Executive Summary[1]

Introduction

In November 2009, the California Legislature enacted SBX7 1, which took effect on February 3, 2010. One portion of this legislation is known as the Sacramento–San Joaquin Delta Reform Act of 2009 (the Delta Reform Act). The Delta Reform Act requires the development of a legally enforceable, comprehensive, long-term management plan for the Delta, which is referred to as the Delta Plan. The Delta Reform Act also created the Delta Stewardship Council (Council), which is an independent State agency. One of the Council's primary responsibilities is to adopt the Delta Plan. The proposed Delta Plan is the subject of this environmental impact report (EIR). The Council is the California Environmental Quality Act (CEQA) lead agency for this EIR.

Parts of the Delta Plan, once adopted as State of California (State) regulations, will become legally enforceable policies. The remainder of the Delta Plan will consist of recommendations. Together, the Delta Plan's regulatory policies and recommendations will make up a comprehensive, long-term management plan for the Sacramento–San Joaquin Delta and the Suisun Marsh (Delta) that achieves the "coequal goals" established by the Delta Reform Act. The coequal goals are as follows: (1) providing a more reliable water supply for California and (2) protecting, restoring, and enhancing the Delta ecosystem in a manner that protects and enhances the unique cultural, recreational, natural resource and agricultural values of the Delta as an evolving place.

Following an extensive outreach effort to stakeholders and the public, five staff draft Delta Plans were developed between January and August 2011 using an extremely transparent and open public process. The Fifth Staff Draft Delta Plan released in August 2011 consists of twelve binding policies and sixty-one nonbinding recommendations, as well as other background information. The policies and recommendations text of the Fifth Staff Draft Delta Plan is what this EIR calls the "Proposed Project" or "Project."

This draft program EIR also describes five alternatives to the Proposed Project, which are analyzed at the same level of detail as the Proposed Project. Hence, this draft program EIR evaluates and describes the potential environmental impacts of the Proposed Project and the alternatives as required by CEQA. The degree to which the alternatives meet the "project objectives," described below, or are "feasible," as defined in CEQA, will be assessed by the Council, consistent with CEQA, following release of this draft program EIR, but prior to consideration of final adoption of the Delta Plan.

[1] Pursuant to CEQA Guidelines section 15123(a), an EIR "shall contain a brief summary of the proposed action and its consequences." As explained in section 15123(b), the summary shall identify (1) each significant impact, with proposed mitigation measures and alternatives; (2) areas of controversy known to the lead agency; and (3) issues to be resolved in the EIR.

Description of the Proposed Project

The Delta Plan is a suite of twelve regulatory policies (that would have the force of law once adopted as State regulations)[2] and sixty-one nonbinding recommendations, which collectively constitute the Proposed Project.

The policies and recommendations do not contain a list of physical projects to achieve the coequal goals. Rather, they are statements of policy direction to other agencies which, if the direction is followed, could lead to types of specific physical actions.[3] These types of physical actions (examples discussed below) could lead to physical changes in the environment. These types[4] of physical actions, therefore, are what this EIR evaluates as the potential outcome of the Fifth Staff Draft's Policies and Recommendations.

The policies and recommendations are organized into the five following elements:

- Creating a more reliable water supply for California ("Reliable Water Supply")
- Restoring the Delta ecosystem ("Delta Ecosystem Restoration")
- Improving water quality ("Water Quality Improvement")
- Reducing flood risk in the Delta ("Flood Risk Reduction")
- Protecting and enhancing the unique cultural, recreational, natural resources and agricultural values of the Delta as an evolving place ("Delta-As-Place Enhancement")[5]

Examples of the types of new/expanded/additional physical actions[6] and individual project types that could occur in these five elements include the following:

- **Reliable Water Supply:** New or expanded reservoirs, groundwater production facilities (wells and pipelines), ocean desalination facilities, and recycled water facilities
- **Delta Ecosystem Restoration:** Invasive species management (e.g., vegetation removal), and restoration/creation of floodplains, riparian areas, and tidal marsh
- **Water Quality Improvement:** New or expanded water, wastewater, stormwater, and agricultural runoff treatment plants; new or expanded facilities to improve the quality of well water, such as wellhead treatment and new recharge and monitoring wells
- **Flood Risk Reduction:** New setback levees; maintenance, repair and modification of existing levees; floodplain expansion; dredging

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[2] The regulatory Policies would be binding on "covered actions," which would be required to be consistent with the Policies. The term "covered action" is defined in the Delta Reform Act. Generally speaking, "covered actions" are those that occur in whole or in part in the Delta (for example, a new larger Delta water export pump, a transfer of water from Northern California to Southern California that flows through the Delta, a new or renewed water supply contract involving the export of water from the Delta, and so forth) and that could significantly impact the Delta ecosystem or water supply reliability.

[3] This EIR assumes that the Delta Plan will be successful and will lead to other agencies taking physical actions.

[4] The EIR evaluates *types* of physical actions rather than an exclusive list of physical actions, because the Delta Plan does not propose or encourage any such specific list nor can one be inferred. The Delta Plan does, however, encourage a few specific projects, and this EIR evaluates those "named" projects.

[5] The policies and recommendations carry labels that reflect these categories. For example, policies related to reliable water supply are WR P1, WR P2, and so forth, with "WR" denoting water reliability and "P" denoting a policy. Recommendations are WR R1, WR R2, and so forth.

[6] The Delta Plan also includes components—such as encouraging/requiring increased water use efficiency programs—that do *not* involve reasonably foreseeable physical projects that could have a substantial *adverse* effect on the environment. These components are important in some cases, however, because they help prevent deteriorating environmental conditions, particularly in the areas of water supply reliability and ecosystem health.

- **Delta-As-Place Enhancement:** In the Delta, construction of new or expanded parks, trails, marinas, bike lanes and wildlife enjoyment facilities; additional retail and restaurants in Delta legacy towns to support tourism

These physical actions are discussed in more detail in narrative format in Section 2A, Proposed Project and Alternatives, and in chart format in Section 2B, Introduction to Resource Sections, Table 2B-1.

Project Objectives

The Delta Reform Act requires the Council to adopt a Delta Plan that achieves the State's coequal goals. The Delta Reform Act also specifies the following: (i) eight objectives that are "inherent" in the coequal goals (see Water Code section 85020), (ii) a related statewide policy to reduce reliance on the Delta in meeting the State's future water supply needs through improved regional water self-reliance (Water Code section 85021); and (iii) certain specific subjects and strategies that must be included in the Delta Plan (see generally Water Code sections 85301–85309).

Consequently, for purposes of this Draft Program EIR, the project objectives are as follows: Achievement of the coequal goals and the eight "inherent" objectives, in a manner that (1) furthers the statewide policy to reduce reliance on the Delta in meeting the state's future water supply needs through regional self-reliance, (2) is consistent with specific statutory content requirements for the Delta Plan, (3) is implementable in a comprehensive, concurrent, and interrelated fashion, and (4) is accomplished as rapidly as realistically possible without jeopardizing ultimate success.

Areas of Known Controversy

The public and various government agencies have identified areas of controversy that span the wide variety of issues addressed by the Delta Plan. One area identified by the public and other agencies involves the Council's statutory authority pursuant to the Delta Reform Act. This area includes controversy over which activities the Council can regulate and to what extent the Council can regulate activities within and outside the Delta. Similarly, controversy exists over what role the Council should take in terms of meeting its statutory requirements under the Delta Reform Act, particularly whether the Council should focus solely on coordinating other government agencies toward meeting the coequal goals or whether the Council should pursue both regulatory and non-regulatory approaches in order to meet the coequal goals.

The remaining areas of controversy identified by the public and other agencies largely fall within the five policy elements addressed by the Delta Plan. Controversy surrounds how best to address key issues the Delta Reform Act mandates that the Council addresses: providing a more reliable water supply for California; restoring the Delta ecosystem; reducing risk to people, property, and State interests in the Delta; improving water quality; and protecting and enhancing the unique values of the Delta as a place.

Alternatives to the Proposed Project

This EIR describes and evaluates five Alternatives to the Proposed Project, which are analyzed at the same level of detail as the Delta Plan. In the descriptions below, the components of the alternatives are compared to the Fifth Staff Draft Delta Plan in narrative form. A comparison in table format is provided in Tables 2B-2 through 2B-6 in Section 2B, Introduction to Resource Sections. The narrative below and the tables focus on the elements of the Proposed Project and alternatives that could involve *physical* actions that could change the physical environment.

In the descriptions below, an alternative that would include "less floodplain restoration" means less floodplain restoration than the Proposed Project; an alternative that would "export more water from the Delta" would do so as compared to the Proposed Project, not as compared to existing water exports. To avoid needless repetition, therefore, the descriptions do not say "…than the Proposed Project" or "…as compared to the Proposed Project" in every sentence. In addition, where a component of an alternative is approximately the same as the Proposed Project, the discussion below does not mention that component; this approach allows the reader to focus on the *differences* between the alternative and the Proposed Project.

