

# Executive Summary

## Purpose of the Report

The Alternative Intake Project (AIP or Project) is a water quality improvement project for Contra Costa Water District (CCWD). CCWD obtains its water supply exclusively from the Sacramento-San Joaquin Delta (Delta), and serves treated and raw (untreated) water to approximately 550,000 people in central and eastern Contra Costa County. The Project would relocate some of CCWD's diversions to obtain better source water quality. This water quality improvement project would also provide fisheries protection and water supply reliability benefits.

## Introduction

The United States Department of the Interior, Bureau of Reclamation (Reclamation) is the lead agency for National Environmental Policy Act (NEPA) compliance, and CCWD is the lead agency for California Environmental Quality Act (CEQA) compliance for the Project. The Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was released in October 2006 and was approved by CCWD on November 15, 2006. The Notice of Determination (NOD) was received by the State Clearinghouse on November 16, 2006. Biological opinions for the project have been issued by the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) in April 2007, and USFWS completed its Fish and Wildlife Coordination Act Report on July 9, 2007.

The scope of the report includes the following topics:

- Description of water resources and related problems and needs in the study area warranting Federal consideration; planning objectives to address these problems and needs; and planning constraints, principles, and criteria used to help guide the study.
- Description of alternatives formulation to address planning objectives.
- Description of existing and likely future water resources and related conditions and potentially affected environment in the study area.
- Identification of public involvement considerations, and compliance with applicable laws, policies, and plans.
- Economics and cost allocation.

## Authorization

In 2004, Reclamation was authorized to expend funds “for design and construction of the relocation of drinking water intake facilities to in-Delta water users” with passage of the CALFED Bay-Delta Authorization Act, Public Law 108-361. Under this authority, Reclamation initiated this Special Study to describe the formulation of alternatives to meet Federal planning objectives through an alternative water intake; and determine the extent of the Federal interest to participate in the construction of the Project.

Federal authorization for the Project is established under the Water Supply, Reliability, and Environmental Improvement Act, also known as the CALFED Bay-Delta Authorization Act (Public Law 108-361). Section 103 (f)(1)(E) of Public Law 108-361 states the following:

Funds may be expended for design and construction of the relocation of drinking water intake facilities to in-Delta water users.

Therefore, if Reclamation determines there is an interest for Federal participation in the Project, new legislation to authorize construction would not be necessary.

## Study Area

The study area for this project is the Delta, in San Joaquin and Contra Costa counties. The study area encompasses CCWD’s service area and the surrounding area, including some of the central and south Delta area (see Figure ES-1). The central and south Delta is roughly bounded by the San Joaquin River on the north and the boundaries of the legal Delta to the south (as established in Section 12220 of the California Water Code).

## Plan Formulation Process

The basic planning process for Federal water resources studies and projects consists of several distinct steps that include (1) identifying water resources problems, needs, and opportunities in the study area that help in formulating planning objectives, (2) defining resources management measures to achieve study planning objectives and for use in formulating potential alternative plans, (3) evaluating and comparing comprehensive plans to select a National Economic Development (NED) plan, and (4) considering implementation for the selected plan, including cost allocation and apportionment.



**Figure ES-1. Regional Location Map**

## Planning Objectives

Three planning objectives were identified for this study based on the review of water resources problems, needs, and opportunities in the study area, and in relation to study authority, Federal planning guidance, and stakeholders input:

- Improve the reliability of water supplies of adequate water quality to meet CCWD's objectives, particularly in late summer/early fall months and drought periods, when Delta source water quality is typically lowest, therefore extending the water quality and water supply reliability benefits of Los Vaqueros Reservoir.
- To the extent possible, through shifting CCWD's diversion points and timing of diversions, improve protection of sensitive Delta fisheries impacted by CCWD's Delta intake operations.
- Improve reliability and maintain water quality of CCWD's Delta water supplies during emergency situations by enabling CCWD to avoid diverting water from areas of the Delta affected by a levee failure, chemical or hazardous spill, or other potentially catastrophic events.

## Resource Management Measures

Resource management measures for meeting the Project objectives fall into four general groups: (1) measures that improve source water at the existing Delta intakes, (2) measures that develop new source water other than the Delta, (3) measures that enhance water treatment capabilities of CCWD to address salinity, and (4) measures to reduce fisheries impact at CCWD intakes.

Seven criteria were used to assess whether a measure could satisfy the project purpose and need, and to provide a method of determining whether measures are available and practicable on the basis of logistics, existing technology, and cost: (1) water quality, (2) fisheries, (3) reliability, (4) regulatory, (5) institutional, (6) technical and operational, and (7) cost. The first three criteria are the purpose and needs criteria, while the other four are the practicability criteria. These seven criteria assess whether a measure could satisfy the project purpose and need, and provide a method to determine whether measures are available and practicable on the basis of logistics, existing technology, and cost. Based on these screening criteria, six resource management measures were retained:

- Relocation of some Old River diversions to a new intake with higher water quality
- Relocation of all or some CCWD diversions at Rock Slough to a screened intake
- Replacement of all or some CCWD diversions at Rock Slough by a new water source with a screened intake
- Desalination plant
- Delta hydraulic improvements
- Installation of fish screens at Rock Slough intake

## Plan Formulation

Five plans were formulated, including a No-Action Plan, and four initial action plans formulated from retained resource management measures:

- **No-Action Plan** – The No-Action Plan represents the reasonably foreseeable future conditions that could occur if no action alternatives are implemented. Under this plan, CCWD would continue to operate and maintain its existing facilities to maximize delivered water quality. The No-Action Plan includes expansion of the Old River pump station to a capacity of 320 cubic feet per second (cfs), and Contra Costa Canal Encasement Project, as well as the recently completed projects Old River Water Quality Improvement Project, Rock Slough Water Quality Improvement Project, and Contra Costa intertie with the Mokelumne Aqueduct.

