programs and for associated costs to the communities, such as the need to provide additional  
36 emergency services to these facilities or increased unit local costs if businesses leave the Delta. Some  
37 comments were related to the costs of providing water treatment or reduced crop production due to poor  
38 Delta water quality caused by discharge of constituents in the tributary streams.

39 **2.3.1.2.4 Use of Scoping Comments**

40 The scoping comments were considered in conjunction with comments received by the Council related to  
41 development of the Proposed Project and alternatives, as described in the following subsection.

### 1 **2.3.1.3 Development of the Proposed Project**

2 The Proposed Project was developed over 11 months. Comments were received at 20 Council meetings  
3 during this period (dates and locations listed in Table 2-3) and in over 500 letters and emails. Video  
4 records of the Council meetings and letters and emails received by the Council are posted on the Council  
5 website (www.deltacouncil.ca.gov).

6 Over 500 separate written comments that were received by the Council between August 2010 and January  
7 2011 related to development of the Delta Plan, and the scoping comments were considered in the  
8 development of the First Staff Draft Delta Plan published on February 14, 2011. The First Staff Draft  
9 Delta Plan described the purpose and use of the Delta Plan, draft findings, and lists of potential policies  
10 and recommendations. It also identified six inherent objectives of the Delta Plan based on Water Code  
11 section 85020:

- 12 ♦ Reliable Water Supply
- 13 ♦ Delta Ecosystem Restoration
- 14 ♦ Water Quality Improvement
- 15 ♦ Flood Risk Reduction
- 16 ♦ Protection and Enhancement of Delta as an Evolving Place
- 17 ♦ Governance Plan
- 18 ♦ Finance Plan

19 Approximately 600 written comments were received on the First Staff Draft Delta Plan and were used to  
20 develop the Second Staff Draft Delta Plan published on March 18, 2011. The Second Staff Draft Delta  
21 Plan included a detailed description of science and adaptive management and policies and  
22 recommendations for all of the objectives. Over 850 written comments were received on the Second Staff  
23 Draft Delta Plan.

24 The Third Staff Draft Delta Plan was published on April 22, 2011, and the Fourth Staff Draft Delta Plan  
25 was published on June 13, 2011. The Third and Fourth drafts included modifications to the policies and  
26 recommendations and to the description of the use of adaptive management. Approximately 1,300 written  
27 comments were received on the Third Staff Draft Delta Plan and over 1,100 written comments were  
28 received on the Fourth Staff Draft Delta Plan.

29 The Fifth Staff Draft Delta Plan was published on August 2, 2011. The policies and recommendations in  
30 the Fifth Staff Draft Delta Plan comprise the Proposed Project analyzed in this EIR.

**Table 2-3**

Locations and Dates of Delta Stewardship Council Meetings during Development of the Proposed Project

<b>Date</b>	<b>Meeting Location</b>
April 2, 2010	Secretary of State Office - Auditorium, Sacramento
April 22 - 23, 2010	Secretary of State Office - Auditorium, Sacramento
May 27 - 28, 2010	Secretary of State Office - Auditorium, Sacramento
June 24 - 25, 2010	Secretary of State Office - Auditorium, Sacramento
July 22 - 23, 2010	The Old Sugar Mill, Clarksburg
August 26 - 27, 2010	West Sacramento City Hall - Galleria, West Sacramento
September 23-24, 2010	Secretary of State Office - Auditorium, Sacramento
October 28 - 29, 2010	West Sacramento City Hall - Galleria, West Sacramento
November 18 -19, 2010	West Sacramento City Hall - Galleria, West Sacramento
December 16 - 17, 2010	West Sacramento City Hall - Galleria, West Sacramento

**Table 2-3**  
**Locations and Dates of Delta Stewardship Council Meetings during Development of the Proposed Project**

<b>Date</b>	<b>Meeting Location</b>
January 27 - 28, 2011	West Sacramento City Hall - Galleria, West Sacramento
February 24 -25, 2011	West Sacramento City Hall - Galleria, West Sacramento
March 10 - 11, 2011	The Old Sugar Mill, Clarksburg
March 24 - 25, 2011	West Sacramento City Hall - Galleria, West Sacramento
April 14 - 15, 2011	Holiday Inn Capitol Plaza, Sacramento
April 28 - 29, 2011	West Sacramento City Hall - Galleria, West Sacramento
May 12 -13, 2011	West Sacramento City Hall - Galleria, West Sacramento
June 16, 2011	West Sacramento Community Center, West Sacramento
June 23 - 24, 2011	West Sacramento City Hall - Galleria, West Sacramento
July 29, 2011	West Sacramento City Hall - Galleria, West Sacramento

1

2 **2.3.1.4 Development of the Range of Reasonable Alternatives to the Proposed**  
 3 **Project**

4 A range of reasonable alternatives to the Proposed Project was developed based on the ability of the  
 5 alternatives to feasibly attain most of the basic objectives of the project and avoid or substantially lessen  
 6 any of the significant effects of the proposed project. The process of developing the range of alternatives  
 7 was informed by comments received during the scoping process and during development of the First  
 8 through Fourth Staff Draft Delta Plans.

9 **2.3.1.4.1 Potential Adverse Impacts of the Proposed Project**

10 Because the First and Second Staff Draft Delta Plans were substantially incomplete, the Third and Fourth  
 11 Staff Draft Delta Plan versions were reviewed in order to identify the potentially adverse environmental  
 12 impacts of the Delta Plan. The following potential impacts were identified and used to select a range of  
 13 alternatives:

- 14 ♦ Implementation of Reliable Water Supply policies and recommendations could result in adverse  
 15 construction and operations impacts in communities that use water from the Delta due to  
 16 construction of local and regional water supply facilities.
- 17 ♦ Implementation of Reliable Water Supply policies and recommendations related to conveyance  
 18 and storage could result in adverse construction and operations impacts in the vicinity of  
 19 conveyance and storage facilities.
- 20 ♦ Implementation of Delta Ecosystem Restoration policies and recommendations related to  
 21 establishment of flow criteria and flow objectives in the Delta and the Delta tributaries could  
 22 result in modification of water supply availability or changes in water quality to water users of  
 23 those waters.
- 24 ♦ Implementation of Delta Ecosystem Restoration policies and recommendations related to habitat  
 25 restoration could result in loss of agricultural land uses and related adverse impacts to the  
 26 neighboring communities.



- 1       ♦ Implementation of Improved Water Quality policies and recommendations to improve drinking  
2       water and ecosystem water quality could result in adverse construction and operations impacts in  
3       communities that discharge water to the Delta or Delta tributaries due to construction of water  
4       treatment facilities, or adverse impacts due to the loss of agricultural land or other land uses that  
5       contribute constituents and cannot effectively eliminate the discharges.
- 6       ♦ Implementation of Reduced Risk of Floods in the Delta policies and recommendations could  
7       result in adverse impacts due to construction impacts of levees and loss of agricultural lands to  
8       accommodate levees with more stringent design criteria than existing requirements.
- 9       ♦ Implementation of recommendations for Protection and Enhancement of Delta as an Evolving  
10      Place following completion of the Delta Protection Commission's *Economic Sustainability Plan*  
11      and evaluation of the designation of the Delta as a National Heritage Area could result in  
12      continued land use and community changes compared to existing conditions.

#### 13   2.3.1.4.2   Potential Alternatives Identified in Comments

14   The scoping comments and comments on the First through Fourth Staff Draft Delta Plans were reviewed  
15   to identify alternatives to one or more of the parts of the Delta Plan suggested by commenters. Four broad  
16   categories of comments were identified:

- 17       ♦ Less aggressive approach to increase local and regional water supplies and reduce reliance on  
18       Delta water supplies. Emphasis on cost-benefit analyses.
- 19       ♦ Less aggressive approach to increase local and regional water supplies and reduce reliance on  
20       Delta water supplies. Emphasis on a phased approach.
- 21       ♦ More aggressive approach to increase local and regional water supplies, reduce reliance on Delta  
22       water supplies, and develop water quality and flow objectives to support public trust resources.  
23       Emphasis on a phased approach to ecosystem restoration and eliminating land uses that could  
24       increase the risk to human life due to levee failure.
- 25       ♦ Less aggressive approach to regional water balances for users within the Delta and Suisun Marsh.  
26       Emphasis on ecosystem restoration on publicly-owned lands and minimizing major developments  
27       in flood risk areas.

#### 28   2.3.1.4.3   Initial Conceptual Approach to EIR Alternatives to the Proposed Project

29   In May 2011, staff presented to the Council three broad conceptual approaches to EIR alternatives to the  
30   Proposed Project. These conceptual approaches were developed to potentially reduce adverse impacts of  
31   the Proposed Project Delta Plan (at that time, the Third Staff Draft Delta Plan) and to include conceptual  
32   alternatives identified by commenters. The three broad conceptual approaches to alternatives presented to  
33   the Council were the following:

- 34       ♦ **Increased Emphasis on Water Supplies from the Delta (as used by Water Users located**  
35       **Outside of the Delta)** - less emphasis on local and regional water supplies and development of  
36       flow criteria to support the ecosystem; therefore, a reduction in potential impacts in the local  
37       communities due to construction and operations of local and regional water supplies.
- 38       ♦ **Increased Emphasis on Delta Ecosystem Restoration (and ecosystem in other portions of the**  
39       **state)** - less emphasis on development of Delta water conveyance, more emphasis on ecosystem  
40       restoration in some areas, and reduced emphasis on levee construction; therefore, a reduction in  
41       potential impacts due to conveyance and levee construction and operations.

- 1       ♦ **Increased on Protection and Enhancement of Delta Communities and Culture** - more  
2       emphasis on protection of agricultural and recreational uses and less emphasis on ecosystem  
3       restoration on agricultural lands; therefore, a reduction in potential impacts due to ecosystem  
4       restoration construction and operations.

5       Comments received on the Fourth Staff Draft Delta Plan were then considered in the development of six  
6       broad conceptual approaches to EIR alternatives. The following alternative concepts were presented by  
7       staff to the Council in June 2011:

8       ♦ **No Project Alternative**

- 9       ♦ **Alternative 1A: Increased Emphasis on Water Supplies from the Delta (as used by Water**  
10       **Users located Outside of the Delta)** - less emphasis on local and regional water supplies and  
11       development of flow criteria to support the ecosystem, and more emphasis on cost-benefit  
12       analyses. Therefore, a reduction in potential impacts in the local communities due to construction  
13       and operations of local and regional water supplies.

- 14       ♦ **Alternative 1B: Increased Emphasis on Water Supplies from the Delta (as used by Water**  
15       **Users located Outside of the Delta)** - less emphasis on local and regional water supplies and  
16       development of flow criteria to support the ecosystem, and more emphasis on a phased approach.  
17       Therefore, a reduction in potential impacts in the local communities due to construction and  
18       operations of local and regional water supplies.

- 19       ♦ **Alternative 2A: Increased Emphasis on Delta Ecosystem Restoration (and ecosystem in**  
20       **other portions of the state)** - more emphasis on local and regional water supplies and  
21       development of flow criteria to support ecosystem, more emphasis on ecosystem restoration to  
22       support native species, and less emphasis on levee construction and more emphasis on removing  
23       land uses from the floodplain and expanding the floodplain. Therefore, a reduction in potential  
24       impacts due to conveyance and levee construction and operations.

- 25       ♦ **Alternative 2B: Increased Emphasis on Delta Ecosystem Restoration (and ecosystem in**  
26       **other portions of the state)** - more emphasis on local and regional water supplies and  
27       development of flow criteria to support ecosystem, less emphasis on ecosystem restoration in  
28       some areas of the Delta and Suisun Marsh, and more emphasis on levee construction for  
29       agricultural areas. Therefore, a reduction in potential impacts due to conveyance and levee  
30       construction and operations.

- 31       ♦ **Alternative 3: Increased on Protection and Enhancement of Delta Communities and**  
32       **Culture** - more emphasis on protection of agricultural and recreational uses, less emphasis on  
33       ecosystem restoration on agricultural lands, and more emphasis on levee construction to protect  
34       agricultural uses. Therefore, a reduction in potential impacts due to ecosystem restoration  
35       construction and operations and potential changes to recreational opportunities.

36       **2.3.1.5 Range of Reasonable Delta Plan EIR Alternatives to the Proposed Project**

37       All of the comments received during the scoping process, written comments on the First through Fourth  
38       Staff Draft Delta Plan, and oral comments presented to the Council at their meetings were considered to  
39       develop the range of reasonable Delta Plan alternatives to the Proposed Project.

1 Most of the comments addressed programmatic issues, such as consideration of implementation of local  
2 and regional water supplies to reduce reliance on Delta water supplies. Some of the comments addressed  
3 site-specific issues that cannot be addressed in a program-level EIR, such as specific design details for  
4 water treatment processes that could be implemented by individual water supply agencies. Most of the  
5 comments were considered in the Proposed Project or one or more of the alternatives evaluated in this  
6 EIR. Hence, the reasonable range of alternatives to the Proposed Project take into account the following  
7 issues criteria identified by CEQA:

- 8 ♦ The extent which the alternatives meet the Delta Plan project objectives (as described in  
9 subsection 1.1).
- 10 ♦ Feasibility, including the extent to which the alternatives are within the limitations of the Delta  
11 Reform Act.
- 12 ♦ The extent which the alternatives could avoid or substantially lessen any potential adverse  
13 environmental impact of the Proposed Project.

14 The following five alternatives to the Proposed Project were selected to be evaluated in detail in this EIR.  
15 The characteristics of the five alternatives and the Proposed Project are summarized in Table 2-4. The  
16 five alternatives to the Proposed Project are described in subsections 2.3.2 through 2.3.6. The text of the  
17 policies and recommendations of the Proposed Project and Alternatives 1A, 1B, 2, and 3, but not the  
18 No Project Alternative, are set forth in full in Appendix C. Alternatives considered but rejected for further  
19 analysis are discussed in subsection 2.3.1.6.

