

# RECLAMATION

*Managing Water in the West*

## **Folsom Dam Safety and Flood Damage Reduction Final Environmental Impact Statement/ Environmental Impact Report**

Folsom, California  
Mid-Pacific Region



**Volume III: Final EIS/EIR**  
State Clearinghouse # 2006022091



U.S. Bureau of Reclamation, Mid-Pacific Region  
U.S. Army Corps of Engineers, Sacramento District  
California Department of Water Resources  
State of California Reclamation Board  
Sacramento Area Flood Control Agency

March 2007

## **Mission Statements**

**The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitment to island communities.**

**The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.**

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Folsom, California  
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**Folsom Dam Safety and Flood Damage Reduction (DS/FDR) Final Environmental Impact Statement (EIS)/ Environmental Impact Report (EIR)**

**Sacramento, El Dorado, and Placer Counties, California**

**State Clearinghouse # 2006022091**  
State of California

***Lead Agencies:***

NEPA Lead Agency: U.S. Department of the Interior, Bureau of Reclamation (Reclamation)

CEQA Lead Agency: State of California Reclamation Board (Reclamation Board)

***NEPA Cooperating Agency:***

U.S. Army Corps of Engineers (Corps)

***CEQA Responsible Agency:***

Sacramento Area Flood Control Agency (SAFCA)

**ABSTRACT**

Both Reclamation and the Corps have multiple authorized projects addressing hydrologic, seismic, static, security, and flood damage reduction issues at Folsom Dam and its Appurtenant Structures (Folsom Facility). The Folsom DS/FDR project has been developed to coordinate Reclamation and Corps efforts at the Folsom Facility to address these issues. This Final EIS/EIR evaluates implementation of the Folsom DS/FDR through identification of a Preferred Alternative for modifications to the Folsom Facility necessary to increase overall public safety. The Final EIS/EIR addresses (1) dam safety and security issues that will be implemented by Reclamation, (2) flood damage reduction measures that will be implemented by the Corps, and (3) the Joint Federal Project Auxiliary Spillway that will be implemented by both agencies. Direct, indirect, and cumulative impacts resulting from the alternatives on the physical, natural, and socioeconomic environment of the region surrounding the Folsom Facility and comments on the Draft EIS/EIR are addressed.

This Final EIS/EIR is prepared in compliance with the National Environmental Policy Act (NEPA), Reclamation NEPA procedures, and the California Environmental Quality Act (CEQA) and CEQA guidelines and meets the requirements of the Energy and Water Development Appropriations Act of 2006. Reclamation intends to adopt this EIS/EIR to satisfy the requirements of NEPA for dam safety and security features described in this EIS/EIR. The Corps intends to adopt this EIS/EIR to satisfy the requirements of NEPA for the flood damage reduction features described in this EIS/EIR.

Comments on this document should be submitted by April 30, 2007.

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# Folsom Dam Safety and Flood Damage Reduction EIS/EIR Executive Summary

## Introduction

The Folsom Dam Safety/Flood Damage Reduction (DS/FDR) Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) describes (1) the Preferred Alternative (Alternative 3 in the Draft EIS/EIR); (2) revisions to Alternative 3 as a result of public comments on the Draft EIS/EIR; (3) changes to effects to the natural, physical, and social environments as a result of the project changes, and (4) responses to comments submitted on the Draft EIS/EIR. This Executive Summary highlights those changes and Draft EIS/EIR comment issues.

On December 1, 2006, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the U.S. Army Corps of Engineers (Corps), and the Corps non-federal sponsors, the State Reclamation Board (Reclamation Board)/Department of Water Resources (DWR) and the Sacramento Area Flood Control Agency (SAFCA), also referred to as the Partner Agencies, released the Folsom DS/FDR Draft EIS/EIR for public review and comment. The Draft EIS/EIR identified five alternatives to address dam safety, security, and flood damage reduction at Folsom Dam and appurtenant facilities (Folsom Facility). The Partner Agencies held public hearings to receive oral and written comments at the following locations: Sacramento, January 9, 2007 and Folsom, January 10, 2007. Transcripts were obtained for all oral comments at the public hearings. The comment period on the Draft EIS/EIR closed on January 26, 2007 after the Partner Agencies issued a four day extension. Federal, State, and local agencies, non-profit organizations, local businesses, and members of the public submitted verbal and written comments.

This document (Volume III of the Folsom DS/FDR EIS/EIR) presents responses to all comments received on the Draft EIS/EIR. Additionally, this document provides revisions to the project description based on comments received on the Draft EIS/EIR. Appendix C of this document contains the revised Folsom DS/FDR Draft EIS/EIR (Volume I and II) reflecting editorial changes.