- **Plan 1: Victoria Canal Intake** – Plan 1 would involve a new intake on Victoria Canal that would replace some of CCWD’s existing diversions at Old River and Rock Slough. Victoria Canal is a Delta location that receives its water flows from the Middle River and has better source water quality than CCWD's existing intakes during certain periods. This plan could provide fisheries benefits by reducing diversions from the unscreened Rock Slough intake. Therefore, Plan 1 would contribute to water quality, fisheries protection, and supply reliability during emergencies.
- **Plan 2: Desalination Treatment Plant** – Plan 2 would install desalination treatment processes at the existing Bollman Water Treatment Plant (WTP) to provide high-quality water to customers served by the WTP. Raw water to Bollman WTP would be provided from the Mallard Slough screened intake. This would reduce diversions from the Rock Slough intake, resulting in reduced impact to fisheries and reduced need for blending water from the Los Vaqueros Reservoir to meet delivered water quality goals. Therefore, Plan 2 would contribute to water quality, fisheries protection, and supply reliability during emergencies.
- **Plan 3: Middle River Intake** – Plan 3 would involve building a new screened intake on the Middle River that would feed Pumping Plant No. 1 through a pipeline to the Contra Costa Canal entrance. The new screened intake would contribute to an overall reduction in fisheries mortality rates compared to the current unscreened intake on Rock Slough. Therefore, Plan 3 would contribute to water quality, fisheries protection, and supply reliability during emergencies.
- **Plan 4: Delta Hydraulic Modifications** – Plan 4 would implement Delta hydraulic improvements (e.g., Franks Tract project) that could contribute to water quality improvements at CCWD intakes. It would also involve retrofitting the Rock Slough intake at the entrance to the Contra Costa Canal with fish screens to reduce impact to fisheries. Therefore, Plan 4 would contribute to water quality and fisheries protection. However, it would not provide supply reliability improvements during emergencies.

### Retained Plans

Preliminary screening of the formulated concept plans shows that all four plans have potential to contribute to both water quality improvements and fisheries protection goals. However, only Plans 1, 2, and 3 have potential to improve reliability of adequate quality supplies during emergencies. Plan 4 does not provide for additional operational flexibility (e.g., through a new intake location), or the ability to address rapid deterioration of water quality at CCWD intakes (e.g., through additional desalination treatment). Although the formulated concept plans have not been fully developed, the preceding

assessment of their contribution to the planning objectives suggests that Plan 4 would not meet the 1983 United States Water Resources Council Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) criterion of completeness. Therefore, to help focus the evaluation on complete alternative plans, the following plans were further considered and developed:

- No-Action Alternative
- Alternative Plan 1: Victoria Canal Intake
- Alternative Plan 2: Desalination Treatment Plant
- Alternative Plan 3: Middle River Intake

Figure ES-2 shows the location of physical features associated with Plans 1, 2, and 3.

## Evaluation and Comparison of Alternatives

Alternative plans for the Project were evaluated and compared using the criteria established in the P&G: completeness, effectiveness, efficiency, and acceptability. For each criterion, specific quantitative and/or qualitative metrics for comparing the alternative plans are developed. Based on these metrics, a ranking of alternative plans was developed and a recommended plan was advanced for further evaluation.

### Completeness

Completeness is an indication of the extent to which an alternative provides and accounts for all necessary actions to realize the planned effects. A complete alternative will (1) address and contribute to all planning objectives, (2) identify all necessary components and actions, including the adequate mitigation of significant adverse impacts, and (3) demonstrate a reasonable degree of certainty (or reliability) of achieving the intended objectives. These three characteristics of a complete plan represent qualitative metrics for assessing completeness of plans.

- **Planning Objectives** – Plans 1 and 3 would improve delivered water quality through new intakes at locations with better overall water quality than currently available to CCWD. Plan 2 would improve water quality through desalination of brackish water from Mallard Slough at the Bollman WTP. All three alternative plans would contribute to fisheries protection at the unscreened Rock Slough intake by reducing or eliminating diversions at the intake. Regarding reliability during emergencies, all three alternative plans include provisions for additional operational flexibility or ability to address rapid deterioration of water quality at CCWD intakes (i.e., through an additional intake location(s), or through additional desalination treatment). Reliability during

emergencies is also addressed through the availability of additional emergency water supply stored in Los Vaqueros Reservoir.