- 20 ♦ **No Project Alternative:** This alternative consists of the environment if no Delta Plan is adopted.  
21 In compliance with CEQA Guidelines section 15126.6(3)(A), the No Project Alternative assumes  
22 that existing relevant plans and policies would continue, which includes reasonably foreseeable  
23 modified or new plans or policies that are currently being analyzed for adoption or are required to  
24 be adopted. For example, it assumes that existing State statutory provisions requiring agencies  
25 that receive Delta water to engage in conservation and efficiency planning would remain in place  
26 in the future. The No Project Alternative also includes physical activities/projects that are  
27 permitted and funded at this time, such as expansion of Los Vaqueros Reservoir (Phase 1 only),  
28 new intakes/diversions for Freeport Regional Water Authority and Stockton, and initial  
29 construction of the Dutch Slough ecosystem restoration project. Under the No Project Alternative,  
30 conditions related to flood risk, ecosystem health, water quality, and water supply reliability  
31 (particularly in the Delta) would continue to degrade. Exports of Delta water would be greater  
32 under the No Project Alternative than under the Proposed Project.
- 33 ♦ **Alternative 1A - Export More Water Out of the Delta; Decreased Emphasis on Local and  
34 Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply  
35 Corridors:** Development of this alternative was informed by comments from water users in  
36 export areas south of the Delta. It involves exporting more water from the Delta and its watershed  
37 to areas that receive Delta water, and less water conservation and efficiency measures and fewer  
38 construction projects in those Delta-water-using areas aimed at improving local water supplies  
39 from new or expanded groundwater storage, ocean desalination plants, and water treatment  
40 plants.<sup>3</sup> Alternative 1A accomplishes these changes from the Proposed Project primarily by  
41 changing a policy of the Proposed Project related to reliable water supply to a recommendation.<sup>4</sup>  
42 As it relates to covered actions, the Delta Plan policy requires users of Delta water to increase  
43 water efficiency and conservation measures, and requires development of a variety of local water

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<sup>3</sup> Alternative 1A does suggest additional local surface water storage reservoirs, roughly on par with what would be called for by the Proposed Project.

<sup>4</sup> The Policy is WR P1.

1 supplies so as to reduce reliance on Delta water. Changing this policy to a recommendation would  
2 nullify the Council's ability (at least by means of this Delta Plan) to compel other agencies'  
3 covered actions to be consistent with existing requirements of law as well as to require additional  
4 local water supply development/water efficiency planning. This, in turn, would decrease pressure  
5 on other agencies to increase efficiency, conservation, and local supplies, and to develop local  
6 and regional water supplies.

7 This alternative delays and makes less certain the establishment of Delta water flow criteria (for  
8 more natural flows) and Delta flow and water quality objectives to protect Delta ecosystem  
9 resources. Alternative 1A would, instead, potentially reduce the availability of flows during some  
10 periods of the year. Alternative 1A would result in less ecosystem restoration (floodplains,  
11 riparian habitat, and tidal marsh) in the Delta.

12 Alternative 1A would result in less overall levee maintenance and modifications because it would  
13 prioritize levees that protect water supply corridors under the theory that spending money on such  
14 levees results in more economic benefit per dollar spent than spending money on levees that  
15 protect other uses. This approach could result in less aggressive levels of flood risk reduction in  
16 other parts of the Delta. This alternative also would result in less reversal of subsidence and/or  
17 raising of subsiding lands.

- 18 ♦ **Alternative 1B - Export More Water Out of the Delta; Reduced Conservation and Water**  
19 **Efficiency Measures; Only Voluntary Actions by State and Local Agencies; Coordination,**  
20 **not Regulation; Large Number of Additional Studies Before Action:** Development of this  
21 alternative was informed by a proposal from the Agriculture/Urban Coalition. It involves the  
22 same increased Delta water exports, reduction in local water supply projects, and reduction in  
23 water efficiency and conservation measures as described in the first paragraph above under  
24 Alternative 1A, and for the same reasons (conversion of the policy to a recommendation).

25 Alternative 1B also involves the same delay and reduced certainty regarding more natural water  
26 flows in the Delta and reduced ecosystem restoration, as described in the second paragraph above  
27 under Alternative 1A. Alternative 1B, however, would involve more (as compared to the  
28 Proposed Project and Alternative 1A) invasive species management, such as removal of invasive  
29 vegetation and removal of nonnative predator Delta fish, adding of fish screens, and genetic  
30 management of hatchery fish.

31 Regarding water quality, Alternative 1B would involve fewer water treatment plants,  
32 groundwater wells, and groundwater wellhead treatment. It would involve more wastewater and  
33 stormwater treatment and recycling facilities, more facilities to treat agricultural water runoff, and  
34 more stringent water quality objectives for municipal/industrial and agricultural dischargers.

35 Regarding flood risk reduction, Alternative 1B is less aggressive with regard to constructing  
36 additional levees until collaborative studies are completed. This could result in fewer new levees  
37 that would facilitate floodplain expansion, but more maintenance and modification of existing  
38 levees. Alternative 1B would involve more dredging.

39 Lastly, Alternative 1B changes all of the proposed Delta Plan policies to recommendations. With  
40 regard to physical actions that the policies target to meet the coequal goals, these actions would  
41 be delayed and/or less certain to occur under Alternative 1B.

42 In general, Alternative 1B involves physical components similar to Alternative 1A, with some  
43 differences as discussed above. However, it involves a meaningfully different governance  
44 approach (changing all policies to recommendations) that weakens the Council's ability to move  
45 the State forward toward meeting the coequal goals. Moreover, Alternative 1B's versions of the

1 recommendations generally call for studies rather than actions or projects, unlike the Proposed  
2 Project and Alternative 1A.’’

- 3 ♦ **Alternative 2 - Decreased Export of Water from the Delta; Increased Emphasis on**  
4 **Ecosystem Restoration throughout California:** Development of this alternative was informed  
5 by proposals from environmental organizations led by the Environmental Water Caucus. It  
6 involves sharply decreased water exports from the Delta and its watershed to areas that receive  
7 Delta water (limited to a maximum of 3 million acre-feet/year). It involves fewer surface water  
8 storage projects, such as reservoirs (although it would include a large reservoir in the Tulare Lake  
9 basin, which currently is used for agriculture). It involves more water supply projects in the form  
10 of new or expanded groundwater storage, ocean desalination plants, and water treatment plants. It  
11 involves more water efficiency and conservation.

12 It involves fewer discrete projects to restore floodplains, riparian habitat and tidal marsh, but  
13 more general floodplain expansion through levee removal. It involves more stringent criteria to  
14 bring water flows in the Delta closer to their natural state.

15 It involves more facilities to treat and recycle wastewater and agricultural runoff. Regarding flood  
16 risk reduction, it involves fewer new levees, less levee maintenance and modification, and less  
17 dredging.

- 18 ♦ **Alternative 3 - Increased Emphasis on Protection and Enhancement of Delta Communities**  
19 **and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer**  
20 **Regulations for Delta Counties:** Development of this alternative was informed by letters and  
21 comments from interests in the Delta. It involves a reduction in exports as compared to existing  
22 exports (because of an emphasis on more natural water flows in the Delta, similar to the Proposed  
23 Project). It also involves a reduction in water efficiency and conservation measures—similar to  
24 Alternative 1A—but only for the Delta itself. This approach could lead to a reduction in  
25 alternative local water supply projects that serve users in the Delta and thereby not reduce their  
26 reliance (so less reduction in overall reliance) on Delta water; this could place greater pressure on  
27 other statewide water supply projects. Alternative 3 accomplishes these changes from the  
28 Proposed Project by changing a policy of the Proposed Project related to Reliable Water Supply  
29 to a recommendation (the same as Alternatives 1A and 1B, mentioned above), but only for water  
30 suppliers serving the Delta, while maintaining it as a policy for water suppliers that serve areas  
31 outside of the Delta.

32 Alternative 3 also would deemphasize Delta ecosystem restoration on established agricultural  
33 lands, and focus expansion of the floodplain and ecosystem restoration on publicly owned lands  
34 instead. Alternative 3, however, would involve more invasive-species management, such as  
35 removal of invasive vegetation and removal of nonnative predator Delta fish, adding of fish  
36 screens, and genetic management of hatchery fish.

37 Alternative 3 would involve fewer new levees and less floodplain expansion into agricultural  
38 lands. It would involve more levee maintenance, levee modification, and dredging to protect  
39 agricultural lands in the Delta.

40

**Table 2-4**  
**Summary of Delta Plan Environmental Impact Report Proposed Project and Alternatives**

<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Reliable Water Supply</b>	<b>Reliable Water Supplies</b>  More emphasis than existing conditions on water use efficiency and development of local and regional water supplies to reduce reliance on Delta exports.	<b>Reliable Water Supplies</b>  Less emphasis than Proposed Project on water use efficiency and development of local and regional water supplies and continued reliance on Delta exports.	<b>Reliable Water Supplies</b>  Less emphasis than Proposed Project on water use efficiency and development of local and regional water supplies and continued reliance on Delta exports.	<b>Reliable Water Supplies</b>  Less emphasis than Proposed Project on water use efficiency and development of local and regional water supplies and continued reliance on Delta exports.	<b>Reliable Water Supplies</b>  More emphasis than Proposed Project on water use efficiency and development of local and regional water supplies to reduce reliance on Delta exports.	<b>Reliable Water Supplies</b>  Similar emphasis as Proposed Project on water use efficiency and development of local and regional water supplies outside of the Delta to reduce reliance on Delta exports; and less emphasis on development of local and regional water supplies for water users in the Delta.

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**Summary of Delta Plan Environmental Impact Report Proposed Project and Alternatives**

<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Reliable Water Supply (continued)</b>	<p><b>Storage</b></p> <p>Same emphasis as existing conditions on completion by DWR of Surface Water Storage Investigations.</p> <p>More emphasis than existing conditions on small-scale storage projects that could be implemented more quickly than larger reservoirs.</p>	<p><b>Storage</b></p> <p>Same emphasis as Proposed Project on completion by DWR of Surface Water Storage Investigations.</p> <p>Less emphasis than Proposed Project on small-scale storage projects.</p>	<p><b>Storage</b></p> <p>Same emphasis as Proposed Project on completion by DWR of Surface Water Storage Investigations.</p> <p>Less emphasis than Proposed Project on small-scale storage projects.</p>	<p><b>Storage</b></p> <p>Same emphasis as Proposed Project on completion by DWR of Surface Water Storage Investigations.</p> <p>Similar emphasis as Proposed Project on small-scale storage projects.</p>	<p><b>Storage</b></p> <p>Less emphasis than Proposed Project on completion by DWR of Surface Water Storage Investigations - recommendation to not complete studies.</p> <p>Less emphasis than Proposed Project on small-scale storage projects.</p> <p>Recommendations to DWR to consider construction of a reservoir on historic Tulare Lake Bed, expansion of Friant/Millerton Reservoir, and construction of a conveyance facility to connect Tulare Lake reservoir to the California Aqueduct and San Joaquin River.</p>	<p><b>Storage</b></p> <p>Same emphasis as Proposed Project on completion by DWR of Surface Water Storage Investigations.</p> <p>Same emphasis as Proposed Project on small-scale storage projects.</p>

**Table 2-4**  
 Summary of Delta Plan Environmental Impact Report Proposed Project and Alternatives

<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Reliable Water Supply (continued)</b>	<b>Conveyance</b>  Recommendation to DWR to complete Bay-Delta Conservation Plan (BDCP) with a full evaluation of a robust set of alternatives by December 31, 2014.  No Recommendations or Policies are identified regarding selection or implementation of <u>Specific</u> conveyance options. <sup>b</sup>	<b>Conveyance</b>  Continuation of BDCP process.	<b>Conveyance</b>  Recommendation to DWR to complete BDCP.  No Recommendations or Policies are identified regarding selection or implementation of <u>Specific</u> conveyance options. <sup>b</sup>	<b>Conveyance</b>  Recommendation to DWR to complete BDCP by January 1, 2014.  No Recommendations or Policies are identified regarding selection or implementation of <u>Specific</u> conveyance options. <sup>b</sup>	<b>Conveyance</b>  Recommendation to DWR to complete BDCP to decrease physical vulnerability and increase predictability of Delta water supplies, achieve maximum ecosystem protection, and not increase Delta diversions. Limits on water transfers and reduced exports of Delta water. Recommendation to analyze public trust flow criteria, other water supply investments, and full range of conveyance capacities and operational criteria, including abandonment of the south Delta intakes.  No Recommendations or Policies are identified regarding selection or implementation of <u>Specific</u> conveyance options. <sup>b</sup>	<b>Conveyance</b>  Recommendation to DWR to complete BDCP with a full evaluation of a robust set of alternatives, including an improved through Delta conveyance, by December 31, 2014.  No Recommendations or Policies are identified regarding selection or implementation of <u>Specific</u> conveyance options. <sup>b</sup>



**Table 2-4**  
**Summary of Delta Plan Environmental Impact Report Proposed Project and Alternatives**

<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Delta Ecosystem Restoration</b>	<b><i>More Natural Flow Regime</i></b>  More emphasis than existing conditions on SWRCB to develop flow criteria and flow objectives to address all beneficial uses, including public trust resources, in the Delta and upstream tributaries with an aggressive schedule.	<b><i>More Natural Flow Regime</i></b>  Less emphasis than Proposed Project on SWRCB to develop flow criteria and flow objectives to address all beneficial uses, including public trust resources, in the Delta and upstream tributaries with the existing schedule.	<b><i>More Natural Flow Regime</i></b>  Less emphasis than Proposed Project on SWRCB to develop flow criteria and flow objectives to address all beneficial uses, including public trust resources, in the Delta and upstream tributaries with the existing schedule.	<b><i>More Natural Flow Regime</i></b>  Less emphasis than Proposed Project on SWRCB to develop flow criteria and flow objectives to address all beneficial uses, including public trust resources, in the Delta and upstream tributaries with the existing schedule.	<b><i>More Natural Flow Regime</i></b>  More emphasis than Proposed Project on SWRCB to develop flow criteria and flow objectives to prioritize beneficial uses for public trust resources in the Delta and upstream tributaries with an aggressive schedule.	<b><i>More Natural Flow Regime</i></b>  Same emphasis than Proposed Project on SWRCB to develop flow criteria and flow objectives to address all beneficial uses, including public trust resources, in the Delta and upstream tributaries with an aggressive schedule.

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<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Delta Ecosystem Restoration (continued)</b>	<b><i>Improving Delta Ecosystem Habitat</i></b>  More emphasis than existing conditions on ecosystem restoration throughout the Delta with an initial focus on Yolo Bypass, Cache Slough, Suisun Marsh, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Improving Delta Ecosystem Habitat</i></b>  Less emphasis than Proposed Project on ecosystem restoration throughout the Delta with initial focus on specific ongoing programs in Yolo Bypass, Cache Slough, Suisun Marsh, and Cosumnes-Mokelumne rivers confluence.	<b><i>Improving Delta Ecosystem Habitat</i></b>  Less emphasis than Proposed Project on ecosystem restoration throughout the Delta with an initial focus only on large interconnected areas within Yolo Bypass, Cache Slough, Suisun Marsh, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Improving Delta Ecosystem Habitat</i></b>  Less emphasis than Proposed Project on ecosystem restoration throughout the Delta with initial focus on ongoing programs on Prospect Island, Little Holland Tract, and Yolo Ranch in Cache Slough; Dutch Slough; and Tule Red in Suisun Marsh.	<b><i>Improving Delta Ecosystem Habitat</i></b>  More emphasis on ecosystem restoration in areas upstream of the Delta.  Less emphasis than Proposed Project on ecosystem restoration throughout the Delta with initial focus on expansion of floodplains and large interconnected areas within Yolo Bypass, Cache Slough, Suisun Marsh, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Improving Delta Ecosystem Habitat</i></b>  Less emphasis than Proposed Project on ecosystem restoration throughout the Delta with initial focus on ecosystem restoration on public lands within historical floodplains and riparian corridors.