No Project Alternative

This alternative consists of the environment if no Delta Plan is adopted. In compliance with CEQA Guidelines section 15126.6(3)(A), the No Project Alternative assumes that existing relevant plans and policies would continue, which includes reasonably foreseeable modified or new plans or policies that are currently being analyzed for adoption or are required to be adopted. For example, it assumes that existing State statutory provisions requiring agencies that receive Delta water to engage in conservation and efficiency planning would remain in place in the future. The No Project Alternative also includes physical activities/projects that are permitted and funded at this time, such as expansion of Los Vaqueros Reservoir (Phase 1 only), new intakes/diversions for Freeport Regional Water Authority and Stockton, and initial construction of the Dutch Slough ecosystem restoration project. Under the No Project Alternative, conditions related to flood risk, ecosystem health, water quality, and water supply reliability (particularly in the Delta) would continue to degrade. Exports of Delta water would be greater under the No Project Alternative than under the Proposed Project.

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

Development of this alternative was informed by comments from water users in export areas south of the Delta. It involves exporting more water from the Delta and its watershed to areas that receive Delta water, and less water conservation and efficiency measures and fewer construction projects in those Delta-water-using areas aimed at improving local water supplies from new or expanded groundwater storage, ocean desalination plants, and water treatment plants.[7] Alternative 1A accomplishes these changes from the Proposed Project primarily by changing a policy of the Proposed Project related to Reliable Water Supply to a recommendation.[8] As it relates to covered actions, the Delta Plan policy requires users of Delta water to increase water efficiency and conservation measures, and requires development of a variety of local water supplies so as to reduce reliance on Delta water. Changing this policy to a recommendation would nullify the Council's ability (at least by means of this Delta Plan) to compel other agencies' covered actions to be consistent with existing requirements of law as well as to require additional local water supply development/water efficiency planning. This, in turn, would decrease pressure on other agencies to increase efficiency, conservation, and local supplies, and to develop local and regional water supplies.

[7] Alternative 1A does suggest additional local surface water storage reservoirs, roughly on par with what the Proposed Project would call for.

[8] The Policy is WR P1.

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

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

Alternative 1B: Export More Water Out of the Delta; Reduced Conservation and Water Efficiency Measures; Only Voluntary Actions by State and Local Agencies; Coordination, not Regulation; Large Number of Additional Studies Before Action

Development of this alternative was informed by a proposal from the Agriculture/Urban Coalition. It involves the same increased Delta water exports, reduction in local water supply projects, and reduction in water efficiency and conservation measures as described in the first paragraph above under Alternative 1A, and for the same reasons (conversion of the policy to a recommendation).

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

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

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

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

In general, Alternative 1B involves physical components similar to Alternative 1A, with some differences as discussed above. However, it involves a meaningfully different governance approach (changing all policies to recommendations) that weakens the Council's ability to move the State forward toward meeting the coequal goals. Moreover, Alternative 1B's versions of the recommendations generally call for studies rather than actions or projects, unlike the Proposed Project and Alternative 1A.

Alternative 2: Decreased Export of Water from the Delta; Increased Emphasis on Ecosystem Restoration throughout California

Development of this alternative was informed by proposals from environmental organizations led by the Environmental Water Caucus. It involves sharply decreased water exports from the Delta and its watershed to areas that receive Delta water (limited to a maximum of 3 million acre-feet/year). It involves fewer surface water storage projects, such as reservoirs (although it would include a large reservoir in the Tulare Lake basin, which currently is used for agriculture). It involves more water supply projects in the form of new or expanded groundwater storage, ocean desalination plants, and water treatment plants. It involves more water efficiency and conservation.

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

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

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

Development of this alternative was informed by letters and comments from interests in the Delta. It involves a reduction in exports as compared to existing exports (because of an emphasis on more natural water flows in the Delta, similar to the Proposed Project). It also involves a reduction in water efficiency and conservation measures—similar to Alternative 1A—but only for the Delta itself. This approach could lead to a reduction in alternative local water supply projects that serve users in the Delta and thereby not reduce their reliance (so less reduction in overall reliance) on Delta water; this could place greater pressure on other statewide water supply projects. Alternative 3 accomplishes these changes from the Proposed Project by changing a policy of the Proposed Project related to Reliable Water Supply to a recommendation (the same as Alternatives 1A and 1B, mentioned above), but only for water suppliers serving the Delta, while maintaining it as a policy for water suppliers that serve areas outside of the Delta.

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

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

Summary of Environmental Impacts of the Proposed Project and Associated Mitigation Measures

The Delta Plan is a long-term plan aimed at achieving the coequal goals described above. It seeks to stem and then correct a continuing and steady decline in statewide water supply reliability and environmental conditions related to the Delta ecosystem, as well as a related increase in Delta flood risk.[9] It seeks to do so in a way that protects and enhances the unique values of the Delta as an evolving place by, among other things, focusing on enhancing recreation opportunities in the Delta and protecting Delta legacy towns.

Generally speaking, these are long-term goals to reduce or reverse long-term growing environmental impacts from inaction. Accomplishing these goals in many instances will require physical construction work—extensive, in some cases (e.g., levee construction/modification, dam construction, park construction). That work could have adverse environmental impacts during the construction period, which can be mitigated to less-than-significant levels in many (but not all) cases.

In many regards, therefore, the Delta Plan involves an environmental tradeoff between short-term impacts resulting from construction (in areas including air quality, cultural and paleontological resources, noise, and transportation) and long-term reduction in impacts related to water reliability, water quality, flood risk, and ecosystem health. This does not mean, however, that projects the Delta Plan encourages would have no long-term adverse environmental impacts. A new desalination plant on the Southern California coast, a new reservoir in the Sierra Nevada foothills, or a new wetland habitat area in the Delta, for example, could have long-term impacts to ocean views, riparian and oak woodland habitat, or Delta agricultural land, respectively.

A summary of the potential environmental impacts of the Fifth Staff Draft Delta Plan (the Proposed Project) and associated mitigation measures are contained in Table ES-1 at the end of this Executive Summary.

Comparison of Environmental Impacts of the Alternatives to Those of the Proposed Project

Each resource section of the EIR (Sections 3 through 21) includes a detailed comparison of the project alternatives as compared to the Proposed Project for that resource.[10] Section 25 of this EIR summarizes those comparisons. The reader is referred to Section 25 as well as the individual resource sections for more detailed discussions of these issues.

As mentioned above, to a certain degree the Delta Plan involves an environmental tradeoff between short-term construction impacts and long-term impact reductions related to water reliability, water quality, flood risk, and ecosystem health. In many regards, therefore, the alternatives involve varying degrees of these environmental tradeoffs. Generally, these two go together: accomplishing larger reductions in long-term impacts requires greater short-term impacts. Conversely, fewer short-term efforts,

[9] The Fifth Staff Draft Delta Plan discusses this decline in resources, and these issues are discussed in detail in Section 2A, Proposed Project and Alternatives, of this EIR.

[10] The alternatives also are evaluated in comparison with existing conditions and with consideration of proposed mitigation measures.

and their associated short-term impacts, means that long-term reductions in impacts (reversing environmental degradation) may not be able to be accomplished as well. To the extent that an alternative would not call for projects and programs (or would call for fewer projects and programs than another alternative) to stem the decline of water reliability, water quality, flood risk and ecosystem health, that alternative would have greater adverse impacts to those resources.

This does not explain all of the environmental impact differences among the alternatives, but does explain many of them. Other important differences include differing numbers and locations of possible new reservoirs (and associated habitat and agricultural land lost), differing extents of floodplain and habitat expansion in the Delta (and associated agricultural land lost), and differing levels of aggressiveness in setting minimum water flow standards in the Delta.

An issue to be resolved by the Council, therefore, is what level of *short-term* environmental adverse impact is acceptable in exchange for reducing worsening *long-term* adverse environmental impacts to water reliability, water quality, flood risk, and ecosystem health. In addition, issues to confront include that reducing long-term growing water supply uncertainty impacts could come at the environmental cost associated with new reservoirs, and that meeting the ecosystem restoration goal could come at the cost of lost agricultural land.

As among the Alternatives, CEQA requires that an EIR designate, based on its evaluation, the alternative that is environmentally superior. As explained in Section 25, the Environmentally Superior Alternative is the Proposed Project.