This document is an abbreviated Final EIS/EIR and its contents must be integrated with the Draft Folsom Dam Safety and Flood Damage Reduction EIS/EIR Volume I and II (State Clearinghouse # 2006022091) to be considered a complete document reflecting the full proposal, its alternatives, and all significant environmental impacts.

Reclamation and the Corps have identified Alternative 3 as the Preferred Alternative. The Draft EIS/EIR originally described Alternative 3 and the Partner Agencies refined it based on public and agency comments received on the Draft EIS/EIR.

Alternative 3 includes the Joint Federal Project (JFP) Auxiliary Spillway, seismic improvements to the Main Concrete Dam and Mormon Island Auxiliary Dam (MIAD), static improvements to earthen structures, security upgrades, replacement of the Main Concrete Dam spillway gates, and a 3.5-foot (ft) raise to all Folsom Facility structures. Table ES-1 identifies the DS/FDR action, the responsible agency, and the issue addressed. Section 2.2 of the Draft EIS/EIR discusses the concerns for the Folsom Facility and measures considered to address those concerns.

<b>Action</b>	<b>Responsible Agency</b>	<b>Concern Addressed</b>
JFP Auxiliary Spillway construction	Reclamation and Corps	Dam Safety, Flood Damage Reduction, hydrologic control
MIAD foundation stabilization and overlay	Reclamation	Dam Safety, seismic upgrades
Left and Right Wing Dams, Dikes 4, 5, 6 upgrades	Reclamation	Dam Safety, static upgrades
Main Dam concrete block, pier, and gates reinforcement	Reclamation	Dam Safety, seismic upgrades
Facility Security Improvements	Reclamation	National Security
Existing Spillway Gates Replacement	Corps	Flood Damage Reduction
Facility Raise	Corps	Flood Damage Reduction

## Purpose of Study and EIS/EIR

The limitations of the existing flood control system in the Sacramento area and the urgent need to increase the level of flood protection have recently received increased public attention in the aftermath of the 2005 Gulf Coast hurricanes. Planning of significant improvements for flood protection and dam safety has been underway for some years among numerous agencies and organizations, notably the Partner Agencies.

This EIS/EIR presents the results of a joint agency study for the planning, design, and implementation of a safety of dams and flood damage risk reduction action at the Folsom Facility. The objective of the study was the identification and selection of an alternative that would significantly reduce the risk of flooding along the main stem of the American River in the Sacramento area while also meeting dam safety and public safety objectives.

The Flood Control Act of 1944 (Public Law [PL] 534) authorized the Corps to construct the Folsom Facility. The Corps constructed the Folsom Facility between 1948 and 1956. Upon completion in 1956, the Corps transferred ownership to Reclamation for operation and maintenance as an integrated feature of the Central

Valley Project (CVP). Both Federal agencies have obligations and interests in relation to the Folsom Facility but differ in respect to Congressional objectives, mandates, authorities, funding, and time lines. Through cooperation, Corps and Reclamation seek to integrate flood risk reduction measures with dam safety improvements under a single plan.

Planning studies to address Folsom Facility issues were initiated during the 1990s and cumulated initially under the Corps' Folsom Dam Modifications Project and Folsom Dam Raise Project. The objective of the Folsom Modifications Project was to reduce damages from flooding to the Sacramento area by increasing outlet efficiencies at Folsom Dam, in general by releasing water earlier prior to a flood event. However, cost concerns with enlarging the existing outlets caused the Corps to reevaluate modification options that would perform as a functional equivalent to the outlet modifications. The objective of the Corps' Folsom Dam Raise Project was to increase flood storage capacity at Folsom Reservoir.

At the same time the Corps was investigating flood damage reduction options, Reclamation was evaluating safety of dams issues related to all of the Folsom facilities. Reclamation initiated a Corrective Action Study (CAS) that evaluated public safety risks due to hydrologic, seismic, and static concerns. Beginning in 2004, Reclamation and the Corps established an Oversight Management Group, consisting of senior management from both agencies, to facilitate project coordination. Coordination activities included a comprehensive value planning effort to identify a joint project that addresses the agencies' respective flood damage reduction and dam safety objectives. Congress formalized this effort in the Fiscal Year (FY) 2006 Energy and Water Development Appropriations Act by directing the two agencies to continue progress toward a joint project. Since that time both agencies worked intensively to develop reasonable alternatives for a JFP.