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<b>Delta Ecosystem Restoration (continued)</b>	<b><i>Reduced Risk with Habitat Improvements</i></b>  More emphasis than existing conditions on utilization of setback levees to expand the floodplain.  More emphasis than existing conditions on maintenance of vegetation on the waterside of levees.	<b><i>Reduced Risk with Habitat Improvements</i></b>  Less emphasis than Proposed Project on utilization of setback levees to expand the floodplain.  Less emphasis than Proposed Project on maintenance of vegetation on the waterside of levees.	<b><i>Reduced Risk with Habitat Improvements</i></b>  Same emphasis as Proposed Project on utilization of setback levees to expand the floodplain.  Same emphasis as Proposed Project on maintenance of vegetation on the waterside of levees.	<b><i>Reduced Risk with Habitat Improvements</i></b>  Less emphasis as Proposed Project on utilization of setback levees to expand the floodplain.  Less emphasis than Proposed Project on maintenance of vegetation on the waterside of levees.	<b><i>Reduced Risk with Habitat Improvements</i></b>  Same emphasis as Proposed Project on utilization of setback levees to expand the floodplain.  Same emphasis as Proposed Project on maintenance of vegetation on the waterside of levees.	<b><i>Reduced Risk with Habitat Improvements</i></b>  Less emphasis as Proposed Project on utilization of setback levees to expand the floodplain.  Same emphasis as Proposed Project on maintenance of vegetation on the waterside of levees.
	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  More emphasis than existing conditions on reduction of non-native invasive species and stressors.	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  Less emphasis than Proposed Project on reduction of non-native invasive species and stressors.	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  Same emphasis as Proposed Project on reduction of non-native invasive species and stressors.	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  More emphasis than Proposed Project on reduction of non-native invasive species and stressors.	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  Same emphasis as Proposed Project on reduction of non-native invasive species and stressors.	<b><i>Nonnative Species &amp; Adverse Effects of Stressors</i></b>  More emphasis than Proposed Project on reduction of nonnative invasive species and stressors.

**Table 2-4**  
**Summary of Delta Plan Environmental Impact Report Proposed Project and Alternatives**

<b>Policy Elements</b>	<b>Proposed Project (Fifth Staff Draft Delta Plan)</b>	<b>No Project Alternative</b>	<b>Alternative 1A Export More Water Out of the Delta; Decreased Emphasis on Local and Regional Water Self-Reliance; Focus Levee Improvements on Protecting Water Supply Corridors</b>	<b>Alternative 1B Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies only; Coordination, not Regulation; Large Number of Additional-Studies Before Action</b>	<b>Alternative 2 Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California</b>	<b>Alternative 3 Increased Emphasis on Protection and Enhancement of Delta Communities and Culture; Protection of Delta Agricultural Land and Less Ecosystem Restoration; Fewer Regulations for Delta Counties</b>
<b>Water Quality Improvement</b>	<b><i>Drinking Water Quality</i></b>	<b><i>Drinking Water Quality</i></b>	<b><i>Drinking Water Quality</i></b>	<b><i>Drinking Water Quality</i></b>	<b><i>Drinking Water Quality</i></b>	<b><i>Drinking Water Quality</i></b>
	More emphasis than existing conditions on recommendations to SWRCB, DWR, and Department of Public Health to use aggressive schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.	Less emphasis than Proposed Project on recommendations to SWRCB, DWR, and Department of Public Health to use existing schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.	Same emphasis as Proposed Project on recommendations to SWRCB, DWR, and Department of Public Health to use existing schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.	Less emphasis than Proposed Project on recommendations to SWRCB, DWR, and Department of Public Health to use existing schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.	Same emphasis as Proposed Project on recommendations to SWRCB, DWR, and Department of Public Health to use existing schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.	Same emphasis as Proposed Project on recommendations to SWRCB, DWR, and Department of Public Health to use existing schedules for the completion of ongoing studies to improve drinking water quality, including Central Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for small and disadvantaged communities.
	More emphasis than existing conditions on Central Valley Salinity Alternatives for Long-Term Sustainability Program with mandatory participation by Delta watershed diverters or dischargers.	Less emphasis than Proposed Project on Central Valley Salinity Alternatives for Long-Term Sustainability Program with voluntary participation by Delta watershed diverters or dischargers.	Same emphasis as Proposed Project on Central Valley Salinity Alternatives for Long-Term Sustainability Program with voluntary participation by Delta watershed diverters or dischargers.	Less emphasis than Proposed Project on Central Valley Salinity Alternatives for Long-Term Sustainability Program with voluntary participation by Delta watershed diverters or dischargers.	Same emphasis as Proposed Project on Central Valley Salinity Alternatives for Long-Term Sustainability Program with voluntary participation by Delta watershed diverters or dischargers.	Same emphasis as Proposed Project on Central Valley Salinity Alternatives for Long-Term Sustainability Program with voluntary participation by Delta watershed diverters or dischargers.

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<b>Water Quality Improvement (continued)</b>	<i>Environmental Water Quality</i>  More emphasis than existing conditions on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with aggressive schedule.	<i>Environmental Water Quality</i>  Less emphasis than Proposed Project on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with existing schedules.	<i>Environmental Water Quality</i>  Same emphasis as Proposed Project on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with aggressive schedule.	<i>Environmental Water Quality</i>  More emphasis than Proposed Project on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with aggressive schedule.	<i>Environmental Water Quality</i>  More emphasis than Proposed Project on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with aggressive schedule.	<i>Environmental Water Quality</i>  Same emphasis as Proposed Project on development of water quality objectives and Total Maximum Daily Loads for possible contaminants with aggressive schedule.

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<b>Flood Risk Reduction</b>	<b><i>Floodway and Floodplain Protection</i></b>  More emphasis than existing conditions on protection of floodways and floodplains from encroachment with initial focus on Yolo Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Floodway and Floodplain Protection</i></b>  Less emphasis than Proposed Project on protection of floodways and floodplains from encroachment.	<b><i>Floodway and Floodplain Protection</i></b>  Same emphasis as Proposed Project on protection of floodways and floodplains from encroachment with initial focus on Yolo Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Floodway and Floodplain Protection</i></b>  Less emphasis than Proposed Project on protection of floodways and floodplains from encroachment with continued studies focused on Yolo Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River.	<b><i>Floodway and Floodplain Protection</i></b>  More emphasis than Proposed Project on protection of floodways and floodplains from encroachment with initial focus on Yolo Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River; plus areas located to the east of the Sacramento Deep Water Ship Channel and in the south Delta near Fabian and Roberts tracts, Union Island, and north of the City of Tracy; and future protection of floodways by development in flood-prone areas.	<b><i>Floodway and Floodplain Protection</i></b>  Less emphasis than Proposed Project on protection of floodways and floodplains from encroachment with initial focus only on Yolo Bypass and Cosumnes-Mokelumne rivers confluence. More emphasis than Proposed Project on future protection of floodways by preventing major subdivisions in these areas.

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<b>Flood Risk Reduction (continued)</b>	<p><b><i>Dredging</i></b></p> <p>More emphasis than existing conditions through facilitation of dredging programs of Delta channels to maintain or increase channel capacity.</p>	<p><b><i>Dredging</i></b></p> <p>Less emphasis than Proposed Project on programs to facilitate dredging of Delta channels to maintain or increase channel capacity.</p>	<p><b><i>Dredging</i></b></p> <p>Same emphasis as Proposed Project on programs to facilitate dredging of Delta channels to maintain or increase channel capacity.</p>	<p><b><i>Dredging</i></b></p> <p>More emphasis than Proposed Project on programs to facilitate dredging of Delta channels to maintain or increase channel capacity and develop a plan on an aggressive schedule.</p>	<p><b><i>Dredging</i></b></p> <p>Less emphasis than Proposed Project on programs to facilitate dredging of Delta channels to maintain or increase channel capacity.</p>	<p><b><i>Dredging</i></b></p> <p>More emphasis than Proposed Project on programs to facilitate dredging of Delta channels to maintain or increase channel capacity and develop a plan on an aggressive schedule.</p>
	<p><b><i>Levee Design Standards</i></b></p> <p>More emphasis than existing conditions on reducing flood risk for rural areas in the Delta through more stringent levee design standards for major development in rural areas.</p>	<p><b><i>Levee Design Standards</i></b></p> <p>Less emphasis than Proposed Project on reducing flood risk for rural areas in the Delta through less stringent levee existing design standards.</p>	<p><b><i>Levee Design Standards</i></b></p> <p>Same emphasis as Proposed Project on reducing flood risk for rural areas in the Delta through more stringent levee design standards for major development in rural areas.</p>	<p><b><i>Levee Design Standards</i></b></p> <p>More emphasis than Proposed Project on reducing flood risk for agricultural lands in the Delta through more stringent levee design standards.</p> <p>Less emphasis than Proposed Project on reducing flood risk for rural areas in the Delta through less stringent levee design standards for major developments.</p>	<p><b><i>Levee Design Standards</i></b></p> <p>Less emphasis than Proposed Project on reducing flood risk for all lands in the Delta areas through prevention of development, relocation of structures and infrastructure from the floodplain, or raising or waterproofing remaining structures to reduce flood damage for the 200-year flood event.</p>	<p><b><i>Levee Design Standards</i></b></p> <p>More emphasis than Proposed Project on reducing flood risk for agricultural lands in the Delta through more stringent levee design standards.</p> <p>Less emphasis than Proposed Project on reducing flood risk for non-agricultural land uses in the Delta through prevention of major developments in the floodplains.</p>

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<b>Flood Risk Reduction (continued)</b>	<b><i>Prioritization for Levee Construction</i></b>	<b><i>Prioritization for Levee Construction</i></b>	<b><i>Prioritization for Levee Construction</i></b>	<b><i>Prioritization for Levee Construction</i></b>	<b><i>Prioritization for Levee Construction</i></b>	<b><i>Prioritization for Levee Construction</i></b>
	More emphasis than existing conditions on levee construction.	Less emphasis than Proposed Project on levee construction.	Less emphasis than Proposed Project on levee construction unless lands to be protected have a high benefit-to-cost ratio related to land uses and levee costs and other flood management options are not appropriate.  More emphasis than Proposed Project on reducing risk to SWP and CVP water supply availability and water quality through levee construction and maintenance along channels to be used as an emergency “fresh water pathway” to convey water from the Sacramento River to the SWP and CVP south Delta intake/diversions facilities in the event of a catastrophic multi-island failure.	More emphasis than Proposed Project on levee construction for agricultural lands with more stringent levee design standards; and less emphasis on levee construction for rural areas with less stringent levee design standards for major developments.  More emphasis than Proposed Project on emergency preparation and emergency response programs to protect water quality at the SWP and CVP south Delta pumping plant intakes/diversions and minimize SWP and CVP water supply disruption and degradation following catastrophic levee failures on multiple islands.	Less emphasis than Proposed Project on levee construction due to less need for levees by preventing development, relocation of structures and infrastructure from the floodplain, or raising or waterproofing remaining structures to reduce flood damage for the 200-year flood event.	More emphasis than Proposed Project on levee construction for agricultural lands with more stringent levee design standards; and less emphasis on levee construction for rural areas with less stringent levee design standards for major developments and preventing major developments in the floodplains.



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<b>Flood Risk Reduction (continued)</b>	<b><i>Stockpiling of Materials</i></b>  More emphasis than existing conditions on stockpiling of materials for minor and major levee repairs.	<b><i>Stockpiling of Materials</i></b>  Less emphasis than Proposed Project on stockpiling of materials by limiting stockpiled material for major levee repairs.	<b><i>Stockpiling of Materials</i></b>  Less emphasis than Proposed Project on stockpiling of materials by limiting stockpiled material for major levee repairs.	<b><i>Stockpiling of Materials</i></b>  Less emphasis than Proposed Project on stockpiling of materials by limiting stockpiled material for major levee repairs.	<b><i>Stockpiling of Materials</i></b>  Same emphasis as Proposed Project on stockpiling of materials for minor and major levee repairs.	<b><i>Stockpiling of Materials</i></b>  Same emphasis as Proposed Project on stockpiling of materials for minor and major levee repairs.
	<b><i>Reoperation of Upstream Reservoirs</i></b>  More emphasis than existing conditions on modifying upstream reservoir operations to reduce potential Delta flooding.	<b><i>Reoperation of Upstream Reservoirs</i></b>  Less emphasis than Proposed Project on modifying upstream reservoir operations to reduce potential Delta flooding.	<b><i>Reoperation of Upstream Reservoirs</i></b>  Same emphasis as Proposed Project on modifying upstream reservoir operations to reduce potential Delta flooding.	<b><i>Reoperation of Upstream Reservoirs</i></b>  Less emphasis than Proposed Project on modifying upstream reservoir operations to reduce potential Delta flooding.	<b><i>Reoperation of Upstream Reservoirs</i></b>  More emphasis than Proposed Project on modifying upstream reservoir operations to reduce potential Delta flooding.	<b><i>Reoperation of Upstream Reservoirs</i></b>  Same emphasis as Proposed Project on modifying upstream reservoir operations to reduce potential Delta flooding.

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<b>Protection and Enhancement of Delta as an Evolving Place</b>	<b>Economic Sustainability</b> More emphasis than existing conditions on Delta land use and resources management following completion of the Delta Protection Commission Economic Sustainability Plan and application of recommendations Delta-wide, including recommendations by California State Parks.	<b>Economic Sustainability</b> Less emphasis than Proposed Project on Delta land use and resources management without completion of the Delta Protection Commission Economic Sustainability Plan, including recommendations by California State Parks.	<b>Economic Sustainability</b> Same emphasis as Proposed Project on Delta land use and resources management following completion of the Delta Protection Commission Economic Sustainability Plan and application of recommendations Delta-wide, including recommendations by California State Parks.	<b>Economic Sustainability</b> Similar emphasis as Proposed Project on Delta land use and resources management following completion of the Delta Protection Commission Economic Sustainability Plan and application of recommendations Delta-wide, including recommendations by California State Parks.	<b>Economic Sustainability</b> Same emphasis as Proposed Project on Delta land use and resources management following completion of the Delta Protection Commission Economic Sustainability Plan and application of recommendations Delta-wide, including recommendations by California State Parks.	<b>Economic Sustainability</b> More emphasis on protecting Delta agricultural lands and existing communities. Same emphasis as Proposed Project on Delta land use and resources management following completion of the Delta Protection Commission Economic Sustainability Plan and application of recommendations Delta-wide, including recommendations by California State Parks.