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

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

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

Alternative 2 is slightly environmentally inferior to the Proposed Project because it would result in the greatest amount of water supply uncertainty and agricultural land losses. Alternative 2 would result in the greatest reduction in agricultural land use in the San Joaquin Valley through the loss of approximately 320,000 acres of Farmland of Statewide Importance (if Alternative 2's Tulare Lake Basin reservoir were to be constructed), 380,000 acres to be fallowed within the San Luis Drainage Area, and possibly additional acreage to be periodically fallowed due to restrictions on the total amount of water to be exported from the Delta. Extensive land fallowing also may increase adverse air quality impacts from fugitive dust unless best management practices for soil conservation are implemented. Alternative 2 is superior to the Proposed Project in terms of stemming the decline of the Delta ecosystem and declining water quality for two reasons: (1) it would encourage new water flow objectives for the Delta and tributaries that emphasize meeting environmental needs ahead of all other beneficial uses of Delta waters and (2) would eliminate the water quality impacts associated with agricultural runoff water from Tulare

Lake Basin agriculture. However, these two items would not be enough to outweigh the extensive loss of agricultural land. Under CEQA, agricultural land and fish and wildlife habitat are both environmental resources (CEQA Guidelines Appendix G). Lastly, Alternative 2 would be inferior to the Proposed Project regarding potential water supply impacts because it would result in fewer redundancies in the water supply system, thereby increasing the chance that water users could be without sufficient water during droughts affecting their water source more than another source that might be a backup source under the Proposed Project.

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

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

Next Steps for the EIR and Delta Plan: Submitting EIR Comments

This EIR is being released for public review and comment for a period of 60 days. The comment period begins on November 4, 2011, and ends on (and includes) January 3, 2012. A copy of the EIR is available for viewing and download at the Council's website at http://www.deltacouncil.ca.gov.

Comments on the Draft Delta Plan Program EIR should be provided to the Council on or before January 3, 2012. Written comments should be sent to "EIR Comments," Delta Stewardship Council, 980 Ninth Street, Suite 1500, Sacramento, CA 95814.

Comments may also be submitted electronically on the Council's website at http://www.deltacouncil.ca.gov or via e-mail with the subject line "Draft EIR" to eircomments@deltacouncil.ca.gov.

Comments may also be provided orally or in writing at public Council meetings on the following dates: Thursday, November 17, 2011 and Thursday, December 15, 2011. These meetings will be held in the Sacramento area. Please consult the Delta Stewardship Council website at http://www.deltacouncil.ca.gov for more information about exact location and time.

In January 2012, Council staff will review comments received on the EIR and on the Fifth Staff Draft Delta Plan. Staff will begin preparing written responses to comments received on the EIR; responses are anticipated to be published in March. In February and March, staff will consider whether changes to the Fifth Staff Draft Delta Plan are appropriate in light of the EIR and comments received. The Council will meet in late February and again in late March as necessary to consider any recommended changes. EIR certification and Delta Plan adoption is anticipated in spring 2012. If approved by the Council, the adopted Delta Plan then would enter the final phases of the regulatory approval process through the State Office of Administrative Law. It is anticipated that the Delta Plan would become a formal regulation in summer 2012.

Table ES-1
Summary of Impacts and Mitigation Measures for Proposed Project

Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
3. Water Resources							
3-1. Violate any Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Water Quality	S	S	S	S	S	Measure 3-1: ▪ For construction of new facilities, all typical construction mitigation measures shall be required. Typical mitigation measures include the following construction-related best management practices: – Gravel bags, silt fences, etc. shall be placed along the edge of all work areas in order to contain particulates prior to contact with receiving waters. – All concrete washing and spoils dumping shall occur in a designated location. – Construction stockpiles shall be covered in order to prevent blow-off or runoff during weather events. – Severe weather event erosion control materials and devices shall be stored onsite for use as needed. – Other BMPs as determined necessary by the regulating entity (city, county). ▪ Any new facility with introduced impervious surfaces shall include stormwater control measures that are consistent with the Regional Water Quality Control Board's NPDES municipal stormwater runoff requirements. ▪ Mitigate sediment contaminant bioavailability impacts through the exclusion of bird use or nesting areas from areas that may have excessive selenium or mercury. ▪ Apply BMPs for in-channel construction and levee disturbance such as silt curtains, cofferdams, the use of environmental dredges, erosion control on all inward levee slopes, and	Sv/LTS

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						various levee-stabilization techniques, including revegetation. Turbidity shall be monitored up- and downstream of construction sites as a measure of impact. ▪ Apply bank stabilization BMPs, as needed, for any in-channel disturbance, such as: – A 100-foot vegetative or engineered buffer shall be maintained between the construction zone and surface water body. – Native and annual grasses or other vegetative cover shall be established on construction sites immediately upon completion of work causing disturbance.	
3-2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge	LTS	LTS	LTS	LTS	LTS	Measure 3-2: ▪ During construction of any project that requires dewatering of groundwater resulting in a negative effect on nearby well-yields, the following measures shall be implemented: – Install sheet piles to reduce the area influenced by shallow groundwater level declines. – In case sheet piles are not an option and domestic well yields are affected, water supplies shall be trucked in to satisfy the well user's water supply needs. – If sheet piles are not effective and the impact on the well yield is important, such that the trucking in of water is not economically feasible, the affected well shall be deepened, or a new, deeper well shall be installed.	Sv/LTS
3-3. Substantially Change Water Supply Availability to Water Users that Use Delta Water	LTS	LTS	LTS	NI	NI		Sv/LTS

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4. Biological Resources							
4-1. Substantial Adverse Effects on Sensitive Natural Communities, including Wetlands and Riparian Habitat	S+	S	S	S+	S-	Measure 4-1: ▪ Avoid, minimize, and compensate for reduction in area and/or habitat quality of sensitive natural communities, including wetlands, by doing the following: – Selecting project site(s) that would avoid sensitive natural communities. – Designing, to the maximum extent practicable, project elements to avoid effects on sensitive natural communities. – Replacing, restoring, or enhancing on a “no net loss” basis (in accordance with USACE and SWRCB requirements), wetlands and other waters of the United States and waters of the State that would be removed, lost, and/or degraded. – Where impacts to sensitive natural communities other than waters of the United States or State are unavoidable, compensating for impacts by restoring and/or preserving in-kind sensitive natural communities. ▪ Implement construction best management practices, including: – Developing and implementing a Stormwater Pollution Prevention Plan (SWPPP). – Minimizing soil disturbance, erosion, and sediment runoff from project site. – Avoiding and minimizing contaminant spills.	S

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						– Minimizing visual and noise disturbance from construction activities. – Conducting biological construction monitoring to ensure that implemented BMPs are effective. ▪ Restore areas temporarily affected by construction activities, including: – Preparing restoration plan for temporary impacts sites for review by resource agencies. – Minimizing soil disturbance and stockpiling topsoil for later use in any areas to be graded. – Decompacting or amending soil if necessary before planting and use native species for revegetation. – Restoring natural communities with similar or improved function from communities that were affected. ▪ If a project may result in conversion of oak woodlands, as identified in section 21083.4 of the Public Resources Code, one or more of the following mitigation measures shall be implemented: – Conserve oak woodlands through the use of conservation easements. – Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees. – Contribute funds to the Oak Woodlands Conservation Fund. ▪ An invasive species management plan shall be developed and implemented for any project to ensure that invasive plant	

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						species and populations are kept below preconstruction abundance and distribution levels. The invasive species management plan will include the following elements: – Nonnative species eradication methods (if eradication is feasible) – Nonnative species management methods – Early detection methods – Notification requirements – Best management practices for preconstruction, construction, and post construction periods – Monitoring, remedial actions and reporting requirements – Provisions for updating the target species list over the lifetime of the project as new invasive species become potential threats to the integrity of the local ecosystems.	

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4-2. Substantial Adverse Effects on Special-Status Species	S+	S+	S	S+	S-	Measure 4-2: ▪ Select project site(s) that would avoid habitats of special-status species, and to the maximum extent practicable, (re)design project elements to avoid effects on such species. ▪ Schedule construction to avoid special-status species' breeding, spawning, or migration locations during the seasons or active periods that these activities occur. ▪ Conduct preconstruction surveys for special-status species to determine presence and locations of any special-status species and their habitat, and avoid, minimize, or compensate for impacts to special-status species in coordination with DFG and USFWS or NMFS. ▪ Establish buffers around special-status species habitats to exclude effects of construction activities. ▪ Conduct construction to ensure effectiveness of avoidance and minimization measures and implement remedial measures if necessary. ▪ When appropriate, relocate special-status plant and animal species or their habitats from project sites following USFWS, NMFS, and DFG protocols. ▪ Where impacts to special-status species are unavoidable, compensate for impacts by restoring or preserving in-kind suitable habitat.	S