The objective of the Folsom DS/FDR EIS/EIR is to assess the effects to the natural, physical, and social environments as a result of alternative engineering solutions that address hydrologic control and seismic and static issues for the Folsom Facility. The alternatives include an action (or series of actions) that would integrate the Corps' authorized Folsom Dam Modifications and Folsom Dam Raise projects with Reclamation's safety of dams objectives. Among other benefits, a joint project would result in timely, cost effective completion of features at the Folsom Facility that expedite: (1) protection of public safety related to the structural integrity of the facilities and (2) improvement to flood control management for the communities along the lower American and Sacramento rivers.

The proposed structural modifications to the Folsom Facility could ultimately lead to revisions of Folsom Dam operations that would provide for earlier releases of reservoir water in advance of a major storm (hydrologic event). The modifications being considered in this EIS/EIR would allow for the release of 115,000 cubic feet

per second (cfs; the existing objective release) sooner than is now possible, with the potential for higher releases should the downstream levees be improved to accommodate the increased flows. These larger, earlier releases from Folsom Reservoir would create and conserve flood storage space based on projected reservoir inflows resulting from a major storm impacting the upper American River watershed. However, the proposed modifications would be operated using existing criteria until the completion of a revised Folsom Water Control manual and supporting supplemental environmental compliance documentation. The manual would be completed one year prior to completion of proposed structural modifications at Folsom Dam and Reservoir, at which time the full potential benefits of the proposed modifications would be realized.

The EIS/EIR project alternatives include elements of the individual missions of Reclamation and the Corps. Due to specific Congressional authorizations limiting what actions each agency can implement, Reclamation would most likely implement separately those elements specific to its Safety of Dams mission and the Corps would implement those elements specific to improving Flood Damage Reduction.

## **Study Authority**

The current study was implemented under several existing authorizations. Primary authority and guidance for Flood Damage Reduction is provided in the Folsom Dam Modifications Project Authority under Section 101(a)(6) of the Water Resources Development Act (WRDA) of 1999 (PL 106-53) and the Folsom Dam Raise Authority under PL 108-137, the Energy and Water Development Appropriations Act for 2004. The Folsom Dam Modifications and Folsom Dam Raise authorities share the objective of improving flood management on the American River, primarily through structural modifications to the existing Folsom Dam and Appurtenant Facilities. With the Folsom Dam Raise authority, Congress also authorized the Corps to construct an ecosystem restoration project component on the Lower American River and a permanent bridge, provided that certain funding conditions were met.

In addition, Reclamation has been pursuing safety of dam modifications separately through its existing Safety of Dams Program. Investigations and analyses by Reclamation have identified needed dam safety modifications at Folsom Dam and Appurtenant Facilities. In response to these studies, Reclamation initiated the CAS to identify technically feasible and environmentally and socially preferable alternatives that would address the identified safety concerns.

Recent modifications to both agencies' existing authorities were made in the Energy and Water Appropriations Act of 2006, which directed the Secretary of the Army and the Secretary of the Interior to collaborate on authorized activities to maximize flood damage reduction improvements and address dam safety needs at Folsom Dam

and Reservoir as one project; and authorized both agencies to expend funds for design of a joint project.