**NOTE:**

a. Water supplies for water users located outside the Delta.

b. As explained in more detail in Appendix A to the Fifth Staff Draft Delta Plan, the BDCP is a process currently under way, and generally independent from this current Delta Plan development process. The BDCP will have its own Environmental Impact Report/Environmental Impact Statement (EIR/EIS), expected in 2012. Accordingly, the Delta Plan EIR discusses in Section 23, Bay Delta Conservation Plan, at a general level, the reasonably foreseeable scope of the BDCP and related EIR/EIS.

### 1 **2.3.1.6 Alternatives Considered but Rejected for Further Evaluation**

2 Most of the concepts identified by commenters throughout the scoping process and the development of  
3 the Delta Plan through the Fourth Staff Draft Delta Plan were included in the Proposed Project or one or  
4 more of the alternatives. For example, identified concepts included in the Proposed Project or the  
5 alternatives related to reliable water supplies included in the Proposed Project or alternatives ranged from  
6 implementation of water conservation and water use efficiency throughout the state and especially in  
7 areas located outside of the Delta that use Delta water, including reduction of irrigated agricultural lands  
8 that use Delta water; and implementation of local and regional water supplies to reduce reliance on the  
9 Delta, as described in subsections 2.2, 2.3.1.5, and 2.3.3 through 2.3.6.

10 Other identified concepts addressed issues that could jeopardize achievement of one or more of the  
11 coequal goals, such as removal of levees in the Delta watershed to reconnect floodplains and rivers or  
12 installation of salinity barrier gates in the western Delta to convert the Delta into a freshwater lake. Some  
13 comments provided specific concepts that could be evaluated in detail in a site-specific project  
14 environmental document; however the concepts were too detailed for consideration in the programmatic  
15 Delta Plan, such as specific hydrologic modeling assumptions for Trinity River diversion flow patterns.  
16 Many comments addressed concepts related to Delta conveyance, including specific comments for  
17 implementation of the BDCP. As described below, the Council has limited ability to determine specific  
18 conveyance concepts for the BDCP. Additional descriptions of the types of concepts considered but not  
19 evaluated in detail are categorized in these areas and briefly described below.

#### 20 **2.3.1.6.1 Concepts that Address Issues that Could Jeopardize One or More of the Coequal Goals**

21 As described in subsection 2.3.1, the Delta Plan is a legally enforceable, comprehensive, long-term  
22 management plan for the Delta that achieves the coequal goals established by statute. *Coequal goals*  
23 *means the two goals of providing a more reliable water supply for California and protecting, restoring*  
24 *and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and*  
25 *enhances the unique cultural, recreational, natural resource and agricultural values of the Delta as an*  
26 *evolving place* (Water Code section 85054).

27 The Council does not have authority to construct, own, or operate any facilities. Rather, the Council will  
28 use the Delta Plan as the basis for determination of consistency of other agencies' covered actions with  
29 the Plan, as required by Water Code section 85225 et seq. As described in subsection 2.1.2, a covered  
30 action is defined as an action that:

- 31 ♦ Will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh;
- 32 ♦ Will be carried out, approved, or funded by the State or a local public agency;
- 33 ♦ Is covered by one or more provisions of the Delta Plan ("Provisions" are "Delta Plan Policies"  
34 that are applicable to the proposed action); and
- 35 ♦ Will have a significant impact on the achievement of one or both of the coequal goals or the  
36 implementation of government-sponsored flood control programs to reduce risks to people,  
37 property, and State interests in the Delta" (Water Code section 85057.5(a)).

38 Many concepts considered during the development of the EIR alternatives addressed potential  
39 programmatic changes in areas upstream of the Delta that could support one of the coequal goals without  
40 jeopardizing the other coequal goals. For example, concepts to provide a more reliable water supply for  
41 California included recommendations to water supply and hydroelectric generation entities to consider  
42 reoperation of upstream reservoirs.

1 However, several concepts specifically addressed physical changes that would be difficult for the Council  
2 to recommend because they could jeopardize the achievement of one of the coequal goals, jeopardize  
3 implementation of government-sponsored flood control programs in the Delta, and potentially result in  
4 more substantial adverse impacts than the Proposed Project or other EIR alternatives. These concepts  
5 included:

- 6 ♦ Removal of dams in the Delta watershed to provide a natural flow regime in the Sacramento and  
7 San Joaquin rivers
- 8 ♦ Removal and/or degradation of levees along the Sacramento and San Joaquin rivers to reconnect  
9 the rivers and historical floodplains
- 10 ♦ Construction of salinity gates in the western Delta to form a freshwater lake in the Delta

11 The concepts to remove dams or levees in the Delta watershed would result in reductions in local,  
12 regional, and statewide water supplies that are currently stored in the reservoirs, and thereby jeopardize  
13 achievement of one of the coequal goals (*a more reliable water supply for California*). These concepts  
14 would contribute to changes in the Delta ecosystem; however, the changes could be substantial and  
15 adverse with increased periods of high flood flows during wet weather periods and increased salinity  
16 intrusion during summer and fall months. Expansion of the floodplain into historical areas would result in  
17 substantial loss of agricultural and community land uses throughout the Delta watershed and the Delta.

18 The concept to construct salinity gates would provide for operable gates with boat locks in the western  
19 Delta near Benicia. The gates would prevent the salt water from San Francisco Bay from entering the  
20 Delta but would allow flows from the Sacramento and San Joaquin rivers watersheds to leave the Delta.  
21 This concept would support fresh water quality for water users within the Delta and water users located  
22 outside of the Delta that use Delta water. However, the Delta would become a fresh water lake which  
23 would jeopardize achievement of one of the coequal goals (*protecting, restoring and enhancing the Delta  
24 ecosystem*). This concept would eliminate the Delta and Suisun Marsh as an estuary that supports species  
25 which live a portion of their lives in fresh water and a portion in brackish water. Without the estuarine  
26 conditions, these species would be isolated in fresh water or saline water conditions, or would be exposed  
27 to immediate changes between fresh water and saline water conditions as they moved through the salinity  
28 gates that could result in substantial adverse impacts.

29 Due to potential adverse impacts on achievement of one or both of the coequal goals and the potential for  
30 more extensive adverse impacts to the physical environment than could occur under the Proposed Project  
31 or other alternatives, these concepts were not included in the Proposed Project or the EIR alternatives.

### 32 2.3.1.6.2 Concepts that Address Site-specific Issues

33 Some concepts addressed facilities to be constructed or operated in a specific manner or using specific  
34 types of equipment. These concepts included:

- 35 ♦ Specific types of desalination equipment or processes
- 36 ♦ Specific types of pipeline materials
- 37 ♦ Specific operational flow limits for upstream water supply facilities, including flow criteria for  
38 the Trinity River that may not be available for export into the Delta watershed

39 As described above, the Delta Plan is a legally enforceable, comprehensive, long-term management plan  
40 for the Delta that achieves the coequal goals. It is anticipated that site-specific concepts will be considered  
41 in the future in the development of covered actions. However, as a long-term management plan, the Delta  
42 Plan would not include specific details nor require specific equipment because the Council does not have  
43 authority to construct, own, or operate any facilities.

1 Therefore, these concepts were not included in the Proposed Project or the EIR alternatives.

### 2 **2.3.1.6.3 Concepts that Address Delta Conveyance including Bay Delta Conservation Plan**

3 Several comments requested that the Council require the lead agencies of BDCP to adopt and pursue  
4 certain alternatives or projects. However, under the Delta Reform Act, the Council cannot require the  
5 BDCP to include or exclude certain alternatives or projects. The Council may make recommendations to  
6 the lead agencies of BDCP, as described in Section 23. The Proposed Project includes a recommendation  
7 that the BDCP lead agencies complete the BDCP with a detailed evaluation of a robust set of alternatives.  
8 The alternatives evaluated in this EIR include recommendations that would encourage the BDCP lead  
9 agencies to consider particular conveyance alternatives as priority options. Section 23 of this EIR includes  
10 a separate analysis of the BDCP's relationship to the Delta Plan and of potential conveyance alternatives  
11 to BDCP.

## 12 **2.3.2 No Project Alternative**

13 The purpose of describing and analyzing a No Project Alternative is to allow decision makers to compare  
14 the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project.

15 CEQA Guidelines section 15126.6, subdivision (e)(2), states that: “[t]he ‘no project’ analysis shall  
16 discuss the existing conditions at the time the [NOP] is published... as well as what would be reasonably  
17 expected to occur in the foreseeable future if the project were not approved, based on current plans and  
18 consistent with available infrastructure and community services.” The baseline for assessing the  
19 significance of impacts of the Proposed Project is the existing environmental setting, not the No Project  
20 Alternative.

21 Subsection 1.3.1 of Section 1 (Introduction) describes historical and current conditions that have led to  
22 declining water supply reliability, declining Delta ecosystem health, degraded water quality, increasing  
23 risk of levee failures, and concerns about Delta cultural and economic conditions. The conditions that  
24 could continue to occur in the future under the No Project Alternative are briefly described below.

### 25 **2.3.2.1 Reliable Water Supplies**

26 Variability and uncertainty are the dominant characteristics of California's water resources and are  
27 anticipated to continue under the No Project Alternative. Precipitation will continue to vary greatly from  
28 year to year, as well as where it falls geographically in the state. California may receive less than  
29 100 million acre-feet of water from precipitation during a dry year and more than 300 million acre-feet in  
30 a wet year (Western Regional Climate Center 2011). In most years, much of the precipitation in the Delta  
31 watershed is in the form of snow. Winter and spring rains initially provide water to the Delta watershed  
32 users and flows to be conveyed to water users outside of the Delta. Snow melt occurs from May through  
33 June, which provides the majority of water supplies in those months and fills the Delta watershed  
34 reservoirs for water deliveries in the late summer and fall months.

35 Under the No Project Alternative, climate change could change the ratio of rainfall to snow and the timing  
36 of storm events. The San Francisco Bay Conservation and Development Commission (BCDC) recently  
37 considered results from the California Climate Action Team (CAT) that projected increased temperatures  
38 throughout California with both drier and wetter precipitation conditions. Increased temperatures  
39 generally could cause earlier snowmelt and less snow (BCDC 2011). Therefore, there will be more flows  
40 into the Delta watershed and Delta in the winter and spring months, and less in the summer months under  
41 the No Project Alternative than under existing conditions. This could decrease overall water supplies,  
42 especially in the summer and late fall months, because water from the reservoirs would be used earlier in  
43 the year and would not be replenished by early summer snow melt.

1 Water users throughout the state will continue to use water from a vast interconnected system of surface  
2 reservoirs, aqueducts, and water diversion facilities, including the SWP and CVP facilities to convey  
3 water from the Delta to areas outside the Delta that use Delta water. These facilities would also continue  
4 to be managed to reduce flood risk. Because of the Delta's central location, all of the SWP and CVP  
5 water that is provided to water users located outside of the Delta is conveyed through the Delta.  
6 Currently, water diverted from the Delta users outside of the Delta accounts for about 14 percent of the  
7 state's total water supply and is used by about 25 million residents and 3 million irrigated acres of  
8 farmland (DWR 2009b; DWR 2007b).

9 Constraints in the Delta are anticipated to continue to impact the reliability of SWP and CVP water  
10 deliveries from the Delta. In 2001, the SWP was anticipated to have the capability of delivering  
11 72 percent of SWP contract amounts on a long-term average (DWR 2002). In 2009, that amount was  
12 reduced to 60 percent (DWR 2010c). Continued declines in populations of fish listed as threatened or  
13 endangered under the federal and State Endangered Species Acts could result in additional regulatory  
14 restrictions on Delta pumping plant operations and, in combination with climate variability, the  
15 availability of water from the Delta to users outside of the Delta could continue to be reduced.

16 Reliance on water provided through Delta exports varies throughout California from region to region,  
17 supplier to supplier, and from user to user. This consideration is important for evaluating how water  
18 supply reliability can be best improved. For example, the service area for Metropolitan Water District of  
19 Southern California covers five counties and includes over 18 million residents, and relies on the Delta  
20 for roughly 25 percent of its water supplies. In other locations such as Zone 7 Water Agency, water  
21 contractors may depend upon Delta exports for as much as 90 percent of their water supply. In the future,  
22 the amount of Delta water could continue to be reduced and, if other water supplies are not available, total  
23 water supplies also could be reduced.

24 Since the historic drought of 1976 and 1977, many municipalities and agricultural areas have  
25 implemented major water use efficiency measures to allow continued growth without additional water  
26 supplies. Expansion of local and regional water supplies and improved water conservation and efficiency  
27 can significantly reduce pressure on Delta water supplies. However, the extent and effectiveness of these  
28 activities is not clear under the No Project Alternative. State law requires urban water suppliers to reduce  
29 statewide urban water use by 20 percent by 2020. Many of the urban water agencies have completed  
30 Urban Water Management Plans that identify public outreach, regulatory programs for residential  
31 plumbing retrofits, leak detection and repair, and regulatory water waste prohibition programs to meet  
32 these goals. Agricultural water supply agencies are developing Agricultural Water Management Plans by  
33 December 2012 to address water use efficiency methods. Programs for agricultural users could involve  
34 replacement of spray or flood irrigation methods with drip irrigation or other efficient irrigation methods.  
35 Most of these agencies anticipate continued reliance upon Delta water.

36 The No Project Alternative assumes that ongoing water supply studies, such as the Surface Water Storage  
37 Investigation (described in subsection 2.2.1.2.4), would continue on their current courses. Implementation  
38 of additional local and regional water supplies may not be reasonably expected to occur in the foreseeable  
39 future under the No Project Alternative based on current plans and available infrastructure. Therefore,  
40 water shortages could occur to municipal, industrial, agricultural, and environmental water users.

### 1 **2.3.2.2 Delta Ecosystem Restoration**

2 Under the No Project Alternative, the health of the Delta ecosystem, which is currently challenged by a  
3 variety of factors, will continue to diminish its ability to function. Many of the same factors that currently  
4 degrade ecosystem health and stress Delta species will continue to exert pressure on the system. Water  
5 diversions and conveyance within the Delta watershed and the Delta potentially could continue to entrain  
6 fish and their food resources, affect migration and movement of fish and their food supplies, limit access  
7 of aquatic species to suitable habitats, and alter water quality. Levees and channels would continue to  
8 artificially link natural waterways and alter flow direction, volume, salinity, and residence time within the  
9 Delta channels.