- **Environmental Impacts** – Environmental impacts of the alternative plans would generally be short-term impacts associated with construction activities. These include impacts on local water quality, aquatic resources, air quality, and noise. However, these impacts would be reduced to less than significant with proposed mitigation measures during construction. The alternative plans would not increase water diversions, but may shift location and timing of diversions. This would have an overall beneficial impact on fisheries because of reduced diversions from the unscreened Rock Slough intake. Plans 1 and 3 would result in minor long-term impacts related to the permanent loss of some agricultural lands (6 to 10 acres). Plan 2 would result in long-term impacts on aquatic resources due to the discharge of desalination byproducts in the form of saline concentrate. All three plans would include monitoring plans, and provisions for adaptive management that would implement corrective measures, if needed, based on actual effects.
- **Certainty** – The likely certainty and reliability that each of the three alternative plans would meet its intended objectives is high. This is due to the direct relationship between measures employed by each alternative plan and the study planning objectives, and because the alternative plans do not depend on any other actions. In addition, physical implementability of these measures is well demonstrated by similar projects within the study area and the region.

Therefore, based on these three qualitative metrics, all three alternative plans were ranked high for the completeness criterion. However, the No-Action Plan was ranked very low because it would not address any of the planning objectives.

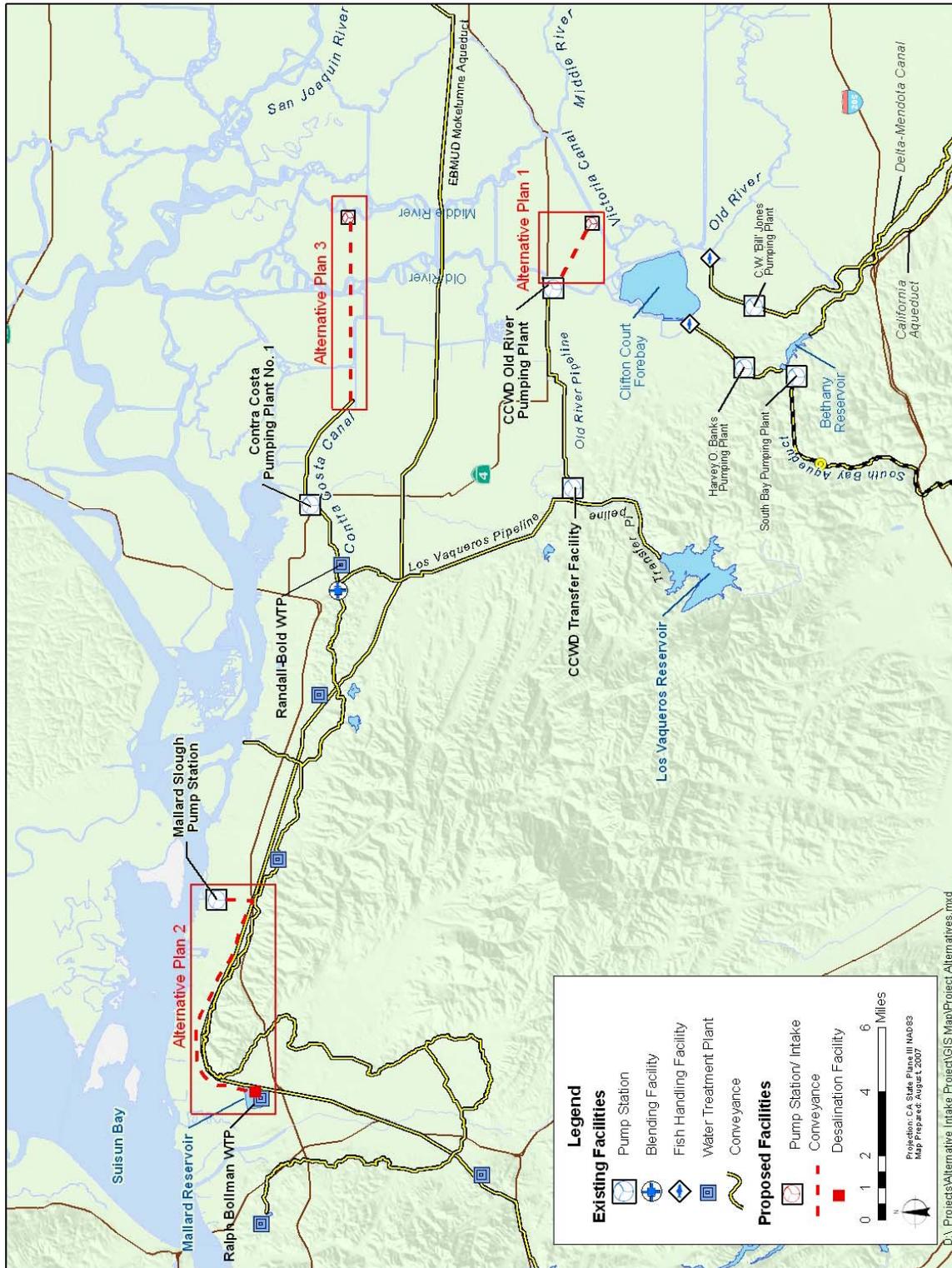


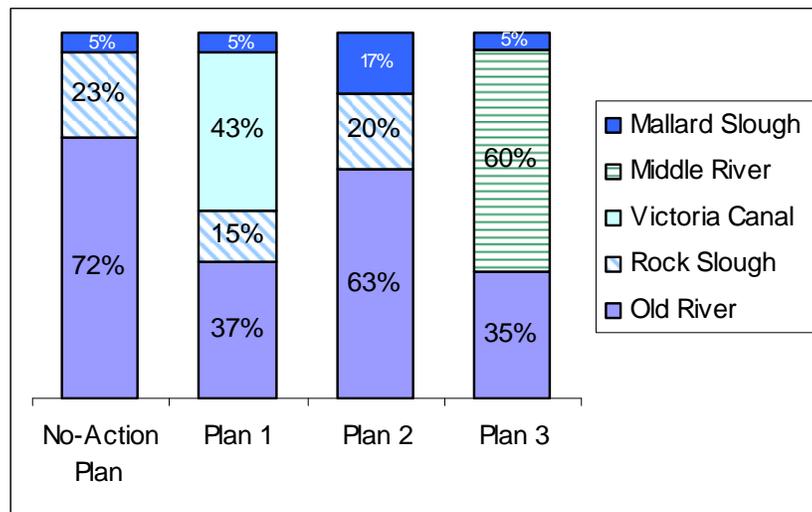
Figure ES-2. Location of Alternative Intake Project Action Alternative Plans

## Effectiveness

Effectiveness is the extent to which a plan alleviates problems and achieves objectives. Relative rankings for the alternative plans were developed for their effectiveness relative to water quality improvement, fisheries protection, and improving reliability during emergencies.

To quantify and compare accomplishments and benefits of the alternative plans, computer modeling was used to simulate CCWD system operations under each of the alternative plans. Under the alternative plans, operations of the CCWD system would change in response to the different strategies employed to achieve the study planning objectives (see Figure ES-3).