## **Facility Description and Study Area**

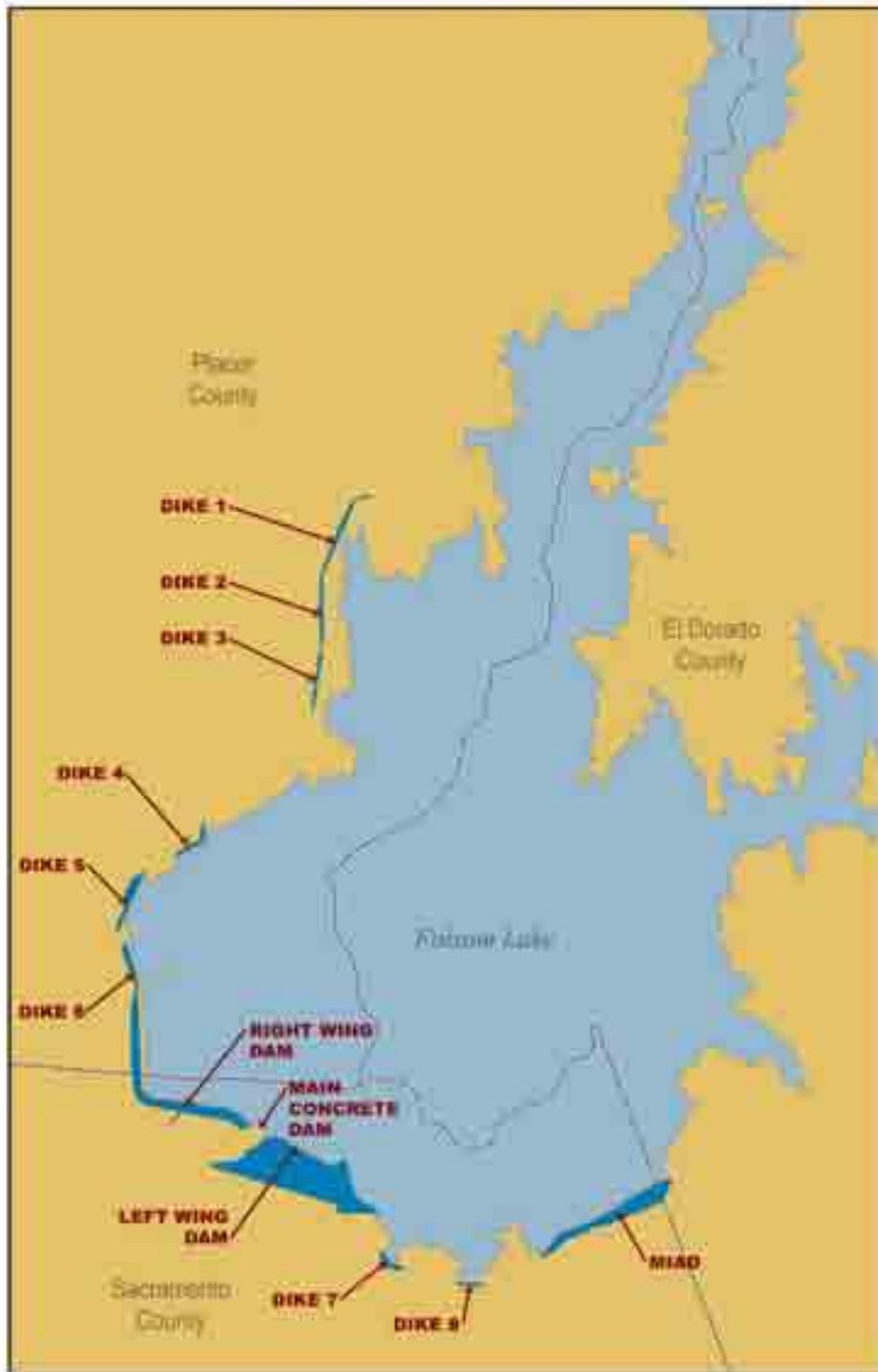
The Folsom Facility is comprised of twelve separate structures (Figure ES-1). The main structure is the Main Concrete Dam that controls releases to the American River. The Main Concrete Dam is on the mainstem of the American River and is the only facility with operational gates and outlets used to retain and release water stored within the reservoir. Adjacent to the Main Concrete Dam and looking downstream are the Right Wing Dam (RWD) and Left Wing Dam (LWD). The two wing dams serve to contain water within Folsom Reservoir. The other large earthen structure is MIAD, which retains water at the location of a historic river channel. The Folsom Facility also includes eight earthen dikes. The earthen dikes span areas of terrain with lower elevations and are primarily used to contain water when the reservoir is at or near capacity. Folsom Dam also has hydroelectric power generating facilities.

Folsom is a multi-purpose facility operated by law for flood control, municipal and industrial (M&I) water supply, agricultural water supply, power, fish and wildlife, recreation, navigation and water quality purposes. The facility is primarily operated to maximize flood control and water supply storage benefits. To provide flood control storage capacity (protecting the Sacramento region), the reservoir is operated so that the reservoir level is lowest starting in the fall of each year. The flood storage capacity is retained until April of each year when the reservoir is filled with snow-melt runoff from the Sierra Nevada. During the summer months when water elevations remain high, Folsom Reservoir serves a major regional recreational resource (Folsom Lake State Recreation Area [FLSRA]).

The study area addressed in this EIS/EIR includes the entire Folsom Facility, including approximately 75 miles of shoreline surrounding the reservoir. Due to the requirement to bring in materials from outside suppliers, the study area includes adjacent roadways, the city of Folsom, and the community of Granite Bay.

## **Folsom DS/FDR EIS/EIR Purpose and Need/Project Objectives**

As a part of their responsibilities, Reclamation and the Corps have determined that the Folsom facilities require structural improvements to increase overall public safety by improving the facilities' ability to reduce flood damages and addressing dam safety issues posed by hydrologic (flood), seismic (earthquake), and static (seepage) events. These events have a low probability of occurrence in a given year; however, due to the large population downstream of Folsom Dam, modifying the facilities is prudent and required to improve public safety.