10 Under the No Project Alternative, it is anticipated that existing nonnative species would continue to thrive  
11 and new species may become established. For example, while not yet present in the Delta, the quagga and  
12 zebra mussels are already present in California and have the potential to become established in the future  
13 (DFG 2008). It is also assumed that other stressors, including predation by nonnative species and  
14 unscreened intakes/diversions, would continue under the No Project Alternative.

15 Global and regional sea levels have been increasing steadily over the past century and are expected to  
16 continue to increase throughout this century. The Sea-Level Rise Task Force of the Coastal and Ocean  
17 Working Group of the California Climate Action Team (CO-CAT) developed interim guidance for State  
18 agencies to incorporate sea-level rise projections into planning projects (CO-CAT 2010). The CO-CAT  
19 interim guidance indicated that sea levels could rise in the San Francisco Bay Area above 2000 sea level  
20 elevations from 5 to 8 inches (with an average of 7 inches) by 2030, and 10 to 17 inches (with an average  
21 of 14 inches) by 2050. These projections did not consider that additional sea level rise that could occur  
22 with catastrophic ice melting due to dynamic instability in the ice sheets of Greenland and Antarctica.  
23 Increased sea level rise could increase the water depths in shallow tidal wetlands and make these areas not  
24 habitable by tidal wetlands species. If the adjacent upland lands are either developed (e.g., shoreline  
25 structures) or are characterized by steep bluffs, the shallow tidal lands will disappear and the species that  
26 depend upon this habitat type will decline under the No Project Alternative unless other shallow habitats  
27 are developed through the use of setback levees or floodplain expansions (which are not included in the  
28 No Project Alternative).

29 Continued declines in fish and wildlife populations in the Delta and in the adjacent San Francisco Bay not  
30 only affects the entire San Francisco estuary ecosystem, but also could result in additional regulatory  
31 restrictions on water-related human activities. These restrictions could include reduced fishing  
32 opportunities if harvest restrictions are implemented, increased need for treatment of wastewater and  
33 stormwater discharges, and increased restrictions on Delta water pumping plant operations, not only for  
34 SWP and CVP facilities but also for water users located within the Delta.

35 The No Project Alternative assumes that ongoing studies by the SWRCB to evaluate future Delta flow  
36 objectives and by others related to BDCP would continue on their current courses.

### 37 **2.3.2.3 Water Quality Improvement**

38 Impaired water quality would continue to be an influential stressor contributing to the Delta ecosystem  
39 problems under the No Project Alternative. The SWRCB has listed Delta waterways, the Carquinez Strait,  
40 and San Francisco Bay as having impaired water quality pursuant to the federal Clean Water Act  
41 (SWRCB 2010c). Current pollutants of concern include (but are not limited to) insecticides, herbicides,  
42 mercury, selenium, nutrients, and other organic pollutants. Additional water quality issues in the Delta  
43 include temperature, salinity, turbidity, low dissolved oxygen, bromide, dissolved organic carbon,  
44 pathogens, and harmful algal blooms. If amounts of these constituents that are too high or too low, they  
45 can impair the ability of these waters to support beneficial uses, such as municipal water supply,  
46 recreational use, agricultural water supply, and fish and wildlife populations. Recent studies have

1 indicated that some water quality concerns have been reduced in Delta and San Francisco Bay waters,  
2 such as increased dissolved oxygen and reduction in pathogens. However, methylmercury continues to  
3 persist and threaten birds and fish, and other toxics in the sediments (such as residual heavy metals and  
4 pesticides) continue to dissolve into the water (San Francisco Estuary Partnership 2011). If ongoing  
5 studies to reduce discharge of potential contaminants and reverse impaired water quality do not result in  
6 changes to discharges, water quality may continue to decline in the future.

7 Under the No Project Alternative, drinking water quality would continue to be impaired in communities  
8 in the Delta and areas outside of the Delta. For communities that use Delta water, a major concern is  
9 potential increase in salinity due to sea level rise (as described above) and levee failure (described below  
10 as a potential cause of salinity intrusion from San Francisco Bay). Another concern is the continued  
11 presence of nutrients, heavy metals, and organic materials (including residuals materials from pesticides,  
12 herbicides, and pharmaceuticals) in Delta water from wastewater and stormwater discharges and  
13 stormwater runoff in the Delta watershed. Many communities that do not use Delta water rely upon  
14 groundwater supplies that are declining in availability and are frequently contaminated by nutrients,  
15 heavy metals, and organic materials that were applied on surrounding lands during industrial and  
16 agricultural practices. These conditions particularly occur in the San Joaquin Valley. These concerns have  
17 led the Central Valley RWQCB to initiate a process to amend the Water Quality Control Plan for the  
18 Sacramento River and San Joaquin River Basins (Basin Plan) to improve policies for protecting sources  
19 of drinking water in the Central Valley (Central Valley RWQCB 2009). The proposed amendment would  
20 establish numeric water quality objectives to protect drinking water quality.

21 Implementation of additional local and regional water treatment facilities may not be reasonably expected  
22 to occur in the foreseeable future under the No Project Alternative based on current plans and available  
23 infrastructure. Therefore, either water shortages could occur to municipal, industrial, agricultural, and  
24 environmental water users or these users would use poor quality water that could compromise health and  
25 economic output of the users.

#### 26 **2.3.2.4 Flood Risk Reduction**

27 Delta levees not only protect the Delta land uses (such as agriculture, rural communities, and larger  
28 municipalities such as West Sacramento), the Delta levees also protect water supplies conveyed through  
29 the Delta to Delta water users and SWP and CVP water users and infrastructure located on the Delta  
30 levees and across Delta islands (such as State highways and major natural gas pipelines that serve the  
31 San Francisco Bay Area).

32 Delta levees are vulnerable to risk of failure during large runoff events, earthquakes, extreme high tides,  
33 and wind-generated waves. Over the past 10 years, extensive investments have improved Delta levee  
34 conditions in many areas (DWR 2008); however, the levees will need continued investment and  
35 additional levees still need to be improved. Ongoing reevaluation of levees under the Federal Emergency  
36 Management Agency levee accreditation program are indicate that the levees do not meet required  
37 100-year level of flood protection (DWR 2008) without modifications to raise, strengthen, and/or widen  
38 the levees. Many of the levees protect islands with ground surface elevations below sea level. Levee  
39 failures in these areas not only would result in loss of land uses, houses, and businesses but also could  
40 cause loss of life if the area is inundated rapidly after levee failure.

41 A study completed by DWR states that failure of one or more levees could result in a significant amount  
42 of saline water rapidly flowing into the Delta towards the levee breaches to flood the island(s). It would  
43 be difficult to reverse the saline conditions in the Delta and could require increased releases from  
44 reservoirs in the Delta watershed (DWR 2007c). Depending upon the location of the levee failures, saline  
45 water could be present near the intakes/diversions of Delta water users or the south Delta SWP and CVP  
46 pumping plants or along the Delta channels that convey water from the Sacramento River to those  
47 intakes/diversions. Operations of the intakes/diversions would cease until freshwater conditions were



1 reestablished because the water treatment plants and water users could not tolerate salt water. DWR has  
2 discussed a potential scenario in which there is a 40 percent chance of multiple-island failures occurring  
3 during a major earthquake in the western and central Delta could disrupt SWP and CVP operations for up  
4 to one year (DWR 2009b).

5 As described above, sea level rise is projected for the Delta regions. Increased sea level rise not only  
6 could cause low-lying Delta levees or berms to be over-topped during calm weather, but during major  
7 storms westerly winds can cause wave surges along the western Delta islands. Waves could cause water  
8 to accumulate inside of these islands. If the water is not pumped from the islands, the accumulated water  
9 could cause degradation of the landside of the levees, and increase the potential for levee failure.

10 Under the No Project Alternative, it is assumed that existing levee maintenance and repair programs  
11 would be continued until existing funds from State bonds are fully utilized. However, if adequate local  
12 funds are not available, the potential for levee failure could increase. Implementation of additional levee  
13 improvement programs may not be reasonably expected to occur in the foreseeable future under the No  
14 Project Alternative based on current plans and existing levees. Therefore, it is anticipated that the potential  
15 risk to Delta land uses and communities and water supplies that rely upon Delta water would have  
16 increasing risk in the future.

### 17 **2.3.2.5 Protection and Enhancement of Delta as an Evolving Place**

18 Under the No Project Alternative, it is anticipated that the Delta's current predominant land use would  
19 remain agriculture with small unincorporated and "legacy communities" (towns with distinct natural,  
20 agricultural, and cultural heritage). A recent study by the Delta Protection Commission described  
21 concerns with continued economic viability of the legacy communities that are agriculturally based and  
22 provide support services and limited housing for the agricultural workers, retirees, and workers that  
23 commute to municipalities outside of the Delta (Delta Protection Commission 2011). The ability of these  
24 communities to grow, support additional residents, or support growing demand for Delta recreation and  
25 tourism is limited due to strict land use and development regulations within the Delta Primary Zone in  
26 accordance with the Delta Protection Act and requirements by federal and State agencies for design of  
27 levees. The aging houses, other structures, and infrastructure need improvement; however, without the  
28 ability to expand economically, there appears to be limited investment funds for these and other  
29 improvements.

30 The Delta Protection Commission study also states that continued concerns about levee failures also could  
31 severely affect the Delta economy through loss of agricultural activities and associated activities.

32 Under the No Action Alternative, it is assumed that there would be no changes to existing regulations and  
33 that the potential for improvements or expansion of structures and infrastructure (including levee  
34 improvements as described above) would be limited. This could lead to further decline of the Delta  
35 economy and limitations to expand Delta recreation and tourism. Implementation of new programs may  
36 not be reasonably expected to occur in the foreseeable future under the No Project Alternative based on  
37 current plans, existing structures, and existing levees. Therefore, it is anticipated that existing and  
38 historical unique cultural, recreational, natural resources, and agricultural values of the California Delta  
39 would not be supported and would change.

### 40 **2.3.2.6 Future Projects Included in the No Project Alternative**

41 The CEQA No Project Alternative may include predictable actions by others or future trends consistent  
42 with existing plans, infrastructure, and services that would create a change compared to existing  
43 conditions (such as species population trends) if the Proposed Project or alternatives do not occur.

1 For this EIR, the No Project Alternative will include the continuation of existing plans, policies, and  
 2 operations of existing facilities into the future. In addition, the No Project Alternative includes completion  
 3 of ongoing projects that are proceeding independently of each other and the Delta Plan. Actions by others  
 4 that are included in the No Project Alternative are defined as projects that are fully defined through the  
 5 issuance of construction and operations permits and funded at the time of issuance of the NOP, as  
 6 summarized below and in Table 2-5.

**Table 2-5**  
**Future Projects included in the No Project Alternative**

<b>Agency</b>	<b>Program</b>	<b>Basis</b>	<b>Brief Description</b>
Reclamation and DWR	Delta-Mendota Canal/California Aqueduct Intertie	Under construction. Estimated completion in 2012.	The Delta-Mendota Canal/California Aqueduct Intertie includes a pumping plant and pipeline connection between the Delta Mendota Canal and the California Aqueduct to increase water supply reliability and provide flexibility. The Intertie would be owned by the federal government and operated by the San Luis & Delta-Mendota Water Authority.
DWR	Dutch Slough Tidal Marsh Restoration Project	Construction initiated on first phase.	The Dutch Slough Tidal Marsh Restoration Project, near Oakley to restore wetland and uplands, and provide public access to the 1,166-acre property. The property is composed of three parcels separated by narrow man-made sloughs. The project to provide ecosystem benefits, including habitat for sensitive aquatic species. The project will be integrated with the City of Oakley's proposed 55-acre Community Park and four miles of levee trails. Ironhouse Sanitary District is proposing the West Marsh Creek Delta Restoration Project on a portion of the Marsh Creek delta that will provide fill material for the Dutch Slough project.
DWR and Zone 7 Water Agency	South Bay Aqueduct Improvement and Enlargement Project	Under construction. Estimated completion by 2012.	The South Bay Aqueduct Improvement and Enlargement Project will improve and expand the existing South Bay Aqueduct. The project will increase the existing capacity of the water conveyance system up to its design capacity of 300 cfs, and expand capacity in a portion of the project to add 130 cfs (total of 430 cfs). The enlargement project will supply Zone 7's future Altamont Water Treatment Plant with additional SWP water. The enlarged South Bay Aqueduct will be able to carry an additional 130 cfs through Reach 1, and 80 cfs through reaches 2 and 4.
Freeport Regional Water Authority and Reclamation	Freeport Regional Water Project	Under construction. Estimated completion by 2012.	Freeport Regional Water Authority, a Joint Powers Authority created with Sacramento County Water Agency and East Bay Municipal Utility District, is constructing a new water intake facility/pumping plant, treatment plant, and 17-mile water pipeline within Sacramento County. The new water intake facility and pumping plant is located on the Sacramento River at the Freeport Bend, just upstream of Freeport and 10 miles south of Sacramento. The pumping plant will divert up to 185 million gallons per day.
CCWD	Los Vaqueros Reservoir Expansion Project	Under construction. Estimated completion in 2012.	CCWD constructed the initial 100,000 acre-foot and is currently expanding the reservoir to 160,000 acre-feet by 2012. The reservoir is located adjacent to the Delta and stores Delta water.
CCWD	Contra Costa Canal Fish Screen Project	Under construction. Estimated completion in 2011.	CCWD diversion of water from the Delta at Rock Slough provides 120,000 and 130,000 acre-feet of water per year for irrigation and municipal and industrial uses. The diversion at Rock Slough is one of the largest unscreened Delta sites. The project would install fish screens at the Rock Slough diversion to minimize the entrainment losses of sensitive fish species and reduce potential predation on target species. This project is being completed in accordance with USFWS's 2008 Biological Opinion for the threatened Delta smelt related to Central Valley Project operations, Los Vaqueros Reservoir and Intake Biological Opinion, and CVPIA requirements in Section 3406(b)(5).

**Table 2-5**  
**Future Projects included in the No Project Alternative**

<b>Agency</b>	<b>Program</b>	<b>Basis</b>	<b>Brief Description</b>
City of Stockton	Delta Water Supply Project - Phase I	Under construction. Estimated completion in 2012.	The Delta Water Supply Project is a new supplemental water supply for the Stockton Metropolitan Area by diverting water from the Delta and conveying it through a pipeline to a new surface water treatment plant. Initially, the project would have the capacity to treat and deliver up to 30 million gallons per day, or 33,600 acre-feet of water per year.