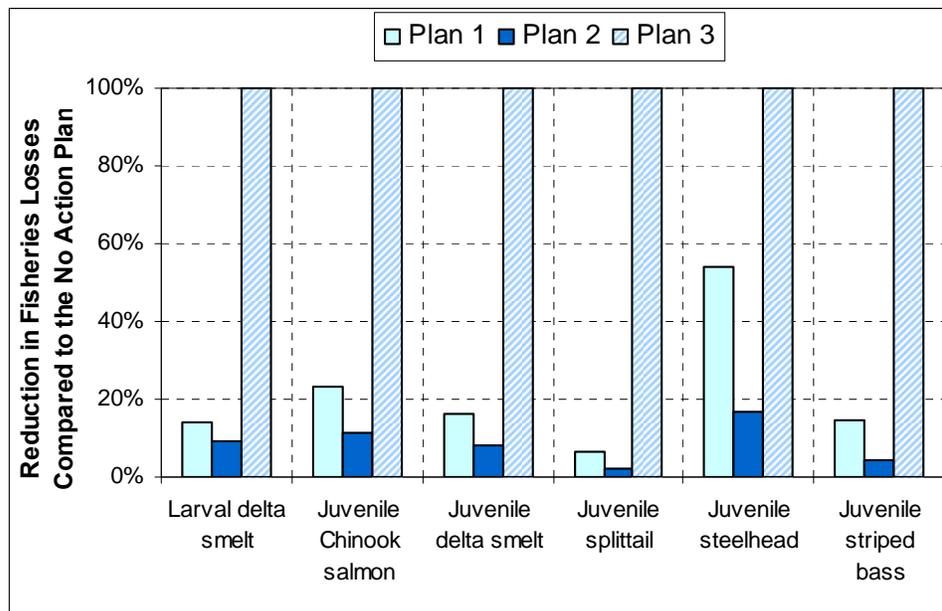
- Water Quality Improvement** – The relative performance of alternative plans regarding water quality improvements was measured using four quantitative metrics, described in Table ES-1, which assess long-term and dry-year water quality conditions. Based on these metrics, Plan 1 and Plan 3 were ranked high in achieving water quality improvements, because these two alternative plans significantly improve on all water quality metrics. Plan 3 would slightly outperform Plan 1 according to all water quality metrics, especially in reducing the length of the period during which the water quality goal is exceeded. Plan 2 was assigned a moderate ranking because its water quality improvements were largely restricted to the area served by the Bollman WTP, which represents only 30 percent of the CCWD service area.



**Figure ES-3. Comparison of the Long-Term Average Distribution of CCWD Diversions Under the Alternative Plans**

- Fisheries Protection** – All three plans showed benefits to fisheries at the Rock Slough intake due to reduced diversions and entrainment at

the intake (Figure ES-4). Plan 3 would result in the greatest benefits to fisheries because it would result in a 100 percent reduction in fisheries losses caused by operations of the Rock Slough intake compared to the No-Action Plan. Plan 1 would reduce fisheries impacts at the Rock Slough intake by 21 percent on average compared to the No-Action Plan. Plan 2 would reduce fisheries impacts at the Rock Slough intake by 9 percent on average compared to the No-Action Plan. Therefore, the relative fisheries protection rankings for Plans 1, 2, and 3 are moderate, low, and high, respectively.



**Figure ES-4. Reduction in Fisheries Losses at Rock Slough Intake Under the Alternative Plans Compared to the No-Action Plan**

- Reliability During Emergencies** – Contribution of alternative plans to system reliability during emergencies was assessed based on increased storage in Los Vaqueros Reservoir as a result of reduced demands on blending releases. Plan 1 and Plan 3 were ranked high for their contribution to additional emergency storage (Table ES-2). In both plans, CCWD would have access to supplies from the Old River and Middle River, which allows CCWD to maximize its ability to optimize delivered water quality. Plan 2 was ranked moderate because most of its reliability benefits, due to the desalination plant, would be restricted to CCWD customers served by the Bollman WTP, which represents only 30 percent of CCWD service area.