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4-3. Substantial Adverse Effects on Fish or Wildlife Species Habitat	S	S	S	S	S-	Measure 4-3: ▪ Select project site(s) that would avoid a substantial reduction in fish and wildlife species habitat. ▪ To the maximum extent practicable, design project elements to avoid effects that would lead to a substantial loss of fish and wildlife habitat. ▪ Replace, restore, or enhance habitats for fish and wildlife species that would be lost. ▪ Where substantial loss of habitat for fish and wildlife species is unavoidable, compensate for impacts by preserving in-kind habitat.	S
4-4. Interfere Substantially with the Movement of any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors	S+	S	S-	S+	S-	Measure 4-4: ▪ Protect habitat for migratory waterfowl and shorebirds by expanding existing wildlife refuges and management areas, and establishing new ones in or near wetland areas used by migratory waterfowl and shorebirds. ▪ Protect, restore, and enhance connectivity of habitats, including but not limited to wetland and riparian habitats that function as migration corridors for wildlife species. ▪ Protect migratory pathways for migratory aquatic species such as salmon, steelhead, and sturgeon including those that use Delta tributaries and floodplain habitats by screening diversions, and removing migration barriers. ▪ Avoid or minimize alteration of flow patterns and water quality effects that could disrupt migratory cues for migratory aquatic species by implementing water management measures and establishing programs to reduce water pollution.	S

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4-5. Conflict with Any Local Policies or Ordinances Protecting Biological Resources or the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Protection Plan	S-	S-	S-	S-	S-	Measure 4-5: ▪ Prior to construction, evaluate impacts to trees or other biological resources protected by local policies and ordinances, and abide by any permit requirements associated with these policies and ordinances.	S
5. Delta Flood Risk							
5-1. Substantially Alter the Existing Drainage Pattern of the Site or Area, Including Through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner which would Result in Flooding On- or Off-site	S	S	S	S	S	Measure 5-1: ▪ Prepare a drainage or hydrology and hydraulic study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. ▪ Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with the results and recommendations of a drainage or hydrologic and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed. ▪ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project-caused short- or long-term increases in drainage runoff. The storage	S

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						space placement and capacity would be designed based on the drainage or hydrologic and hydraulic study. ▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood flow conditions. ▪ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts. ▪ Where low channel velocities might result from construction, implement a sediment management program in order to maintain channel capacity. ▪ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities. ▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, CVFPB, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish. ▪ For areas that would be flooded as a result of the project, or where existing flooding would be increased in magnitude, frequency, or duration, purchase a flowage easement and/or property at the fair-market value.	

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						▪ Provide a long-term sediment removal program at in-river structures. ▪ To mitigate potential impacts of changes in the timing of reservoir releases or the possible combination of river peak flows, use forecasts to implement coordination of operations with existing reservoirs.	
5-2. Create or Contribute Runoff Water which would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	S	NI	S	S	S	Measure 5-2: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. ▪ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project-caused, short- and long-term increases in drainage runoff. The storage space would be designed based on the drainage or hydrologic and hydraulic study.	Sv/LTS
5-3. Place Housing Within a 100-year Flood Hazard Area as Mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or Other Flood Hazard Delineation Map	NI	NI	NI	NI	NI		

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5-4. Expose People or Structures to a Significant Risk of Loss, Injury or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam	S	S	S	LTS	S	Measure 5-4: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. ▪ Where high channel velocities might result from construction, provide bank protection, such as rip rap, to protect levees from erosion. ▪ Where construction results in longer channel wind fetch lengths, install wave erosion protection on the water side slope of levees, such as rock or grouted rip rap, and increase levee freeboard to address higher wind and wave run-up. ▪ Based on the drainage or hydrology and hydraulics study, determine any resulting changes to available evacuation plans or emergency response times. ▪ To reduce emergency response times and public safety risks, raise structures and major roads out of the floodplain. ▪ Provide automated flood warning systems. ▪ Develop and implement area-specific evacuation and emergency response plans. ▪ Considering the results of the hydraulics study noted above, perform a seepage and stability analyses that would assess the need and act as a basis for design of other seepage- and stability-related mitigations, such as cutoff walls, adjacent levees, setback levees, berms, and subdrainage features.	S

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						▪ Perform research, collect subsurface information, and perform settlement analyses that would assess the need for monitoring and potential settlement-related mitigations, such as ground improvement or pre-construction surcharging. ▪ Perform research, collect subsurface information, and perform seismic and liquefaction analyses that would assess the need and provide the basis for design of other seismic-related mitigations, such as ground improvement. ▪ Prepare and implement a plan for periodic maintenance, inspections, repair, and rehabilitation of new water storage and conveyance facilities that could cause flooding upon failure. ▪ Provide redundancy and safety controls and devices on water storage and conveyance facilities (pump stations, canals, and tunnels) to protect against facility failure and subsequent flooding. ▪ To limit flooding from the unlikely event of a conveyance facility failure, limit extensive flow escape with installation of safety devices such as gated checks. ▪ Construct new evacuation roads and access roads, as necessary. ▪ Conduct Golden Guardian emergency drills.	

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5-5. Place within a 100-year flood hazard area structures which would impede or redirect flood flows, or inundation by seiche, tsunami, or mudflow	S	S	S	LTS	S	Measure 5-1: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. ▪ Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with drainage or hydrology and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed. ▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood conditions. ▪ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts. ▪ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities. ▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the	S

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						USACE, DWR, CVFPB, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.	
6. Land Use and Planning							
6-1. Physical Division of an Established Community	S-	S	S	S	LTS	Measure 6-1: ▪ Minimize physical division of existing established communities or residential areas by designing new facilities and infrastructure to be located underground or with sufficient points of visual and physical access. Examples of methods of minimizing physical division include (but are not limited to): – Burying or visually masking new infrastructure or facilities; – Restoring disturbed landscapes back to preconstruction conditions; – Reestablishing access (e.g., reconnecting roads, rebuilding bridges); – Relocating landmark buildings; or – Implementing other feasible mitigation to reduce the disturbance to a community's physical composition, visual character, or other features integral to the community's identity.	S

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6-2. Conflict of Constructed Facilities with an Applicable Land Use Plan, Policy, Regulation, or Restriction on Land That Was Adopted for the Purpose of Avoiding or Mitigating an Environmental Impact	S	S	S	S	S-	Measure 6-2: ▪ Compensate for the loss or reduction in environmental values protected by the subject plan or policy. For example, if the project would result in conversion of agricultural land to a non-agricultural use, potential mitigation actions could include: – Recording a deed restriction that ensures permanent conservation and mitigation on other property of equal or greater environmental mitigation value; – Creating a buffer or barrier between uses; – Redesigning the project or selecting an alternate location that avoids or mitigates the impact; and/or – Restoring disturbed land to conditions to provide equal or greater environmental value to the land affected by the covered action.	S
7. Agriculture and Forestry Resources							
7-1. Conversion of Farmland to Nonagricultural Use	S	S+	S-	S	S	Measure 7-1: ▪ Design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land. ▪ Preserve in perpetuity other Farmland through acquisition of an agricultural conservation easement, or contributing funds to a land trust or other entity qualified to preserve Farmland in perpetuity (at a ratio of 1:1 to compensate for permanent loss). ▪ Redesign project features to minimize fragmenting or isolating Farmland. ▪ Reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction.	S

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						▪ Manage project operations to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land. ▪ Establish buffer areas between projects and adjacent agricultural land that are sufficient to protect and maintain land capability and agricultural operation flexibility.	
7-2. Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract	S	S+	S-	S	S	Measure 7-2: ▪ Select a site or redesign a project to avoid land protected by agricultural zoning or a Williamson Act contract. ▪ Limit ecological restoration activities to those activities consistent with Williamson Act contracts.	S
7-3. Conflict with Existing Zoning for, or Cause Rezoning of, Forestland, Timberland, or Timberland Zoned for Timberland Production	S	S+	S-	S-	NI	Measure 7-3: ▪ Avoid land protected as forestland and timberland through site selection and/or project design. ▪ Limit ecological restoration activities to those activities consistent with existing forestland and timberland zoning.	S
7-4. Loss of Forestland or Conversion of Forestland to Nonforest Use	S	S+	S-	S-	S	Measure 7-4: ▪ Preserve in perpetuity other forestland through a conservation easement or by acquiring lands or contributing funds to a land trust or other agency (at a ratio of 1:1 to compensate for permanent loss). ▪ Avoid land protected as forestland and timberland through site selection and/or project design. ▪ Limit ecological restoration activities to those activities consistent with existing forestland and timberland zoning.	S

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						▪ When removal of existing forestland or timberlands is required as part of an action, proponents must acquire the property at fair market value.	
7-5. Involve Other Changes in the Existing Environment That, Because of Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use or Conversion of Forestland to Nonforest Use	S	S+	S-	S	S	Measures 7-1 and 7-4 (above)	S
8. Visual Resources							
8-1. Substantial Degradation of Visual Qualities	S	S-	S	S	S-	Measure 8-1: ▪ Use compatible colors for proposed structural features, such as intakes, pumping plants, and surge towers. ▪ Minimize the vertical profile of proposed structures as much as possible. ▪ Do not enclose facilities with chain-link fencing. ▪ Use vegetation plantings on proposed facility walls. ▪ Develop a landscaping plan for all proposed structures. Provide vegetative screening to block views of intakes, pumping plants, surge towers, and new levees/canals. ▪ Round the tops and bottoms of spoil disposal areas, and contour the faces of slopes to create more natural-looking landforms. ▪ Create visual diversity by planting vegetation with diverse growth forms on the slopes of proposed canal levees; plant	S

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						with more than just grasses. ▪ Landscape parking areas at proposed facilities, and include low-impact design features. ▪ Conduct only partial vegetative clearing of the limits of construction rather than clear the entire area. ▪ Develop design form and materials with a goal to achieve aesthetic visual character instead of a strictly utilitarian objective. ▪ Develop aesthetically pleasing landscaping for relocated roads at the shoulders, intersections, and on- and off-ramps from highways. Design turnouts and scenic vista points where appropriate for relocated roads with high visibility and high public use. ▪ Use single-pole electrical transmission towers instead of lattice-form towers for proposed large electrical transmission lines, and put transmission lines underground along areas with high visibility and high public use. ▪ Consider developing aesthetically well-designed visitor centers, vantage areas, or observation decks at appropriate facilities with interpretation features, walking paths, and other features.	