1

### 2 2.3.2.6.1 Delta-Mendota Canal/California Aqueduct Intertie

3 The Delta-Mendota Canal (DMC)/California Aqueduct Intertie is being constructed by DWR and  
 4 Reclamation. The Intertie will be used to achieve multiple benefits, including meeting current water  
 5 supply demands, allowing for the maintenance and repair of the CVP Delta export and conveyance  
 6 facilities, and providing operational flexibility to respond to emergencies related to both the CVP and  
 7 SWP. The Intertie includes a 450-cfs pumping plant at the DMC that would allow up to 400 cfs to be  
 8 pumped from the DMC to the California Aqueduct via an underground pipeline. The additional 400 cfs  
 9 will allow the Jones Pumping Plant to operate at its authorized amount of 4,600 cfs. Because the  
 10 California Aqueduct is located approximately 50 feet higher in elevation than the DMC, up to 900 cfs  
 11 flow could be conveyed from the California Aqueduct to the DMC using gravity flow. The Intertie is  
 12 owned by the federal government and operated by the San Luis & Delta-Mendota Water Authority. An  
 13 agreement among Reclamation, DWR, and the San Luis & Delta-Mendota Water Authority identifies the  
 14 responsibilities and procedures for operating the Intertie. A permanent easement was obtained by  
 15 Reclamation where the Intertie alignment crosses State property. The construction is estimated to be  
 16 complete in 2012. (Reclamation and San Luis and Delta Mendota Water Authority 2004; Reclamation  
 17 2009).

### 18 2.3.2.6.2 Dutch Slough Tidal Marsh Restoration

19 The Dutch Slough Tidal Marsh Restoration Project, near Oakley to restore wetland and uplands, and  
 20 provide public access to the 1,166-acre property. The property is composed of three parcels separated by  
 21 narrow man-made sloughs. The project to provide ecosystem benefits, including habitat for sensitive  
 22 aquatic species. The project will be integrated with the City of Oakley's proposed 55-acre Community  
 23 Park and four miles of levee trails. Ironhouse Sanitary District is proposing the West Marsh Creek Delta  
 24 Restoration Project on a portion of the Marsh Creek delta that will provide fill material for the Dutch  
 25 Slough project. The construction was initiated in 2011 and will be completed over several years. (DWR  
 26 and CSCC 2008).

### 27 2.3.2.6.3 South Bay Aqueduct Improvement and Enlargement Project

28 The South Bay Aqueduct Improvement and Enlargement Project will improve and expand the existing  
 29 South Bay Aqueduct. The project will increase the existing capacity of the water conveyance system up to  
 30 its design capacity of 300 cfs, and expand capacity in a portion of the project to add 130 cfs (total of  
 31 430 cfs). These improvements are expected to assist Zone 7 Water Agency in meeting its future  
 32 conveyance capacity needs and allow DWR to reduce SWP peak power consumption by providing for  
 33 variation in pumping and delivery schedule. The enlargement project will supply Zone 7 Water Agency  
 34 future Altamont Water Treatment Plant with additional SWP water. The enlarged South Bay Aqueduct  
 35 will be able to carry an additional 130 cfs through Reach 1, and 80 cfs through reaches 2 and 4.  
 36 Construction is estimated to be complete in 2012. (DWR 2004).

1 **2.3.2.6.4 Freeport Regional Water Project**

2 Freeport Regional Water Authority, a Joint Powers Authority created by exercise of a joint powers  
3 agreement between the Sacramento County Water Agency (SCWA) and the East Bay Municipal Utility  
4 District (EBMUD), is constructing a new water intake facility/pumping plant and 17-mile underground  
5 water pipeline within Sacramento County. The new water intake facility and pumping plant is located on  
6 the Sacramento River at the Freeport Bend, just upstream of Freeport and 10 miles south of Sacramento.  
7 The pumping plant will divert up to 185 million gallons per day of water. Components of the facility  
8 include an in-river intake fish screen, sheet-piled in-river transition structure, electrical substation, surge  
9 control facility, compressed air system, sediment collection and settling basin system, and utilities.  
10 Construction of the intake is complete but cannot be operational until the water treatment plant is  
11 completed in 2012 (FRWA 2009).

12 **2.3.2.6.5 Los Vaqueros Reservoir Expansion Phase 1**

13 As described in subsection 2.1.2, Los Vaqueros Reservoir is a 100,000 acre-foot off-stream storage  
14 reservoir located west of the Delta in Contra Costa County. Water is diverted into the reservoir from the  
15 Delta at existing Rock Slough, Old River, and Victoria Canal (also known at the Alternative Intake  
16 Project) intakes. Contra Costa Water District, Reclamation and Western Area Power Administration  
17 evaluated options for the Los Vaqueros Reservoir Expansion Project. Following the completion of a Draft  
18 EIS/EIR in 2009, Contra Costa Water District decided to expand the reservoir in two phases because the  
19 district had an immediate need to protect the local water supply quality and reliability. Phase 1, currently  
20 under construction, will expand the reservoir from 100,000 acre-feet to 160,000 acre-feet only by raising  
21 the dam. Phase 2 expansion is under consideration, as described in subsection 2.1.2. Construction of  
22 Phase 1 is estimated to be completed in 2012 (CCWD, Reclamation, and Western 2010).

23 **2.3.2.6.6 Contra Costa Canal Fish Screen Project**

24 Contra Costa Water District diversion of water from the Sacramento-San Joaquin Delta at Rock Slough  
25 serves as a major component of its water supply. Between 120,000 and 130,000 acre-feet of water per  
26 year is diverted by the canal for irrigation and municipal and industrial uses. The diversion at Rock  
27 Slough is one of the largest unscreened Delta sites. The project will install fish screens at the Rock Slough  
28 diversion to minimize the entrainment losses of sensitive fish species. The project includes flow control  
29 and transition structures necessary to reduce tidal influences and maintain flow rates. Improvements at the  
30 diversion site also will reduce potential predation on target species, fulfill legal requirements of the  
31 USFWS Service's 2008 Biological Opinion for the threatened Delta smelt, complete the mitigation for the  
32 Los Vaqueros Biological Opinion, and complete CVPIA requirements in Section 3406(b)(5).  
33 Construction is estimated to be complete in late 2011 (CCWD 2009).

34 **2.3.2.6.7 Delta Water Supply Project Phase I**

35 The Delta Water Supply Project - Phase I will provide a new supplemental water supply for the Stockton  
36 Metropolitan Area by diverting water from the Delta and conveying it through a pipeline to a surface  
37 water treatment plant. Initially, the project will treat and deliver up to 30 million gallons per day, or  
38 33,600 acre-feet of water per year, meeting approximately one third of Stockton's water needs. The intake  
39 is located along the San Joaquin River at Empire Tract. A 67,000-foot pipeline will convey the water to  
40 the treatment plant located at the northern end of Stockton along Eight Mile Road. Approximately  
41 37,700 feet of pipeline will be constructed between the treatment plant and the existing distribution  
42 system (City of Stockton 2009). Construction is estimated to be complete in 2012.

## 1 **2.3.3 Alternative 1A**

2 Alternative 1A would not address Proposed Project policy WR P2.

### 3 **2.3.3.1 *Reliable Water Supplies***

4 Alternative 1A would have less emphasis on water use efficiency and development of local and regional  
5 water supplies by existing users of Delta water supplies compared to the Proposed Project. Construction  
6 and operation of the types of facilities that would increase water use efficiency and reduce reliance on the  
7 Delta (such as described in subsection 2.2.1) would be less likely under Alternative 1A. For example, the  
8 development of recycled water projects (such as described in 2.2.1.5) and groundwater recharge or  
9 treatment projects (such as described in subsection 2.2.1.3.1) would be less likely under Alternative 1A.  
10 As a result, the existing users of Delta water supplies would continue their level of reliance on the Delta  
11 as a water supply under Alternative 1A compared to the Proposed Project, which seeks to reduce those  
12 users' reliance on the Delta.

13 Alternative 1A would include similar emphasis as the Proposed Project on encouraging DWR to complete  
14 ongoing Surface Water Storage Investigation (which includes three large-scale storage projects in the  
15 Delta watershed, as described in subsection 2.2.1.2.4), and less emphasis than the Proposed Project on  
16 local and regional water supply agencies to implement small-scale storage projects (such as described in  
17 subsection 2.2.1.2.4). Therefore, large-scale surface storage facilities, such as Los Vaqueros Reservoir  
18 Expansion - Phase 2, would be as likely under Alternative 1A, but small-scale storage projects developed  
19 as part of local and regional water supplies in areas located outside of the Delta that use Delta water  
20 would be less likely compared to the Proposed Project.

21 All of the other Reliable Water Supplies aspects of Alternative 1A would have the same emphasis as the  
22 Proposed Project.

### 23 **2.3.3.2 *Delta Ecosystem Restoration***

24 Alternative 1A would recommend the SWRCB to develop flow criteria recommendations to protect  
25 beneficial uses of public trust resources on the aggressive schedule described for the Proposed Project.  
26 However, Alternative 1A would recommend that the SWRCB delay establishment of regulatory flow and  
27 water quality objectives. Therefore, under Alternative 1A, flow criteria would be updated on an  
28 aggressive schedule, but flow and water quality objectives would be delayed until sometime in the future  
29 - an overall less aggressive schedule compared to the Proposed Project. The conditions would be similar  
30 to conditions under the No Project Alternative, and water availability may not be substantially reduced in  
31 areas that receive Delta water. Therefore, construction and operation of alternative local and regional  
32 water supply facilities, as discussed in subsections 2.2.2.3.1 and 2.2.1, would be less likely under  
33 Alternative 1A compared to the Proposed Project.

1 Alternative 1A would have less emphasis on ecosystem restoration throughout the entire Delta compared  
2 to the Proposed Project. As in the Proposed Project, the initial focus for restoration would be on specific  
3 areas of the Delta with large interconnected habitats, including areas in Yolo Bypass, Cache Slough,  
4 Suisun Marsh, Cosumnes and Mokelumne rivers confluence, and Lower San Joaquin River.  
5 Alternative 1A also would encourage continued development of the ongoing Dutch Slough project.  
6 Alternative 1A would have less emphasis in ecosystem restoration that could occur in smaller,  
7 disconnected areas or on individual parcels, such as small mitigation parcels, even if the restoration on  
8 those parcels would be consistent with *Conservation Strategy for Restoration of the Sacramento-*  
9 *San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions*  
10 (DFG 2011). Alternative 1A would focus on future ecosystem restoration outside of the six specific areas  
11 described previously in this paragraph only if the restored areas were connected to or resulted in large  
12 interconnected habitats. Therefore, the total extent of ecosystem restoration would be less than under the  
13 Proposed Project because Alternative 1A would focus only on areas with large interconnected habitats.  
14 Therefore, implementation of ecosystem restoration projects would be less likely under Alternative 1A.  
15 All other Delta Ecosystem Restoration aspects of Alternative 1A would have the same emphasis as the  
16 Proposed Project.

### 17 **2.3.3.3 Water Quality Improvement**

18 All of the water quality improvement aspects of Alternative 1A would have the same emphasis as the  
19 Proposed Project.

### 20 **2.3.3.4 Flood Risk Reduction**

21 Alternative 1A would limit the focus of levee modifications and construction to areas with high benefit-  
22 to-cost ratios (i.e., benefit to land uses protected compared to the cost of levee maintenance and  
23 construction) and to areas identified for potential ecosystem restoration. Alternative 1A also would  
24 emphasize other measures to reduce flood risks instead of levee maintenance and construction, including:

- 25 ♦ Floodproofing (raising the occupied rooms of a structure above the flood levels and/or  
26 waterproofing that portion of the structure within the flood levels)
- 27 ♦ Subsidence reversal programs (such as described in subsection 2.2.4.2.2) to raise the ground  
28 elevation and/or the structure above the flood level
- 29 ♦ Relocation of structures and/or infrastructure from the floodplain
- 30 ♦ Acquisition of the land to develop habitat restoration that could be periodically inundated
- 31 ♦ Prevention of further development in areas with flood risks

32 Therefore, levee construction and maintenance activities, such as those described in subsections 2.2.2.2.1  
33 and 2.2.4.1, would be less likely under Alternative 1A compared to the Proposed Project because levee  
34 improvements would be reserved for areas with the greatest benefits compared to the cost of  
35 improvements and to areas without other options for reduction of flood risks.

36 Alternative 1A would have more emphasis on emergency preparation and emergency response programs  
37 to protect water quality at the SWP and CVP south Delta pumping plant intakes/diversions. Following  
38 catastrophic levee failures on multiple islands, saltwater is anticipated to flow from San Francisco Bay  
39 into the south Delta. To protect the water quality at the SWP and CVP south Delta intakes/diversions, a  
40 “fresh water pathway” would be defined along specific Delta channels to convey freshwater from the  
41 Sacramento River to the south Delta SWP and CVP intakes. Under Alternative 1A, specific Delta levees  
42 would be identified as critical levees to protect the “fresh water pathway.” Levee maintenance would be  
43 focused on these critical levees and operable gates. Because of this emphasis, the establishment of an

1 emergency freshwater pathway with ongoing levee maintenance and construction of operable gates is  
2 more likely under Alternative 1A compared to the Proposed Project.

3 Alternative 1A would have less emphasis on providing stockpiling of materials for levee repairs because  
4 Alternative 1A only would provide large rock for major repairs of levee breaching and seismically-  
5 induced levee slumping, compared to the Proposed Project which would provide both large and small  
6 rock for major and minor levee repairs.

7 Alternative 1A would have less emphasis on subsidence reversal programs compared to the Proposed  
8 Project because Alternative 1A would not recommend changes to State contracts with agricultural  
9 contractors to require subsidence reversal programs, as is included in the Proposed Project.

10 All of the other Reduce Risks of Flood in the Delta aspects of Alternative 1A would have the same  
11 emphasis as the Proposed Project.

### 12 **2.3.3.5 Protection and Enhancement of Delta as an Evolving Place**

13 All of the Protection and Enhancement of Delta as an Evolving Place policies and recommendation of  
14 Alternative 1A would have the same emphasis as the Proposed Project.

## 15 **2.3.4 Alternative 1B**

16 Alternative 1B would contain recommendations only and would not address the following Proposed  
17 Project policies and recommendations: G P1, WR P2, ER P3, ER P4, RR P2 - P4, WR R4, WR R10,  
18 WR R12, ER R3, ER R4, WQ R2, WQ R5, WQ R8 - R10, RR R1- R4, RR R8, RR R9, RR R11, DP P2 -  
19 P6, FP R1 - FP R13.