**Table ES-1. CCWD Delivered Chloride Performance Under Alternative Plans**

Alternative Plans	Percent of Time Chloride ≤ 65 mg/L		Average Delivered Chloride		Longest Duration Chloride > 65 mg/L		Maximum Delivered Chloride	
	%	Change <sup>1</sup> (%)	(mg/L)	Change <sup>1</sup> (%)	Months	Change <sup>1</sup> (%)	(mg/L)	Change <sup>1</sup> (%)
No-Action Plan	86%	-	55	-	16	-	250	-
Plan 1	95%	+9%	46	-16%	10	-38%	125	-50%
Plan 2 <sup>2</sup>	90%	+4%	53	-4%	15	-6%	250	0%
Plan 2 <sup>3</sup>	100%	+14%	40	-27%	0	-100%	65	-74%
Plan 3	96%	+10%	43	-22%	6	-63%	119	-52%

Notes:

<sup>1</sup> Change with respect to the future without-project condition (i.e., the No-Action Plan)

<sup>2</sup> Plan 2 water deliveries to the Randall-Bold WTP treated-water service area and untreated-water customers (approximately 70 percent of CCWD deliveries).

<sup>3</sup> Plan 2 water deliveries to the Bollman WTP service area from the desalination treatment plant (30 percent of CCWD deliveries).

Key:

- =

CCWD = Contra Costa Water District

mg/L = milligram per liter

WTP = water treatment plant

**Table ES-2. Comparison of CCWD System Reliability During Emergencies Under the Alternative Plans**

Alternative Plans	Long-Term Average Los Vaqueros Storage		Average Critical and Dry Year Los Vaqueros Storage	
	(TAF)	Change <sup>1</sup> (%)	(TAF)	Change <sup>1</sup> (%)
No-Action Plan	77	-	49	-
Plan 1	86	+12%	56	+14%
Plan 2	80	+4%	52	+6%
Plan 3	89	+16%	60	+22%

Notes:

<sup>1</sup> Change with respect to the future without-project conditions (i.e., the No-Action Plan)

Key:

- = N/A

CCWD = Contra Costa Water District

TAF = thousand acre-feet

Based on the relative ranking for water quality improvement, fisheries protection, and improving reliability during emergencies, Plan 3 was ranked high in overall effectiveness because it ranked high for all three categories. Plan 1 was ranked moderate in overall effectiveness because it ranked moderate for fisheries, although it ranked high for water quality and reliability. Plan 2 ranked low for overall effectiveness because it ranked moderate for water quality and reliability, and low for fisheries protection.

## Efficiency

Efficiency is the extent to which an alternative plan is the most cost-effective means of alleviating specified problems and realizing specified needs and opportunities, consistent with protecting the environment. Possible approaches to evaluating efficiency include dollars per unit of economic benefit, least cost of attaining a given objective, or reduced opportunity costs relative to accomplishments of other alternatives. In this analysis, efficiency of each alternative plan was evaluated using its benefit/cost (B/C) ratio (Table ES-3).

**Table ES-3. Comparison of Economic Effects of Project Alternative Plans**

	Plan 1	Plan 2	Plan 3
	(\$ millions/year (2006 dollars))		
Water Quality Benefits	\$6.73	\$6.43	\$8.77
Fisheries Protection Benefits	\$0.43	\$0.18	\$2.00
Emergency Supply Benefits	\$0.04	\$0.01	\$0.05
<b>Total Benefits</b>	\$7.20	\$6.62	\$10.82
<b>Project Cost</b>	\$5.80	\$54.07	\$11.99
<b>Benefit/Cost Ratio</b>	1.24	0.12	0.90

Plan 1, which has the highest B/C ratio, was assigned a relative efficiency ranking of high. Plan 3, which would result in positive net benefits when using the higher estimated water quality benefits, was ranked moderate. Plan 2 was assigned a relative efficiency ranking of low because its costs would exceed its expected benefits for both the low and high estimates of water quality benefits.

## Acceptability

Acceptability is the feasibility of an alternative plan with respect to acceptance by State and local entities and the public, and compatibility with existing laws, regulations, and public policies. Acceptability of an alternative plan is evaluated according to (1) the ability of the plan to be implemented within existing laws, (2) acceptability by Federal and State resources agencies, (3) acceptability by the local partner(s), and (4) acceptability by public interest groups and individuals.

- **Existing Laws** – All three alternative plans appear to be consistent with existing laws and regulations that govern Delta operations. All the operation scenarios under the alternative plans are designed to meet these existing rules. The proposed plans would also seek permits, and work to minimize construction-related impacts that may temporarily violate any air quality, noise, or water quality standards. However, Plan 2 may face challenges regarding the disposal of brine discharge from desalination treatment. Therefore, Plans 1 and 3 were ranked high

for meeting existing laws and regulations, while Plan 2 was ranked medium.

- Federal and State Resources Agencies, CCWD, and Public Stakeholders** – Plan 1 is the preferred alternative by the non-Federal sponsor of the Project (CCWD). However, because of the general similarity between the alternative plans, it appears that all three alternative plans would be similarly ranked regarding acceptability by stakeholders. Each of the alternative plans would need to be coordinated with other resources agencies and public interests based on the feedback documented in the 2005 Project EIR/EIS Scoping Report by CCWD. Therefore, at this stage of analysis, acceptability by stakeholders was not considered as a differentiating factor between the three plans.