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8-2. Adverse Effects on Scenic Vistas and Scenic Resources	S	S-	S	S	S-	Measure 8-2: ▪ Implement elements of Mitigation Measures for Impact 8-1 (above) for temporary construction activities and new facilities that are visible from scenic vistas and designated roads and highways as appropriate. ▪ Replace all scenic resources (e.g., large trees) that would be removed for the Proposed Project, when feasible.	S
8-3. New Sources of Substantial Light or Glare	S	S-	S	S	S-	Measure 8-3: ▪ Use shields for proposed lighting facilities, and direct lighting downward and inward toward the facilities.	S
9. Air Quality							
9-1. Construction and Operations of Projects Could Conflict with an Applicable Air Quality Plan, Contribute Substantially to an Air Quality Violation, and/or Result in a Cumulatively Considerable Net Increase of Nonattainment Pollutants	S	S	S	S	S-	Measure 9-1: ▪ Use equipment and vehicles that are compliant with ARB requirements and emission standards for on-road and off-road fleets and engines. ▪ Minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. ▪ Maintain all equipment in proper working condition according to manufacturer's specifications. ▪ Use electric equipment when possible. Use lower-emitting alternative fuels to power vehicles and equipment where feasible. ▪ Use low VOC coatings and chemicals; minimize chemical use. ▪ Prepare a dust control plan and apply dust control measures at the construction sites.	S

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						▪ For projects involving land fallowing, land conversion, or other agricultural operations, implement applicable BMPs to reduce potential dust emissions.	
9-2. Construction and Operations of Projects Could Create Objectionable Odors Affecting a Substantial Number of People	LTS	S-	S-	LTS	LTS	Measure 9-2: ▪ Applicants should develop and implement a project-specific Odor Management Plan (OMP).	Sv/LTS
9-3. Construction or Operation of Projects Could Expose Sensitive Receptors to Substantial Pollutant Concentrations	S-	S-	S-	S-	S-	Measure 9-3: ▪ Implement Mitigation Measures for Impact 9-1 (above) to reduce air emissions and air quality impacts from construction and operations of the proposed project. ▪ Use equipment with diesel engines designed or retrofitted to minimize DPM emissions. ▪ Use electric equipment to eliminate local combustion emissions. ▪ Use alternative fuels, such as compressed natural gas (CNG) or liquefied natural gas (LNG).	S
10. Cultural Resources							
10-1. Disturbance or Destruction of Prehistoric and Historic-Era Archaeological Resources	S	S	S	S	S	Measure 10-1: ▪ Before any ground-disturbing activities begin, conduct intensive archaeological surveys, including subsurface investigations to identify the locations, extent, and integrity of presently undocumented archaeological resources that may be located in areas of potential disturbance. In addition, if ground-disturbing activities are planned for an area where a previously documented prehistoric archaeological site has	S

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						been recorded but no longer may be visible on the ground surface, conduct test excavations to determine whether intact archaeological subsurface deposits are present. Also, conduct surveys at the project site for the possible presence of cultural landscapes and traditional cultural properties. ▪ If potentially CRHR-eligible prehistoric or historic-era archeological resources are discovered during the survey phase, additional investigations may be necessary. In addition, upon discovery of potentially CRHR-eligible prehistoric resources, coordinate with the NAHC and the Native American community to provide for an opportunity for suitable individuals and tribal organizations to comment on the proposed research. ▪ If CRHR-eligible archaeological resources or cultural landscapes/properties are present and would be physically impacted, specific strategies to avoid or protect these resources should be implemented if feasible. These measures may include: – Planning construction to avoid the sensitive sites – Deeding the sensitive sites into permanent conservation easements – Capping or covering archaeological sites – Planning parks, green space, or other open space to incorporate the sensitive sites ▪ If federal agencies are participants in the activity and Section 106 of the National Historic Preservation Act applies, conduct formal consultation with the State Historic Preservation Officer and the Native American community.	

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10-2. Discovery of Unrecorded Human Remains	S	S	S	S	S	Measure 10-2: ▪ If human remains are encountered during ground-disturbing construction activities, stop work that would potentially affect the find and contact the county coroner. ▪ If the discovery of human remains occurs on lands owned and administered by a federal agency, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) will apply.	Sv/LTS
10-3. Disturbance or Destruction of Historic Buildings, Structures, and Linear Features	S	S	S	S	S	Measure 10-3: ▪ Inventory and evaluate historic-era buildings, structures, and linear features. Conduct cultural resources studies to determine whether historic-era buildings, structures, and linear features in the project area are eligible for listing in the CRHR. ▪ Before construction activities begin, an inventory and evaluation of historic-era resources in the project area should be conducted under the direct supervision of an architectural historian meeting the Secretary of the Interior's Professional Qualification Standards for history or architectural history. ▪ Identify measures to avoid significant historic resources. Avoidance through project redesign is the preferred mitigation measure for mitigating potential effects on historic-era buildings, structures, linear features, and archaeological sites that appear to be eligible for listing in the NRHP or CRHR. ▪ Record photographic and written documentation to Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) standards. If avoidance of a significant historic resource is not feasible, the lead agency should ensure that HABS/HAER documentation is completed.	S

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						▪ Conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings in the event of relocation.	
10-4. Disturbance or Destruction of Cultural Landscapes and Traditional Cultural Properties	S	S	S	S	S	▪ Measures 10-1 and 10-3 (above) will also mitigate Impact 10-4. However, to mitigate Impact 10-4, surveys and inventories would focus on cultural landscapes and traditional cultural properties.	S
11. Geology and Soils							
11-1. Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault	S-	S-	S-	S-	S-	Measure 11-1: ▪ For construction that occurs in an Alquist-Priolo Special Studies Zone, a determination must be made by a licensed practitioner that no fault traces are present within the building footprint of any structure intended for human occupancy. ▪ Lead agencies shall ensure that geotechnical design recommendations are included in the design of facilities and construction specifications to minimize the potential impacts from seismic events and the presence of adverse soil conditions.	Sv/LTS
11-2. Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death due to Strong Ground Motion Associated with Seismic Shaking	S+	S+	S+	S+	S+	Measure 11-2: ▪ Require adherence, at minimum, to the precepts of the current approved version of the International Building Code (IBC).	Sv/LTS

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11-3. Construction and Operations of Projects Could Be Located on a Geologic Unit or Soil That Is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in Loss of Bearing Value, Lateral Spreading, Subsidence, Liquefaction or Collapse	S-	S-	S-	S-	S-	Measure 11-3: ▪ For projects that would result in significant or potentially significant grading operations, a geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether excavation or fill placement would result in a potential for damage due to soil subsidence during and/or after construction. Project designs shall incorporate measures to reduce the potential damage to an insignificant level. ▪ A geotechnical investigation shall be performed to determine the presence and thickness of potentially liquefiable sands that could result in loss of bearing value during seismic shaking events. Project designs shall incorporate measures to mitigate the potential damage to an insignificant level. ▪ For projects that would result in construction of wells intended for groundwater extraction, a hydrogeological/geotechnical investigation shall be performed to identify and quantify the potential for groundwater extraction-induced subsidence. ▪ For projects that would result in construction of surface reservoirs and canals a hydrogeological/geotechnical investigation shall be performed to identify and quantify the potential for seeps and springs to develop in areas adjacent to the proposed improvements and to propose mitigation measures.	Sv/LTS