### 20 **2.3.4.1 Reliable Water Supplies**

21 Alternative 1B would have less emphasis on water use efficiency and development of local and regional  
22 water supplies by existing users of Delta water supplies compared to the Proposed Project. Construction  
23 and operation of the types of facilities that would increase water use efficiency and reduce reliance on the  
24 Delta (such as described in subsection 2.2.1) would be less likely under Alternative 1B compared to  
25 Proposed Project. For example, the development of recycled water projects (such as described in  
26 subsection 2.2.1.5) and groundwater recharge or treatment projects (such as described in  
27 subsection 2.2.1.3.1) would be less likely under Alternative 1B compared to the Proposed Project. As a  
28 result, the existing users of Delta water supplies would continue their level of reliance on the Delta as a  
29 water supply under Alternative 1B compared to the Proposed Project, which seeks to reduce those users'  
30 reliance on the Delta.

31 All of the remaining Reliable Water Supplies aspects of Alternative 1B would have the same emphasis as  
32 the Proposed Project, except that the Proposed Project policies would be recommendations in  
33 Alternative 1B.

### 34 **2.3.4.2 Delta Ecosystem Restoration**

35 Alternative 1B would recommend the SWRCB to develop flow criteria recommendations based on  
36 SWRCB's existing schedule. The conditions would be similar to conditions under the No Project  
37 Alternative and water availability may not be substantially reduced in areas that receive Delta water.  
38 Therefore, construction and operation of alternative local and regional water supply facilities, as  
39 discussed in subsections 2.2.2.3.1 and 2.2.1, would be less likely under Alternative 1B compared to  
40 Proposed Project.

1 Alternative 1B would have less emphasis on ecosystem restoration throughout the entire Delta compared  
2 to the Proposed Project. Alternative 1B would initially focus only on ongoing restoration projects,  
3 including Prospect Island, Little Holland Tract, and Yolo Ranch in Cache Slough; Dutch Slough in the  
4 western Delta; and Tule Red Marsh in Suisun Marsh. Alternative 1B would be less likely to extend  
5 ecosystem restoration into other areas of the Delta that would be included in the Proposed Project  
6 ecosystem restoration, including other portions of Suisun Marsh and existing agricultural lands in Yolo  
7 Bypass, Cache Slough, Cosumnes and Mokelumne rivers confluence, and Lower San Joaquin River.  
8 Alternative 1B also would not include requirements for habitat restoration actions to be consistent with  
9 *Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management*  
10 *Zone and the Sacramento and San Joaquin Valley Regions* (DFG 2011). Alternative 1B also would not  
11 include requirements that actions other than habitat restoration actions demonstrate that they avoided or  
12 mitigated adverse impacts to the opportunity for habitat restoration consistent with *Conservation Strategy*  
13 *for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento*  
14 *and San Joaquin Valley Regions* (DFG 2011). Therefore, implementation of ecosystem restoration  
15 projects would be less likely under Alternative 1B compared to the Proposed Project.

16 Alternative 1B would have less emphasis on the use of setback levees as is included the Proposed Project.  
17 Therefore, construction of setback levees as described in subsection 2.2.2 would be less likely under  
18 Alternative 1B compared to the Proposed Project.

19 Alternative 1B would have less emphasis on maintaining vegetation on the waterside of levees compared  
20 to the Proposed Project and would continue implementation of the existing USACE levee design criteria  
21 to remove vegetation from the waterside of the levee. Therefore, removal of vegetation on the waterside  
22 of levees would be more likely under Alternative 1B compared to the Proposed Project.

23 Alternative 1B would have more emphasis on implementation of actions compared to the Proposed  
24 Project to reduce threats from nonnative species, such as striped bass, and stressors, such as fish harvest  
25 of non-hatchery, or wild, fish. Therefore, implementation of programs to reduce threats from nonnative  
26 species and stressors, such as increasing the daily limit for striped bass catch per angler and marking of  
27 hatchery fish (such as a “mark-select” fishery program to remove the adipose fin of hatchery fish and  
28 encourage anglers and commercial fishing enterprises to only harvest hatchery fish) would be more likely  
29 under Alternative 1B compared to the Proposed Project.

30 All of the remaining Delta Ecosystem Restoration aspects of Alternative 1B would have the same  
31 emphasis as the Proposed Project, except that the Proposed Project policies would be recommendations in  
32 Alternative 1B.

### 33 **2.3.4.3 Water Quality Improvement**

34 Alternative 1B would recommend to the SWRCB, DWR, and Department of Public Health to use existing  
35 schedules for the completion of ongoing studies to improve drinking water quality, including Central  
36 Valley Drinking Water Policy, North Bay Aqueduct Alternate Intake, and prioritization of funding for  
37 small and disadvantaged communities compared to the Proposed Project. The conditions would be similar  
38 to conditions under the No Project Alternative. The drinking water quality studies would be more likely to  
39 be completed on the existing schedule under Alternative 1B compared to the aggressive schedule  
40 recommended by the Proposed Project, therefore, drinking water users would continue with conditions  
41 similar to the No Project Alternative for a longer period of time than under the Proposed Project.  
42 Implementation of drinking water quality projects, such as described in subsection 2.2.3.1, would be less  
43 likely under Alternative 1B compared to the Proposed Project.

44 Alternative 1B would continue voluntary participation by Delta Watershed diverters or dischargers in  
45 CV-SALTS, compared to the Proposed Project which encourages mandatory participation by Delta  
46 Watershed diverters and dischargers. Voluntary participation could reduce the possibility of development



1 of water quality projects by dischargers and diverters to reduce the concentration of salts and other related  
2 constituents, such as nitrates, in surface waters and groundwater. Therefore, development of water quality  
3 projects, such as those described in subsection 2.2.3.1 would be less likely under Alternative 1B  
4 compared to the Proposed Project.

5 Alternative 1B would have more emphasis than the Proposed Project on development of water quality  
6 objectives and Total Maximum Daily Loads for possible contaminants by the SWRCB, Central Valley  
7 RWQCB, and San Francisco Bay RWQCB. Development of water quality objectives and limits would  
8 result in construction of water quality projects to reduce discharge of possible contaminants, such as  
9 described in 2.2.3.1. Therefore, the development of water quality objectives and limits and associated  
10 water quality projects would be more likely under Alternative 1B compared to the Proposed Project.

11 All of the remaining water quality improvement aspects of Alternative 1B would be have the same  
12 emphasis as the Proposed Project, except that the Proposed Project policies would be recommendations in  
13 Alternative 1B.

#### 14 **2.3.4.4 Flood Risk Reduction**

15 Alternative 1B would have less emphasis on protection of floodways and floodplains from encroachment  
16 compared to the Proposed Project. Alternative 1B would focus on continued studies to identify the  
17 floodways and floodplains and would not focus on specific areas to be protected, such as the Yolo  
18 Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River under the Proposed  
19 Project. Therefore, implementation of floodplain restoration through levee breaching, as described in  
20 subsection 2.2.2.2.1, or setback levees, as described in subsection 2.2.4.1.1, would be less likely under  
21 Alternative 1B compared to Proposed Project.

22 Alternative 1B would have more emphasis on facilitation of dredging programs for Delta channels to  
23 maintain or increase capacity compared to the Proposed Project. Alternative 1B would recommend that  
24 DWR, USACE, San Francisco Bay RWQCB and Central Valley RWQCB, USFWS, and NMFS develop  
25 a dredging plan for the Delta channels by December 31, 2012. Therefore, the dredging projects described  
26 in subsection 2.2.4.1.4 would be more likely under Alternative 1B compared to Proposed Project.

27 Alternative 1B would have less emphasis than the Proposed Project on reducing flood risk by maintaining  
28 the existing requirement for 100-year flood protection for major developments in non-urban areas.  
29 Alternative 1B would have more emphasis on reducing flood risk to agricultural areas by increasing flood  
30 protection using Public Law 84-99 levee criteria. Therefore, levee design standards would be less  
31 stringent for major developments in non-urban areas and more stringent for agricultural areas under  
32 Alternative 1B compared to the Proposed Project.

33 Alternative 1B would have more emphasis on reducing risk through levee modifications and construction  
34 than the Proposed Project, especially for agricultural lands that would need to comply with Public Law  
35 84-99 levee criteria, as described above. Therefore, levee construction and maintenance activities, such as  
36 those described in subsections 2.2.2.2.1 and 2.2.4.1, would be more likely under Alternative 1B compared  
37 to the Proposed Project.

38 Alternative 1B would have more emphasis on emergency preparation and emergency response programs  
39 to protect water quality at the SWP and CVP south Delta pumping plant intakes/diversions and minimize  
40 SWP and CVP water supply disruption and water quality degradation following catastrophic levee  
41 failures on multiple islands. Under Alternative 1B, levee maintenance and modifications, as described in  
42 subsection 2.2.2.2.1, would be focused on critical levees that would convey water from the Sacramento  
43 River to SWP and CVP south Delta intakes/diversions. Therefore, levee maintenance and modifications  
44 along critical levees that protect SWP and CVP water supplies but would not necessarily be improved to  
45 comply with Public Law 84-99, as described above, would be more likely under Alternative 1B compared  
46 to the Proposed Project.

1 Alternative 1B would have less emphasis on providing stockpiling of materials for levee repairs because  
2 Alternative 1B only would provide large rock for major repairs of levee breaching and seismically-  
3 induced levee slumping compared to the Proposed Project that would provide both large and small rock  
4 for major and minor levee repairs.

5 Alternative 1B would have less emphasis subsidence reversal programs compared to the Proposed Project  
6 because Alternative 1B would not recommend changes to State contracts with agricultural contractors to  
7 require subsidence reversal programs, as is included in the Proposed Project.

8 Alternative 1B would have less emphasis on modifying upstream reservoir operations to reduce potential  
9 Delta flooding, as described in subsection 2.2.4.5, compared to the Proposed Project.

10 All of the remaining Reduce Risks of Floods in the Delta aspects of Alternative 1B would have the same  
11 emphasis as the Proposed Project, except that the Proposed Project policies would be recommendations in  
12 Alternative 1B.

### 13 **2.3.4.5 Protection and Enhancement of Delta as an Evolving Place**

14 All of the Protection and Enhancement of the Delta as an Evolving Place aspects of Alternative 1B would  
15 have the same emphasis as the Proposed Project, except that the Proposed Project policies would be  
16 recommendations in Alternative 1B and the recommendation to develop Safe Harbor Agreements with  
17 landowners that agree to operate wildlife-friendly agricultural would be expanded to include Good  
18 Neighbor Agreements with the neighboring properties.

## 19 **2.3.5 Alternative 2**

20 Alternative 2 would not address the following Proposed Project policies and recommendations: ER P2,  
21 ER P3, WR R10, RR R2, and RR R5.

### 22 **2.3.5.1 Reliable Water Supplies**

23 Alternative 2 would have more emphasis on water use efficiency and development of local and regional  
24 water supplies by existing users of Delta water supplies compared to the Proposed Project. Alternative 2  
25 would establish specific targets for water use reduction, construction of new or expanded wastewater and  
26 stormwater recycling treatment plants, and new or expanded groundwater storage and use programs.  
27 Alternative 2 also would:

- 28 ♦ Limit Delta water exports to 3 million acre-feet/year.
- 29 ♦ Eliminate use of Delta water on drainage-impaired farmlands.
- 30 ♦ Limit water transfers that include substitution by the water sellers of groundwater from areas with  
31 groundwater overdraft.
- 32 ♦ Aggressive enforcement by the SWRCB of the reasonable water use provisions of the California  
33 Constitution (Section 2 of Article X).
- 34 ♦ Reduce SWP and CVP water contract amounts to values that could be reliably delivered at least  
35 75 percent of the time (compared to less than 70 percent of the time for existing SWP water  
36 supplies to water users located outside of the Delta).

1 Construction and operation of the types of facilities that would increase water use efficiency and reduce  
2 reliance on the Delta (as described in subsection 2.2.1) would be more likely under Alternative 2  
3 compared to Proposed Project. For example, the development of recycled water projects (as described in  
4 2.2.1.5) and groundwater recharge or treatment projects (as described in subsection 2.2.1.3.1) would be  
5 more likely. Therefore, existing users of Delta water supplies would decrease their level of reliance on the  
6 Delta as a water supply under Alternative 2 compared to the Proposed Project.

7 Alternative 2 would have less emphasis than the Proposed Project on encouraging DWR to complete  
8 ongoing Surface Water Storage Investigation (which includes three large-scale storage projects in the  
9 Delta watershed, as described in subsection 2.2.1.2.4) by recommending that DWR not complete the  
10 ongoing studies or implement these projects. Alternative 2 would have less emphasis on small-scale  
11 storage projects developed as part of local and regional water supplies in areas located outside of the  
12 Delta that use Delta water. Alternative 2 would include a large-scale storage project located south of the  
13 Delta in the Tulare Lake Basin, the Tulare Lake Basin Surface Storage Facility being developed by the  
14 San Joaquin Valley Leadership Forum to store water from the Kern, Kings, Kaweah, Tule, and Kern  
15 rivers in the historic Tulare Lake basin that has been reclaimed for agricultural land uses. The Tulare Lake  
16 Basin Surface Storage Facility program would create the storage facility approximately 2.5 million  
17 acre-feet in size with a surface area of about 320,000 acres by improving existing levees along the  
18 boundaries of the Tulare Lake Basin in Kings County (that would require construction and operation and  
19 maintenance activities as described in subsection 2.2.2.2.1), as well as increase the Friant Dam/Millerton  
20 Lake surface storage facilities (that would require construction and operation and maintenance activities  
21 as described in subsection 2.2.1.2.4), and construct conveyance between the east and west sides of the San  
22 Joaquin Valley and to connect the Tulare Lake storage facility with the California Aqueduct to convey  
23 water to existing users of Delta water located in southern California (that would require construction and  
24 operation and maintenance activities as described in subsection 2.2.3.1.7). Therefore, construction  
25 activities of large-scale storage projects in the Delta watershed and small-scale storage projects by local  
26 and regional water supplies in areas located outside of the Delta that use Delta water (as described in  
27 subsection 2.2.1.2.4) would be less likely under Alternative 2 compared to the Proposed Project.  
28 However, construction activities for the surface water storage facilities and conveyance (as described in  
29 subsections 2.2.2.2.1, 2.2.1.2.4, and 2.2.3.1.7) would be more likely under Alternative 2 compared to the  
30 Proposed Project.

31 All of the remaining Reliable Water Supply aspects of Alternative 2 would have the same emphasis as the  
32 Proposed Project.