**Table ES-4. Summary Comparison of Alternative Plans**

<b>Comparison Criteria</b>	<b>No-Action Plan</b>	<b>Plan 1</b>	<b>Plan 2</b>	<b>Plan 3</b>
<b>Completeness</b>	Does not address any of the planning objectives	Addresses all objectives and environmental effects, and is implementable	Addresses all objectives and environmental effects, and is implementable	Addresses all objectives and environmental effects, and is implementable
<i>Relative Ranking</i>	<i>Very Low</i>	<i>High</i>	<i>High</i>	<i>High</i>
<b>Effectiveness</b>		Water quality: high Fisheries: moderate Reliability: high	Water quality: moderate Fisheries: low Reliability: moderate	Water quality: high Fisheries: high Reliability: high
<i>Relative Ranking</i>	<i>None</i>	<i>Moderate</i>	<i>Low</i>	<i>High</i>
<b>Efficiency</b>		Maximizes net benefits	Costs exceed benefits	Positive net benefits when a higher estimate of benefits is used
<i>Relative Ranking</i>	<i>None</i>	<i>High</i>	<i>Low</i>	<i>Moderate</i>
<b>Acceptability</b>	Does not address any of the planning objectives	Compatible with existing laws and regulations and is preferred alternative of the non-Federal sponsor (CCWD)	Potential challenges regarding the disposal of brine and concentrate discharge to Suisun Bay	Compatible with existing laws and regulations
<i>Relative Ranking</i>	<i>Very Low</i>	<i>High</i>	<i>Moderate</i>	<i>High</i>

### Summary of Plan Comparisons

As summarized in Table ES-4, all three alternative plans are complete plans, with Plans 1 and 3 outperforming Plan 2 on effectiveness, efficiency, and acceptability. Plan 3 is the most effective alternative plan, and would result in the largest total benefits. However, Plan 1 is the most efficient plan, and would result in the highest B/C ratio. Plan 1 would provide positive net benefits under

the low and high range of potential benefits, whereas Plan 3 would only provide positive net benefits under the high estimate of benefits.

Based on the acceptability criterion, Plans 1 and 3 are comparable, although Plan 1 is the preferred alternative of the non-Federal sponsor (CCWD). Long-term environmental impacts of the alternative plans on water resources, terrestrial and aquatic species, and other environmental resources would generally be insignificant. Short-term impacts associated with the alternative plans would be limited to construction-related activities.

Based on the preceding engineering, operational, environmental, and economic evaluation, and comparison of the Project alternative plans, it appears that Alternative Plan 1 is the overall superior plan.

### **Sensitivity and Uncertainty**

Key areas of uncertainty associated with this evaluation and comparison of alternatives include the following:

- Uncertainties in the estimates of water quality improvement benefits are large. These uncertainties are partially due to the difficulties of quantifying the effects of incremental improvement in quality of water supplies. An additional source of uncertainty is the fact that estimates of water quality benefits are based on regional and statewide studies that may not be representative of CCWD. Furthermore, there is a concern that willingness-to-pay surveys used to estimate the health, safety, and aesthetic benefits may account, in part, for some of the benefits covered under the consumer savings category, therefore resulting in double counting of benefits. To account for the impact of this large uncertainty, a high and low range of water quality benefits was developed and used to verify its impact on the comparison between alternatives. It was found that this uncertainty in water quality benefits does not impact the conclusions of the preceding analysis. The B/C ratio shown in Table ES-3 is based on the lower estimates of water quality benefits.
- Potential uncertainty exists in the estimated fisheries benefits associated with the cost of the Rock Slough fish screen, in relation to the current proposed design of the fish screen.
- The estimated benefits of water supply reliability (emergency supply) are potentially conservative because the \$200-per-acre-foot fee for transfers through the Mokelumne Aqueduct intertie may not be inclusive of all costs incurred by CCWD to obtain these supplies.
- Operational, water quality, and fisheries modeling results include an inherent level of uncertainty that is primarily related to the underlying

assumptions of these models. However, the effect of this uncertainty is limited because of the comparative nature of this analysis.

## The NED Plan

As described in the Comparison and Evaluation section, Plan 1 is the most efficient plan that would result in the largest B/C ratio. Although Plan 3 would provide the largest overall benefits, Plan 1 would provide the highest net benefits of all considered plans. In addition, Plan 1 would provide positive net benefits under the low and high range of potential benefits; whereas Plan 3 would only provide positive net benefits under the high estimate of benefits (refer to Table ES-5). Plan 2 would not provide positive net benefits. Therefore, Plan 1 is the NED Plan that maximizes the net benefits.

**Table ES-5. Comparison of Net Benefits for Project Alternative Plans**

	Plan 1	Plan 2	Plan 3
	\$ millions/year (2006 dollars)		
Net Benefit Based on the Lower Estimate of Benefits	\$1.40	- \$47.45	- \$1.17
Net Benefit Based on the Higher Estimate of Benefits	\$10.50	- \$38.47	\$9.44

## Cost Allocation

P&G identifies cost allocation as the process by which the financial costs of a project are distributed among authorized project purposes, or those purposes proposed for authorization, in accordance with existing law. Cost allocation is followed by defining cost-sharing arrangements between project beneficiaries.