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11-4. Construction of Projects Could Result in Substantial Soil Erosion or the Loss of Topsoil	S-	S-	S-	S-	S-	Measure 11-4: ▪ Any covered action that would have significant soil erosion and topsoil loss impacts shall incorporate specific measures for future projects that would expand the use of BMPs or optional erosion control measures listed in the SWPPPs. The SWPPP shall identify an effective combination of BMPs to reduce erosion during construction and to prevent erosion during operation.	Sv/LTS
11-5. Construction of Projects Could Lead to Impacts Associated with the Presence of Expansive Soils	S-	S-	S-	S-	S-	Measure 11-5: ▪ In areas where expansive clays exist, a hydrogeological/geotechnical investigation shall be performed to identify and quantify the potential for expansion, particularly differential expansion of clayey soils due to leakage and saturation beneath new improvements. Measures could include, but are not limited to removal and recompaction of problematic expansive soils, soil stabilization, and/or reinforcement of constructed improvements to resist deformation due to expansion of subsurface soils.	Sv/LTS
11-6. Operation of Projects Could Result in Impacts Associated with the Occurrence of Nuisance Water in Adjacent Areas Due to Leakage	S-	S-	S-	S-	S-	Measure 11-6: ▪ For projects that would result in construction of canals, storage reservoirs and other surface impoundments, project design shall provide for protection from leakage to the subsurface. ▪ For ecosystem restoration projects that might cause subsurface seepage of nuisance water onto adjacent lands: – Perform seepage monitoring studies by measuring the level of shallow groundwater in the adjacent soils, to evaluate the baseline conditions. Continue monitoring for seepage during and after the project implementation.	Sv/LTS

Table ES-1
Summary of Impacts and Mitigation Measures for Proposed Project

Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
						– Develop a seepage monitoring plan if subsurface seepage constitutes nuisance water to the adjacent land. – Implement seepage control measures if adjacent land is not useable, such as installing subsurface agricultural drainage systems to avoid raising water levels into crop root zones. Cutoff walls and pumping wells can also be used to mitigate for the occurrence of subsurface nuisance water.	
11-7. Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	S-	S-	S-	S-	S-	Measure 11-7: ▪ For projects that would result in construction of levees, surface impoundments and other fill embankments project design shall incorporate fill placement in accordance with local and State regulations and in accordance with the prevailing standards of care for such work. Measures could include, but are not limited to blending of soils most susceptible to landsliding with soils having higher cohesion characteristics, installation of slope stabilization measures, designing top-of-slope berms or v-ditches, terrace drains and other surface runoff control measures, and designing slopes at lower inclinations.	Sv/LTS
11-8. Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Waste Water Disposal Systems Where Sewers are Not Available for the Disposal of Waste Water	S-	S-	S-	S-	S-	Measure 11-8: ▪ A geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether on-site soils would be suitable for an on-site wastewater treatment system. If it is determined that the soil could not support a conventional on-site treatment system, non-conventional systems shall be analyzed.	Sv/LTS

Table ES-1
Summary of Impacts and Mitigation Measures for Proposed Project

Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
11-9. Substantial Risks to Life or Property Due to Construction of Project Facilities on High Organic Matter Soils	S-	S-	S-	S-	S-	Measure 11-9: ▪ For projects that would result in significant or potentially significant risk to structures due to the presence of highly organic soils, lead agencies shall require geotechnical evaluation prior to construction to identify measures to mitigate organic soils.	Sv/LTS
12. Paleontological Resources							
12-1. Destruction of Paleontological Resources or Unique Geological Features	S	LTS	S	S	LTS	Measure 12-1: ▪ During the project-level analysis, a Paleontological Resources Monitoring and Recovery Plan (PRMRP) shall be developed and implemented for all actions.	S
13. Mineral Resources							
13-1. Loss of Availability of a Known Mineral Resource that Would Be of Value to the Region and Residents of the State	S-	LTS	S-	S-	LTS	Measure 13-1: ▪ Ensure land use compatibility between existing mineral resource extraction activities and projects, activities or actions that may be implemented as the result of the Proposed Project. ▪ Maintain adequate buffer between future projects and designated MRZ-2 sectors. ▪ Explore opportunities to classify and designate new MRZ-2 sectors (e.g., in existing MRZ-3 sectors) to ensure that important mineral resources are conserved and continue to be available for future construction needs. ▪ Ensure future land use changes within designated mineral resource extraction areas recognize mineral resource extraction as a compatible use.	S

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						▪ Limit use of construction aggregate to local sources with sufficient capacity to meet both project and future local development needs, to the extent possible. ▪ Use recycled aggregate where possible, to decrease the demand for new aggregate.	
13-2. Loss of Availability of a Locally Important Mineral Resource Recovery Site Delineated on a Local General Plan, Specific Plan, or Other Land Use Plan	S-	S-	S-	S-	LTS	Measure 13-2: ▪ Ensure access is maintained to existing, active mineral resource extraction sites both during and after project construction. ▪ Implement recommendations identified in DOGGR's construction site well review program.	Sv/LTS
14. Hazards and Hazardous Materials							
14-1. Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials or through Reasonably Foreseeable Upset and Accident Conditions involving the Release of Hazardous Materials into the Environment	S	S	S	S	S	Measure 14-1: ▪ Refueling and maintenance of vehicles and equipment to occur only in designated areas that are either bermed or covered with concrete, asphalt, or other impervious surfaces to control potential spills. ▪ Refueling of vehicles and equipment to occur only when employees are present. ▪ Vehicle and equipment service and maintenance conducted only by authorized personnel. ▪ Refueling conducted only with approved pumps, hoses, and nozzles. ▪ Catch-pans placed under equipment to catch potential spills during servicing.	Sv/LTS

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Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
						▪ All disconnected hoses placed in containers to collect residual fuel from the hoses. ▪ Vehicle engines shut down during refueling. ▪ No smoking, open flames, or welding allowed in refueling or service areas. ▪ Refueling performed away from bodies of water to prevent contamination of water in the event of a leak or spill. ▪ When refueling is completed, the service truck to leave the project site. ▪ Service trucks provided with fire extinguishers and spill containment equipment, such as absorbents. ▪ Should a spill contaminate soil, the soil shall be placed in containers and disposed of as appropriate. All containers used to store hazardous materials to be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas to be inspected monthly. Results of inspections to be recorded in a logbook maintained onsite. ▪ Provision of an automatic sprinkler system for indoor hazardous material storage areas. ▪ Provision of an exhaust system for indoor hazardous material storage areas. ▪ Separation of incompatible materials by isolating them from each other with a noncombustible partition. ▪ Spill control in all storage, handling, and dispensing areas. ▪ Separate secondary containment for each chemical storage system.	

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						Measure 14-2: ▪ Worker training programs and breathing apparatus shall be provided. Monitoring programs shall be implemented as areas are excavated to determine the potential for exposure to soil organisms or other constituents. ▪ Public outreach programs shall be conducted to educate the public of the types of construction activities and risks that could occur. In areas near extreme hazards, warning sirens shall be used at construction sites to immediately notify workers and residents.	
14-2. Be Located on a Site Which Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code, Section 65962.5 and, as a Result, Would Create a Significant Hazard to the Public or the Environment	S	S	S	S	S	Measures 14-1 and 14-2 (see above)	Sv/LTS
14-3. Create Vector Habitat that would Pose a Significant Public Health Hazard	S	S	LTS	S	LTS	Measure 14-3: ▪ Freshwater habitat management to include water-control-structure management, vegetation management, mosquito predator management, drainage improvements, and coordination with the DFG regarding these strategies and specific techniques to help minimize mosquito production. ▪ Maintenance of permanent ponds that increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic	Sv

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Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
						draining of ponds. ▪ Tidal management focused on mosquito problems arising from the residual tidal and floodwaters remaining in depressions and cracked ground. ▪ Avoidance of ponding in tidal marsh habitat or in areas within the waterside of setback levees. Design of ecosystem restoration areas, waterfowl hunting areas, setback levees, parks, canals, and surface water storage facilities to minimize standing water, or use of other methods such as mosquito fish to reduce mosquito breeding.	
14-4. Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste Within 0.25 Mile of An Existing or Proposed School	S	S	S	S	LTS	Measures 14-1, and 14-2 (see above) Measure 14-4: ▪ Avoid creating hazardous wildlife attractants within a distance of 10,000 feet of an Airport Operations Area. ▪ Maintain a distance of 5 statute miles between the farthest edge of the Airport Operations Area and hazardous wildlife attractants.	Sv/LTS
14-5. Increase Safety Hazards for People Residing in or Working in the Project Areas Within the Vicinity of a Private Airstrip, Within an Airport Land Use Plan, or Within 2 Miles of a Public Airport or Public Use Airport, or Create Airport Safety Hazards	S	S	S	S	S	Measure 14-4: ▪ Avoid creating hazardous wildlife attractants within a distance of 10,000 feet of an Airport Operations Area. ▪ Maintain a distance of 5 statute miles between the farthest edge of the Airport Operations Area and hazardous wildlife attractants.	SvLTS