### 33 **2.3.5.2 Delta Ecosystem Restoration**

34 Alternative 2 would recommend the SWRCB to develop flow criteria recommendations based upon  
35 beneficial uses of public trust resources and flow recommendations developed by USFWS and NMFS  
36 under existing conditions and for future conditions with climate change and sea level rise. Alternative 2  
37 would recommend that these flow criteria be developed on an aggressive schedule similar to the schedule  
38 described for the Proposed Project.

39 Alternative 2 would recommend that the SWRCB modify existing water rights to require water supply  
40 projects that divert water from the Delta watershed for users located outside of the Delta watershed to  
41 increase Delta inflow to protect the Delta watershed and Delta ecosystem and water users. Under  
42 Alternative 2, flow criteria would be updated on an aggressive schedule and the criteria would be more  
43 protective of ecosystem beneficial uses and in-Delta watershed uses compared to the Proposed Project.  
44 Therefore, construction and operation of alternative local and regional water supply facilities, as  
45 discussed in subsections 2.2.2.3.1 and 2.2.1, would be more likely under Alternative 2 compared to the  
46 Proposed Project.

1 Alternative 2 would have less emphasis on ecosystem restoration throughout the entire Delta compared to  
2 the Proposed Project. As in the Proposed Project, initial focus for restoration would be on specific areas  
3 of the Delta with large interconnected habitats, including areas in Yolo Bypass, Cache Slough, Suisun  
4 Marsh, Cosumnes and Mokelumne rivers confluence, and Lower San Joaquin River. Alternative 2 would  
5 have more emphasis on additional expansion to floodplain restoration, as described in  
6 subsection 2.2.2.2.1, including areas located to the east of the Sacramento Deep Water Ship Channel and  
7 to the west of the Sacramento River near Clarksburg. Alternative 2 would have less emphasis in riparian  
8 and tidal marsh ecosystem restoration that could occur in smaller, disconnected areas or on individual  
9 parcels. Alternative 2 would focus on development of floodplain and adjacent upland restoration to  
10 protect and contribute to both aquatic and terrestrial habitat goals. Alternative 2 would include  
11 development of ecosystem restoration plans in accordance with biological goals that are specific,  
12 measurable, achievable, and relevant for a specific time period. Alternative 2 also would not include  
13 requirements for habitat restoration actions to be consistent with *Conservation Strategy for Restoration of*  
14 *the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin*  
15 *Valley Regions* (DFG 2011). Alternative 2 also would not include requirements that actions other than  
16 habitat restoration actions demonstrate that they avoided or mitigated adverse impacts to the opportunity  
17 for habitat restoration consistent with *Conservation Strategy for Restoration of the Sacramento-San*  
18 *Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions*  
19 (DFG 2011). It is unclear the extent or types of ecosystem restoration projects that could occur under  
20 Alternative 2 in addition to the five areas described above in this paragraph. However, it appears that the  
21 extent of floodplain restoration, as described in subsection 2.2.2.2.1, would be more likely under  
22 Alternative 2 compared to the Proposed Project; and the extent of riparian and tidal marsh habitat  
23 restoration, as described in subsections 2.2.2.2.2 and 2.2.2.2.3, would be less likely under Alternative 2  
24 compared to the Proposed Project.

25 All of the remaining Delta Ecosystem Restoration aspects of Alternative 2 would have the same emphasis  
26 as the Proposed Project.

### 27 **2.3.5.3 Water Quality Improvement**

28 Alternative 2 would have more emphasis compared to the Proposed Project on development by the  
29 SWRCB, Central Valley RWQCB, and San Francisco Bay RWQCB of water quality objectives and Total  
30 Maximum Daily Loads for possible contaminants from municipal and industrial wastewater treatment  
31 plant and agricultural land use discharges. Development of water quality objectives and limits would  
32 result in construction of water quality projects to reduce discharge of possible contaminants, including  
33 recycled wastewater treatment plants and recycled stormwater treatment plants, as described in  
34 subsections 2.2.1.5 and 2.2.3.1. Alternative 2 would have more emphasis on implementation of recycled  
35 wastewater treatment plants and similar emphasis on implementation of recycled stormwater treatment  
36 plants compared to the Proposed Project. Therefore, the development of water quality objectives and  
37 limits and associated water quality projects would be more likely under Alternative 2 compared to the  
38 Proposed Project.

39 All of the remaining water quality improvement aspects of Alternative 2 would have the same emphasis  
40 as the Proposed Project.

### 41 **2.3.5.4 Flood Risk Reduction**

42 Alternative 2 would have more emphasis on protection of floodways and floodplains from encroachment  
43 compared to the Proposed Project. Like the Proposed Project, Alternative 2 would focus initially on  
44 Yolo Bypass, Cosumnes-Mokelumne rivers confluence, and Lower San Joaquin River. Alternative 2 also  
45 would focus on expansion of floodplain bypass areas located east of the Sacramento Deep Water Ship  
46 Channel; and in the southern Delta near Fabian and Roberts tracts, Union Island, and north of the City of  
47 Tracy. Therefore, implementation of floodplain restoration through levee breaching, as described in

1 subsection 2.2.2.2.1, or setback levees, as described in subsection 2.2.4.1.1, would be more likely under  
2 Alternative 2 compared to Proposed Project.

3 Alternative 2 would have less emphasis on facilitation of dredging programs for Delta channels to  
4 maintain or increase capacity compared to the Proposed Project. Therefore, the dredging projects  
5 described in subsection 2.2.4.1.4 would be less likely under Alternative 2 compared to the Proposed  
6 Project.

7 Alternative 2 would have less emphasis on reducing flood risk for rural areas in the Delta through  
8 increasing the flood protection levee design criteria than the Proposed Project. Alternative 2 would focus  
9 on prevention of flood losses by removing structures from the floodplain or protecting the structure, not  
10 the land, from flood events. Alternative 2 would:

- 11 ♦ Prevent development in areas with ground surface elevation lower than 6 feet below the water  
12 surface elevation if the land was inundated due to a levee breach
- 13 ♦ Require relocation of structures and/or infrastructure from the floodplain
- 14 ♦ Require implementation of floodproofing (raising the occupied rooms of a structure above the  
15 flood levels and/or waterproofing that portion of the structure within the flood levels) to provide  
16 200-year flood protection for existing structures in the floodplain
- 17 ♦ Require adoption by local flood management agencies of risk reduction land use and  
18 development elements, such as those described in the National Flood Insurance Program  
19 Community Rating System

20 Therefore, the implementation of levee design standards as described in subsection 2.2.4.1 would be less  
21 likely under Alternative 2 compared to the Proposed Project.

22 Alternative 2 would have less emphasis on reducing flood risk through investment in levee improvements  
23 compared to the Proposed Project because Alternative 2 would emphasize relocation or floodproofing of  
24 the structures and prevention of development within the floodplain. Therefore, levee construction and  
25 maintenance, as described in subsections 2.2.2.2.1 and 2.2.4.1, would be less likely under Alternative 2  
26 compared to the Proposed Project.

27 Alternative 2 would have more emphasis on modifying upstream reservoir operations to reduce potential  
28 Delta flooding compared to the Proposed Project. In addition to modification of reservoir operations  
29 under the Proposed Project, as described in subsection 2.2.4.5, Alternative 2 would include use of  
30 forecast-based flood releases and coordinated operations with groundwater storage projects. Therefore,  
31 upstream reservoir reoperation is more likely to occur under Alternative 2 compared to the Proposed  
32 Project.

33 Alternative 2 would have less emphasis subsidence reversal programs as compared to the Proposed  
34 Project because Alternative 2 would not recommend changes to State contracts with agricultural  
35 contractors to require subsidence reversal programs, as is included in the Proposed Project.

36 All of the remaining Reduce Risks of Floods in the Delta aspects of Alternative 2 would have the same  
37 emphasis as the Proposed Project.

### 38 ***2.3.5.5 Protection and Enhancement of Delta as an Evolving Place***

39 All of the Protection and Enhancement of Delta as an Evolving Place aspects of Alternative 2 would have  
40 the same emphasis as the Proposed Project.

## 1 **2.3.6 Alternative 3**

2 Alternative 3 would not address the following Proposed Project policies and recommendations: ER P3,  
3 WR R3, ER R3, RR R1, RR R8 - R11, FP R2, and FP R12.

### 4 **2.3.6.1 Reliable Water Supplies**

5 Alternative 3 would have the same emphasis on water use efficiency and development of local and  
6 regional water supplies by existing users of Delta water supplies that are located outside of the Delta  
7 compared to the Proposed Project. Alternative 3 would have less emphasis on water use efficiency and  
8 development of local and regional water supplies by existing users within the Delta watershed and Delta.  
9 Construction and operation of the types of facilities that would increase water use efficiency and reduce  
10 reliance on the Delta (such as described in subsection 2.2.1) would be as likely in areas outside of the  
11 Delta that use Delta water and less likely within the Delta watershed and Delta under Alternative 3  
12 compared to Proposed Project. For example, the development of recycled water projects (such as  
13 described in subsection 2.2.1.5) and groundwater recharge or treatment projects (such as described in  
14 subsection 2.2.1.3.1) would be more likely under Alternative 3 in areas outside of the Delta that use Delta  
15 water and less likely within the Delta watershed and Delta compared to the Proposed Project. As a result,  
16 the existing users within the Delta watershed and Delta would continue their level of reliance on the Delta  
17 as a water supply under Alternative 3 compared to the Proposed Project. Users outside of the Delta that  
18 use Delta water would be as likely to reduce their reliance on Delta water as compared the Proposed  
19 Project.

20 All of the remaining Reliable Water Supply aspects of Alternative 3 would have the same emphasis as the  
21 Proposed Project.

### 22 **2.3.6.2 Delta Ecosystem Restoration**

23 Alternative 3 would have less emphasis on ecosystem restoration throughout the entire Delta compared to  
24 the Proposed Project. Alternative 3 would not focus on the specific areas identified for restoration in the  
25 Proposed Project (Yolo Bypass, Cache Slough, Suisun Marsh, Cosumnes and Mokelumne rivers  
26 confluence, and Lower San Joaquin River). Alternative 3 would focus floodplain, riparian habitat, and  
27 tidal marsh habitat ecosystem restoration (as described in subsections 2.2.2.2.1, 2.2.2.2.2, and 2.2.2.2.3)  
28 on publicly-owned lands, but not on existing agricultural lands. Alternative 3 also would not include  
29 requirements for habitat restoration actions to be consistent with *Conservation Strategy for Restoration of*  
30 *the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin*  
31 *Valley Regions* (DFG 2011). Alternative 3 also would not include requirements that actions other than  
32 habitat restoration actions demonstrate that they avoided or mitigated adverse impacts to the opportunity  
33 for habitat restoration consistent with *Conservation Strategy for Restoration of the Sacramento-San*  
34 *Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions*  
35 (DFG 2011). Therefore, implementation of ecosystem restoration projects would be less likely under  
36 Alternative 3 compared to the Proposed Project.

37 Alternative 3 would have less emphasis for the use of setback levees compared to the Proposed Project.  
38 Alternative 3 would not promote the use of setback levees unless supported by local flood management  
39 agencies and unless the construction would not preclude future ecosystem restoration opportunities.  
40 Therefore, setback levees would less likely under Alternative 3 compared to the Proposed Project.

1 Alternative 3 would have more emphasis on implementation of actions compared to the Proposed Project  
2 to reduce threats from nonnative invasive species, such as water hyacinths, and stressors, such as  
3 entrainment of fish in SWP and CVP south Delta intakes/diversions. Therefore, implementation of  
4 programs to reduce threats from nonnative invasive species and stressors, such as aggressive programs to  
5 harvest water hyacinth and installation of fish screens on SWP and CVP south Delta intakes/diversions,  
6 would be more likely under Alternative 3 compared to the Proposed Project.

7 All of the remaining Delta Ecosystem Restoration aspects of Alternative 3 would have the same emphasis  
8 as the Proposed Project.

### 9 **2.3.6.3 Water Quality Improvement**

10 All of the water quality improvement aspects of Alternative 3 would have the same emphasis as the  
11 Proposed Project.

### 12 **2.3.6.4 Flood Risk Reduction**

13 Alternative 3 would have less emphasis on protection of floodways and floodplains from encroachment  
14 compared to the Proposed Project. Like the Proposed Project, Alternative 3 would focus initially on Yolo  
15 Bypass and Cosumnes-Mokelumne rivers confluence. However, Alternative 3 would not focus on  
16 protection of floodplains along the Lower San Joaquin River compared to the Proposed Project.  
17 Alternative 3 would prevent development of major subdivisions in the floodways or floodplains  
18 throughout the Delta, but would allow continued use of floodplains for agricultural activities and  
19 infrastructure. Therefore, implementation of floodplain restoration through levee breaching, as described  
20 in subsection 2.2.2.2.1, or setback levees, as described in subsection 2.2.4.1.1, would be less likely under  
21 Alternative 3 compared to the Proposed Project.

22 Alternative 3 would have more emphasis on facilitation of dredging programs for Delta channels to  
23 maintain or increase capacity compared to the Proposed Project. Alternative 3 would recommend that  
24 DWR, USACE, San Francisco Bay RWQCB and Central Valley RWQCB, USFWS, and NMFS develop  
25 a dredging plan for the Delta channels by December 31, 2012. Therefore, the dredging projects described  
26 in subsection 2.2.4.1.4 would be more likely under Alternative 3 compared to the Proposed Project.

27 Alternative 3 would have less emphasis than the Proposed Project on reducing flood risk by maintaining  
28 the existing requirement for 100-year flood protection for major developments in non-urban areas.  
29 Alternative 3 would have more emphasis on reducing flood risk to agricultural areas by increasing flood  
30 protection using Public Law 84-99 levee criteria. Therefore, levee design standards would be less  
31 stringent for major developments in non-urban areas and more stringent for agricultural areas under  
32 Alternative 3 compared to the Proposed Project.

33 Alternative 3 would have more emphasis on reducing risk through levee modifications and construction  
34 than the Proposed Project, especially for agricultural lands that would need to comply with Public Law  
35 84-99 levee criteria, as described above. Therefore, levee construction and maintenance activities, such as  
36 those described in subsections 2.2.2.2.1 and 2.2.4.1, would be more likely under Alternative 3 compared  
37 to the Proposed Project.

38 All of the remaining Reduce Flood Risks in the Delta aspects of Alternative 3 would have the same  
39 emphasis as the Proposed Project.

### 40 **2.3.6.5 Protection and Enhancement of Delta as an Evolving Place**

41 All of the Protection and Enhancement of Delta as an Evolving Place aspects of Alternative 3 would have  
42 the same emphasis as the Proposed Project.

## 2.4 References

- 1  
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