Reclamation uses the Separable Costs-Remaining Benefits (SCRIB) method for cost allocation in Federal water resources projects. The SCRIB method starts by identifying the separable costs for each project purpose. Separable costs are subtracted from the lesser of benefits, or single-purpose alternative project costs, to derive remaining benefits. Next, joint costs are allocated in proportion to the distribution of remaining benefits. Joint project costs are then assigned to a project purpose based on the proportion of their remaining benefits (i.e., total benefits less the separable costs of each project purpose). Total cost allocated to a project purpose is the sum of its separable and apportioned joint costs.

The AIP has three purposes: a primary purpose, which is water quality improvement, and two secondary purposes, which are fisheries protection and increased water supply reliability. For each project purpose, separable costs are the marginal costs incurred due to adding a specific purpose to the project. Under this definition, no separable costs can be established for fisheries

protection and water supply reliability purposes of the AIP. If fisheries protection and water supply reliability purposes are removed from the AIP, no change would occur in facilities configuration or operations of the project. Following the same reasoning, no specific costs could be identified for fisheries and supply reliability benefits.

Because no specific or separable costs can be identified for the two secondary AIP purposes, all project costs can be considered a separable cost for the water quality improvement purpose. Using the SCRIB method, all project costs would be allocated to the water quality improvement purpose.

### **Cost Apportionment**

Cost apportionment (i.e., cost-sharing) for Federal water resources projects is based on the principle that beneficiaries pay for benefits received. For the AIP, the general principle for Federal share of costs is established by Public Law 108-361, section 107(b):

(b) Calfed Bay-Delta Program Beneficiaries- In general- The Secretary shall ensure that all beneficiaries, including the environment, shall pay for benefits received from all projects or activities carried out under the Calfed Bay-Delta Program. This requirement shall not be limited to storage and conveyance projects and shall be implemented so as to encourage integrated resource planning.

Following the allocation of Project costs to its purposes, these costs are apportioned to the Federal Government and non-Federal sponsor(s) based on specific project authorization and/or established Federal cost-sharing laws and regulations. Federal costs are designated as either reimbursable or nonreimbursable. Reimbursable costs are those that, through some form of up-front financing, repayment, or other financial agreement, are repaid to the Government. Nonreimbursable costs are those borne entirely by the Federal Government.

Based on existing legislation, costs allocated to the water quality improvement purpose are treated similarly to the financing of municipal and industrial (M&I) water supply set forth by the Reclamation Project Act of 1939,<sup>1</sup> as amended. This act provides for fully reimbursable, up-front Federal financing of M&I water supply purposes. It requires 100 percent repayment of capital costs (including interest during construction, or IDC), as well as repayment of interest accrued over the repayment period. It also establishes that 100 percent of O&M costs are non-Federal.

The SCRIB method allocates all Project costs to the water quality improvement purpose. Approximately 93 percent of Project cost (i.e., \$98.4 million) is

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<sup>1</sup> Chapter 418, Section 1, 53 Stat. 1187 (Aug. 4, 1939)

financed through fully reimbursable Federal up-front financing for the AIP. This cost-sharing represents the capital cost and IDC portion of the Project cost. The remaining 7 percent (i.e., \$7.3 million) of Project costs is financed by the local sponsor (i.e., CCWD). This latter portion represents operations and maintenance (O&M) cost.

### **Repayment Period**

For the M&I water supply purposes (i.e., water quality improvement), Federal reimbursement costs for the AIP are considered stewardship investment repayable expenses. Stewardship investments are defined as expenses incurred by the Federal government for the purchase, construction, or major renovation of physical property owned by, or given to, State and local governments. Because all facilities and assets to be built through the AIP would be owned by CCWD, AIP Federal costs allocated to the M&I water supply purposes are stewardship investment. Since stewardship investments are treated as expenses, the repayment period for the Federal reimbursable costs is 1 year, similar to O&M expenses. It should also be noted that stewardship investment is not a Central Valley Project (CVP) feature.

### **Project Implementation Consideration**

Implementation considerations for the NED plan include compliance with applicable laws, public involvement, environmental review, and stakeholders' areas of controversy.

### **Environmental Review and Consultation**

Implementation of the AIP would result in an incidental take of species covered by the 2000 CALFED Bay-Delta Program Multi-Species Conservation Strategy (MSCS).<sup>2</sup> Because Reclamation is a signatory agency to the MSCS, an Action-Specific Implementation Plan (ASIP) was prepared for the AIP in 2006, which incorporates appropriate conservation measures consistent with the MSCS. Reclamation and CCWD coordinated with NMFS, USFWS, and CDFG to develop the ASIP.

#### ***NMFS Biological Opinion***

In April 2007, NMFS issued a biological opinion that addresses AIP effects on Federally listed species and their critical habitat, including endangered Sacramento River winter-run Chinook salmon, threatened Central Valley steelhead, and threatened North America green sturgeon. The biological opinion concluded that the proposed action (the NED Plan) is not likely to jeopardize the continued existence of the aforementioned listed species, nor destroy or adversely modify designated critical habitat. An incidental take statement was also included because of the likelihood that the Project would

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<sup>2</sup> The CALFED Program MSCS evaluates 244 species and 20 natural communities. Included within the MSCS are species identified by USFWS, NMFS, and CDFG that are covered under existing biological opinions and Natural Community Conservation Planning Act (NCCPA) determination.

result in incidental take of listed species from Project construction and operation.