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Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
14-6. Expose People or Structures to a Significant Risk of Loss, Injury or Death involving Wildland Fires	S	LTS	S	LTS	LTS	Measure 14-6: ▪ Prepare and implement a fire management plan to minimize potential for wildland fires	Sv/LTS
15. Noise							
15-1. Exposure of Sensitive Receptors to Excessive Temporary, Short-term Construction Noise	S	S-	S-	S-	S-	Measure 15-1: ▪ Limit the hours of operation at noise-generation sources located near or adjacent to noise-sensitive areas, wherever practicable, to reduce the level of exposure to meet applicable local standards. ▪ Locate construction equipment away from sensitive receptors, to the extent feasible, to reduce noise levels below applicable local standards. ▪ Maintain construction equipment to manufacturers' recommended specifications, and equip all construction vehicles and equipment with appropriate mufflers and other approved noise-control devices. ▪ Limit idling of construction equipment to the extent feasible to reduce the time that noise is emitted. ▪ Conduct individual traffic noise analysis of identified haul routes and provide mitigation at locations where noise standards cannot be maintained for sensitive receptors. ▪ Incorporate use of temporary noise barriers between construction activities and sensitive receptors if it is concluded that they would be effective in reducing noise exposure to sensitive receptors.	S

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						▪ Near sensitive receptors, avoid or minimize use of construction equipment known to generate high levels of groundborne vibration.	
15-2. Temporary and Short-term Exposure of Sensitive Receptors to Excessive Groundborne Vibrations	S	S-	S-	S-	S-	Measure 15-2: ▪ Conduct a preliminary groundborne vibration analysis report to determine future construction-related groundborne vibration levels based on, but not limited to, a detailed equipment list, hours of operation and distances to sensitive receptors located within 500 feet of project sites. ▪ Provided that future groundborne vibration results in significant impacts at sensitive receptors, the following measures shall be implemented: – Designate a complaint coordinator and post this person's contact information in a location near construction areas where it is clearly visible to the nearby receptors most likely to be affected. – Vibration monitoring will be conducted before and during vibration generating operations occurring within 100 feet of historic structures. Every attempt will be made to limit construction-generated vibration levels during pile driving and other groundborne noise and vibration-generating activities in the vicinity of the historic structures. – Adjacent historic features will be covered or temporarily shored, as necessary, for protection from vibrations, in consultation with the appropriate cultural resources authority. – Pile driving required within a 50-foot radius of residences will use alternative installation methods where possible.	S

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						– Pile-driving activities conducted within 285 feet of sensitive receptors will occur during daytime hours to avoid sleep disturbance during evening and nighttime hours.	
15-3. Long-term Exposure of Sensitive Receptors to Excessive Noise from Operations	S-	LTS	S-	LTS	S-	Measure 15-3: ▪ Identify noise-sensitive receptors in the vicinity of project activities and design projects to minimize exposure of sensitive receptors to long-term, operational noise sources. ▪ Conduct a preliminary noise analysis report to determine future operation-related noise and distances to sensitive receptors. Provided that future operation-related noise results in significant at sensitive receptors, incorporate into construction design measures. ▪ Locate dog parks no closer than 200 feet from the nearest residential property line and at least 75 feet from habitat for noise-sensitive wildlife species. ▪ Locate parking lots no closer than 65 feet from the nearest residential property line and at least 25 feet from habitat for noise-sensitive wildlife species unless a detailed noise study is conducted that determines that placement of parking lots closer than the distances specified above will not result in noise levels that exceed 67 dBA at the nearest residential property line or 60 dBA from noise-sensitive habitat, or appropriate mitigation measures. ▪ Locate playing fields no closer than located at least 125 feet from the nearest residential property line and at least 50 feet from habitat for noise-sensitive wildlife species unless a detailed noise study is conducted that determines that placement of playing fields closer than the distances specified	S

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						above will not result in noise levels that exceed 67 dBA at the nearest residential property line or 60 dBA from noise-sensitive habitat, or appropriate mitigation measures.	
16. Population and Housing							
16-1. Induce Substantial Population Growth in an Area, Either Directly or Indirectly	LTS	LTS	LTS	LTS	LTS	▪ Require compliance with applicable local policies and regulations regarding the provision of affordable housing. ▪ Construct replacement housing if existing housing will be displaced.	
16-2. Displace Substantial Numbers of Existing Housing and/or People, Necessitating the Construction of Replacement Housing Elsewhere	LTS	LTS	LTS	LTS	LTS	▪ Require compliance with applicable local policies and regulations regarding the provision of affordable housing. ▪ Construct replacement housing if existing housing will be displaced.	
17. Public Services							
17-1. Need for New or Physically Altered Governmental Facilities to Maintain Acceptable Service Ratios, Response Times, or Other Performance Objectives for Fire Protection and Emergency Medical Services, Police Protection, Schools, or Libraries	LTS	LTS	LTS	LTS	LTS	Measure 17-1: ▪ Establish construction fee schedules by local agencies for the new or modified facilities to fund additional emergency services potentially required during construction. If emergency services are not needed, a portion of the fees could be refunded. ▪ Develop worker training programs to reduce construction and operations risks. ▪ Develop appropriate emergency access routes and equipment for both land and water access, if applicable (such as in the Delta), that provides for adequate response time. If use of an existing emergency access route becomes limited due to new	

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						or modified facilities, additional routes or placement of duplicate equipment on each side of the route limitation could be considered. ▪ Develop traffic plans and emergency response plans for construction and operations phases of new facilities. ▪ Develop all facilities, including parks and ecosystem restoration areas, in accordance with applicable fire codes and regulations, and with adequate fire equipment access routes, occupancy limitations, and fire-protection equipment.	
18. Recreation							
18-1. Impair, Degrade, or Eliminate Recreation Facilities and Activities	S+	S-	S+	S	LTS	Measure 18-1: ▪ If the substantial impairment, degradation, or elimination of recreational facilities occurs, replacement facilities of equal capacity and quality with ongoing funding for maintenance of these facilities shall be provided. ▪ New water supply, ecosystem restoration, and water quality facilities shall be located away from existing recreational sites and areas with high levels of recreational use. If significant impacts cannot be avoided, existing facilities shall be relocated within the local area and ongoing funding for maintenance of these facilities shall be provided. ▪ If degradation or impairment of recreational facilities, settings, and activities occur from implementation of water use efficient practices and water conservation measures at recreational areas, the park and recreation areas shall be redeveloped with drought-tolerant plant materials, water efficient irrigation systems, and synthetic turf substitutes where appropriate, in such a way as to retain recreational facilities and use areas.	S

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						▪ If the volume of water exported from the Delta declines over multiple years, the lead agencies that implement local water supplies probably would not be able to develop a long-term replacement water supply for the surface water reservoirs. However, if feasible, reservoir storage operations criteria must be modified to increase the minimum amount of emergency stand-by storage water that remains in the reservoir to also provide water-based recreation. Also, if feasible, water allocations to water users must be modified to provide more surface water in the reservoirs for recreation and provide other water supplies for non-recreation water users. Access facilities must be modified to accommodate lower water elevations or more frequent fluctuations in water elevations that could occur more frequently in the Proposed Project than under existing conditions. ▪ Ecosystem restoration areas shall be located away from high-use recreational sites, if feasible. Design of the restoration areas shall consider methods to maintain access to adjacent areas or recreational areas that would be periodically inundated under restoration. Design of levee modifications to provide for inundation of restored areas also shall consider the possibility of using levee remnants to maintain meander channels that would facilitate recreational opportunities. If significant impacts to marinas, hunting clubs, and other recreational facilities cannot be avoided, the lead agency shall consider relocation of these facilities, if feasible.	