NMFS also prepared essential fish habitat (EFH) conservation recommendations for Pacific salmon and groundfish to comply with Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended (16 U.S.C. 1801 et seq.). NMFS concluded that the project would adversely affect the EFH of Pacific salmon and groundfish, and issued an incidental take statement for the AIP.

***USFWS Biological Opinion***

In April 2007, USFWS issued a biological opinion on AIP effects on Federally listed as threatened Delta smelt and giant garter snake, in accordance with Section 7 of the Federal ESA of 1973, as amended (16 U.S.C. 1531 et seq.). The biological opinion concluded that the proposed action (the NED plan) is not likely to jeopardize the continued existence of the Delta smelt or giant garter snake. It also concluded that the project would not adversely modify Delta smelt critical habitat. An incidental take statement was also included with the biological opinion because of the likelihood that the Project would result in incidental take of Delta smelt, Delta smelt eggs and larvae, and giant garter snake resulting from Project construction and operation.

USFWS has also determined that the Project is not likely to adversely affect the San Joaquin kit fox because of minimal construction activity along the eastern edge of Byron Tract, which lacks suitable habitat for the San Joaquin kit fox.

***CDFG Consistency Determination***

In July 2007, CCWD requested that the California Department of Fish and Game (CDFG) provide a determination pursuant to Section 2080.1 of the California Fish and Game Code that the biological opinions and associated incidental take statements issued by NMFS and USFWS are consistent with the California ESA. In August 2007, CDFG issued a consistency determination for the biological opinions prepared by NMFS and USFWS for the AIP that analyzed Project effects on protected Delta smelt, Sacramento River winter-run Chinook salmon, and Central Valley spring-run Chinook salmon. CDFG determined that these biological opinions, including accompanying incidental take statements, are consistent with the California ESA for construction of the Project.

However, CDFG has determined that the biological opinions, including their Incidental Take Statements, are not consistent with the California ESA for the maintenance and operation of the Project, including any impacts from the addition of a new point of diversion. This determination of inconsistency was based on a CDFG assessment that the biological opinions for the AIP do not disclose the operational impacts of the Project or identify required mitigation with sufficient specificity. CDFG also states that the biological opinions do not provide take limits, or mitigation measures to address Project operations.

This inconsistency determination requires that an incidental take permit be obtained, pursuant to California Fish and Game Code section 2081(b). The incidental take permit must be obtained for any incidental take, by Project operations, of Delta smelt, Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, and giant garter snake. It should be noted that construction of the AIP can proceed while the incidental take permit for Project operation and maintenance is sought.

### **Public Involvement Program**

Numerous outreach efforts have been undertaken to inform stakeholders about the AIP and the scoping process, and to solicit stakeholders input. These efforts included fact sheets distributed to stakeholders, newspaper notices, news release, a Project Web site, and public scoping meetings during the week of February 13, 2005. The outcome of the outreach activities, including the scoping meetings, is summarized in the 2005 CCWD Scoping Report for the Project.

CCWD also met with potentially affected stakeholders during project planning including the State Water Contractors, the California Department of Water Resources, Metropolitan Water District, Santa Clara Valley Water District, Westlands Water District, and San Luis Delta Mendota Water Authority, and others. CCWD has met and communicated regularly with Victoria Island Farms throughout project planning and continues to do so. Over a dozen meetings have been held with stakeholders.

On May 3, 2006, CCWD and Reclamation published the Draft EIR/EIS for public review. The Draft EIR/EIS was distributed to the stakeholders, interested parties, and regulatory and permitting agencies and made available on both CCWD's and Reclamation's project websites. Announcements concerning the availability of the document and the dates of public hearings were made via regular and electronic mail with stakeholders, newspaper ads, and Reclamation and CCWD web pages. Three public hearings were held: June 6, 2006 in Antioch, June 7, 2006 in Sacramento, and June 8, 2006 in Concord. The written comment period closed on June 26, 2006. The Final EIR/EIS was published on October 25, 2006.

### **Stakeholder Issues and Areas of Controversy**

Stakeholders and public comments, received during the scoping meetings, are documented in the 2005 CCWD Scoping Report for the Project. These comments are summarized in Chapter 2. Issues and concerns raised by the public and stakeholders during the scoping process have been addressed through development of the EIR/EIS and ASIP for the Project.

## **Federal and Non-Federal Roles and Responsibilities**

CCWD intends to construct, own, operate, and maintain the new Victoria Canal Intake. Reclamation will provide assistance to CCWD in its effort to take delivery of CVP water at the new intake. CCWD has already filed its petition to the State Water Resources Control Board for adding a new point of diversion to its own existing water rights. In addition, Reclamation has already filed a petition to add the Victoria Canal Intake to its CVP water right permits. Once a new point of diversion is added to Reclamation's existing water rights, then a new point of delivery will be established under Reclamation's long-term water service contract with CCWD. Specific roles and responsibilities of the Federal and non-Federal sponsors should be established in a Project cooperation agreement, if cost-sharing from Federal sponsor is provided for Project construction.