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18-2. Increase the Use of Existing Recreational Facilities Such That Substantial Physical Deterioration of the Facility Would Occur or Be Accelerated	S+	S-	S+	S	S	Measure 18-2: ▪ If substantial temporary or permanent impairment, degradation, or elimination of recreational facilities causes users to be directed towards other existing facilities, lead agencies shall coordinate with impacted public and private recreation providers to direct displaced users to under-utilized recreational facilities. ▪ Lead agencies shall provide additional operations and maintenance of existing facilities in order to prevent deterioration of these facilities. ▪ If possible, lead agencies shall provide temporary replacement facilities. ▪ If the increase in use is temporary, once use is decreased back to existing conditions, degraded facilities shall be rehabilitated or restored. ▪ Where impacts to existing facilities are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.	S
18-3. Require the Construction or Expansion of Recreation Facilities Which Might Have an Adverse Physical Effect on the Environment	S	S-	S	S	S	Measure 18-3: ▪ Projects shall be sited in areas that would have minimal adverse physical effect on the environment. ▪ Where impacts to the environment are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.	S

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19. Transportation, Traffic, and Circulation							
19-1. Construction- and Operations-related Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation	S-	S-	S-	S-	S-	Measure 19-1: ▪ Avoid modifications to federal, State, and county highways, local roadways, and bridges that may reduce vehicle capacity, to the extent feasible. ▪ Develop and implement a traffic control plan to reduce effects of roadway construction activities, including full and partial lane closures, bicycle and pedestrian facility closures, and reduced access to adjacent properties. ▪ For project operations that increase traffic, prepare a traffic study. If project traffic causes an intersection or road segment to perform below the minimum level of service standard, then select an alternate route for project traffic or schedule project trips for non-peak-hour periods. If alternate routes are not feasible, then design and construct facility improvements to intersections or road segments to maintain the acceptable level of service. ▪ For roads that will be flooded during floodplain operation, prepare and implement vehicular traffic detour planning as necessary. ▪ For Delta Enhancement projects, traffic impact reports shall be prepared that meet the applicable agencies' standards to assess potential impacts on appropriate street segments and intersections. ▪ Prepare and implement a waterway traffic control plan to ensure safe and efficient vessel navigation during construction in waterways.	S

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						▪ Where temporary partial channel closure is necessary, a temporary channel closure plan shall be developed. ▪ To the extent feasible, ensure that safe boat access to public launch and docking facilities, businesses, and residences is maintained. ▪ Coordinate with transit system operators to establish appropriate alternate transit system routes to be rerouted during construction activities, as appropriate. ▪ Boat passage facilities shall be provided as an integral component of operable gate facilities, when feasible. ▪ Implement a program to provide boater education on procedures for waiting at and using the boat passage facility. ▪ Minimize impacts on bicycle and pedestrian circulation where feasible by avoiding impacts, minimizing closure of paths, and providing for temporary or permanent relocation of the facility to the extent feasible.	
19-2. Potential Increase in Hazards Related to a Design Feature	LTS	S-	NI	S-	LTS	Measure 19-2: ▪ Develop and implement a program that will include procedures for routine inspections and emergency facility operation to allow safe navigation should the facility become damaged or malfunction.	S
19-3. Potential Reduction in Adequate Emergency Access	S-	S-	S-	S-	S-	Measure 19-3: ▪ Coordinate with responsible local agencies to establish appropriate emergency routes during construction activities and before existing emergency routes are reclassified to a nonemergency route use.	S

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						▪ Phase construction activities, and use multiple routes to and from offsite locations to minimize the daily amount of traffic on individual roadways. ▪ Post warnings about the potential presence of slow-moving vehicles. ▪ Use traffic-control personnel when appropriate. ▪ Place and maintain barriers, and install traffic-control devices necessary for safety, as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones and in accordance with city and county requirements. ▪ Notify appropriate emergency service providers of project construction throughout the construction period to ensure that emergency access through construction areas is maintained.	
19-4. Construction- and Operations-related Conflict with Adopted Policies, Plans, or Programs Regarding Bicycle or Pedestrian Facilities	S-	S-	S-	S-	S-	Measure 19-4: ▪ Implement Measure Impact (above). The portion that addresses minimizing impacts on bicycle and pedestrian circulation also would apply to Impact 19-4.	S

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20. Utilities and Service Systems							
20-1. Require or Result in the Construction of New Water Treatment Facilities or the Expansion of Existing Facilities, the Construction or Operation of Which Would Have Significant Environmental Effects or Require the Procurement of Additional Water Supply Entitlements	LTS	LTS	LTS	LTS	LTS		
20-2. Require or Result in the Construction of New Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction or Operation of Which Would Have Significant Environmental Effects	LTS	LTS	LTS	LTS	LTS		
20-3. Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction or Operation of Which Would Have Significant Environmental Effects	LTS	LTS	LTS	LTS	LTS		

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20-4. Generate Solid Waste That Would Exceed the Permitted Capacity of Local Landfills or Cause Conflicts with Federal, State, and Local Statutes and Regulations Related to Solid Waste	S-	S-	S-	S-	S-	Measure 20-1: ▪ Establish construction debris disposal fee schedules to promote recycling and minimize solid waste. ▪ Limit disposal of construction debris and other solid waste at local landfills if the landfills have limited capacity. ▪ Dispose of all construction debris at landfills and disposal facilities that are licensed for the type of wastes to be disposed. If the landfills and disposal facilities are not located near future construction sites, include analysis of transportation of solid waste in future environmental documentation for specific projects. ▪ Require construction contractors to prepare construction debris management plans and require reuse or recycling of construction debris ▪ Develop project-specific solid waste plans to maximize practices that reduce and recycle solid waste and sludge generated by water, wastewater, and stormwater treatment facilities; and collect, recycle, or compost litter and solid waste generated at new facilities designed for visitor use (such as parks and visitor centers).	Sv/LTS
20-5. Require or Result in the Development of New Electricity Generating Facilities or the Expansion of Existing Facilities, the Construction or Operation of Which Would Have Significant Environmental Effects	LTS	LTS	LTS	LTS	LTS		

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20-6. Create a Public Health Hazard from Utility Disruption	S	S	S	S	S	Measure 20-2: ▪ Relocate or modify existing water, wastewater, and stormwater facilities or electricity transmission systems in a manner that does not affect current operational reliability to existing and projected users. ▪ Coordinate utility relocation and modification with utility providers and local agencies to integrate potential other construction projects and minimize disturbance to the communities. ▪ Verify utility locations through field surveys and services such as Underground Service Alert.	Sv/LTS
21. Climate Change and Greenhouse Gas Emissions							
21-1. Construction and Operations of Projects Could Result in an Increase in GHG Emissions That May Have a Significant Impact on the Environment	S	S	S	S	S-	Measure 21-1: ▪ For projects with the potential to result in significant environmental impacts from GHG emissions, lead agencies should prepare and include a project-specific technical report on climate change and GHG emissions as part of the environmental documentation, prior to approval of the projects. The technical report should include an analysis of potential environmental impacts from GHG emissions, including: – Quantification of GHG emissions; – An analysis to determine whether construction- and operation-related GHG emissions would exceed applicable air district thresholds;	S

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Summary of Impacts and Mitigation Measures for Proposed Project

Impact and EIR Section	Proposed Project Before Mitigation[a]: Reliable Water Supply	Delta Ecosystem Restoration	Water Quality Improvement	Flood Risk Reduction	Protection and Enhancement of Delta as an Evolving Place	Abbreviated Mitigation Measures (see resource sections for full text)	Significance after Mitigation[b]
						– Evaluation of the effect of climate change on the project; and – Recommended emission reduction measures, including but not limited to potential actions that could sequester or reduce GHG emissions. ▪ Implement GHG mitigation measures listed in the most recent CAPCOA, BAAQMD, and other air district guidance documents. ▪ In addition, the California Attorney General's Office has developed a list of various measures that may reduce GHG emissions at the individual project level. As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation.	
21-2. Construction and Operations of Projects Could Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs	LTS	LTS	LTS	LTS	LTS		
21-3. Conflict with Operations of Proposed Facilities due to Climate Change and Sea Level Rise	S	S	S	S	S	Measure 21-2: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for flood protection of the facilities constructed along waterways. ▪ Design intakes/diversions and outfalls to be operated at multiple surface water elevations between existing conditions and maximum projected surface water elevations during a high flow event with sea level rise for the life of the facility.	S

Table ES-1
Summary of Impacts and Mitigation Measures for Proposed Project

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						▪ Prepare a hydrogeologic study that would assess long-term groundwater recharge and safe yield of wells and wellfields under a sustainable groundwater management plan. Measure 21-3: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for ecosystem habitat restoration, including adjacent areas that would allow for migration of the habitat to higher elevations as the surface water elevations increase. Measure 21-4: ▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for projects that reduce risks of floods in the Delta. ▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of flood management facilities in the direction of the floodplain flow to maximize surface flows under flood conditions. ▪ Install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts of high flow events and higher surface water elevations due to climate change and sea level rise. ▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions.	

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[a] **Before mitigation**

S+ Majority of projects will have significant impacts; a few projects will have less-than-significant impacts.

S = Many projects will have significant impacts; some projects will have less-than-significant impacts.

S – Majority of projects will have less-than-significant impacts; a few projects will have significant impacts.

LTS Less than significant.

NI No impact.

[b] **Post-mitigation Impacts**

S^ Majority of projects will have significant and unavoidable impacts after mitigation.

S Majority of projects will have less-than-significant impacts if mitigation implemented; some projects will have significant and unavoidable impacts after mitigation implemented.

Sv/LTS Less than significant for covered actions. Less than significant for non-covered actions if implementing agencies implement the mitigation; however, significant and unavoidable for non-covered actions because the Delta Stewardship Council cannot mandate implementation.