**Figure ES-1**  
**The Folsom Facility**

Reclamation has identified the need for expedited action to reduce specific hydrologic, static, and seismic risks under its Safety of Dams Program. The identified risks are among the highest of all dams in Reclamation's inventory and the Folsom facilities are among Reclamation's highest priorities within its Safety of Dams Program. Reclamation's primary interest for integrating dam safety activities with Corps' flood damage reduction projects is to expedite corrective action and realize cost sharing benefits of a coordinated effort.

The Corps in partnership with the Reclamation Board/DWR and SAFCA (non-federal sponsors) have determined that Folsom Reservoir does not have sufficient release capacity to adequately manage severe flood flows nor do the downstream levees have sufficient capacity to exceed base flood event flows of 145,000 cfs.

The non-federal sponsors have identified the need to reduce the risk of flooding in the Sacramento area. Due to the number and value of the exposed structures and the size of the population at risk, Sacramento has been identified as one of the most at risk communities in the nation. Consequently, there is a need to expeditiously reduce this risk through interim and permanent flood damage reduction measures. The goal of the non-federal sponsors is to safely pass the 200-year computed design event as a minimum objective anticipated in the congressionally authorized Folsom Modifications and Folsom Dam Raise projects. Pursuit of this goal constitutes the non-federal sponsors' primary interest for integrating Corps flood damage reduction projects with Reclamation dam safety activities. Through this effort, non-federal sponsors will increase flood protection for the downstream and surrounding communities on an expedited basis and realize cost sharing benefits of a coordinated effort.

Given these circumstances, there is a need to expedite dam safety corrective actions for the Folsom facilities to reduce potential failure due to seismic, static, and hydrologic conditions. There is also a need to incrementally increase minimum flood protection by improving reservoir pool release mechanisms and, if incrementally justified, increasing flood storage capacity. The purpose of the project will be to increase overall public safety, improve the reliability of local water supply and power generation, and maintain an important recreational resource. Project objectives are:

- Expeditiously reduce hydrologic risk of overtopping-related failure of any impoundment structure during a probable maximum flood (PMF) event in accordance with Reclamation's Public Protection Guidelines;
- Expeditiously reduce the risk of structural failure of any impoundment structure during a potential seismic (earthquake) event in accordance with Reclamation's Public Protection Guidelines;

- Expediently reduce the risk of structural failure of any impoundment structure during a potential static (seepage) event in accordance with Reclamation's Public Protection Guidelines;
- Expediently improve the security infrastructure at the Folsom Facility in accordance with Reclamation's Public Protection Guidelines; and
- Expediently improve the flood management capacity of the facilities in a manner consistent with existing Corps authorities.

## Development and Screening of Project Alternatives

Volume I, Chapter 2, of the Draft EIS/EIR, presents the process used to identify, formulate, and select the alternatives assessed in this EIS/EIR. Since issuance of the Draft EIS/EIR the project agencies have identified Alternative 3 as the Preferred Alternative and have initiated design activities for this alternative. Alternative 3 was the alternative discussed during public hearings and as such is the alternative that received the majority of comments on during the public comment period.

Alternative 3 is identified as the Preferred Alternative because Alternatives 1 and 2 do not meet the objectives of the JFP, the 7-ft raise of Alternative 4 is no longer necessary to meet hydrologic control objectives, and the 17-ft raise of Alternative 5 would have significant unavoidable adverse impacts.

## Description of the Folsom DS/FDR Preferred Alternative

The Folsom DS/FDR Project incorporates four action elements to be implemented by Reclamation and the Corps, as follows:

1. A new **Auxiliary Spillway** would be controlled by 6 submerged tainter gates (6STG). The Auxiliary Spillway, also referred to as the JFP, would be implemented jointly by Reclamation and the Corps to address hydrologic Dam Safety and Flood Damage Reduction concerns related to controlled release of water from Folsom Dam. Reclamation has also evaluated a Fuseplug Spillway alternative as a stand-alone dam safety alternative to be implemented only if the Corps is unable to receive timely construction funding or realize timely hydrologic risk reduction by construction of the 6STG spillway. Reclamation and the Corps will jointly identify the final environmental mitigation and commitments for the new Auxiliary Spillway project element, inclusive of the Fuseplug option, under a joint JFP ROD.
2. Additional **Dam Safety** modifications will be undertaken by Reclamation to address seismic and static concerns related to the Main Concrete Dam and six of the eleven earthen structures. Seismic modifications would be made to MIAD by undertaking foundation jet grouting in conjunction with a downstream overlay and the reinforcement of Main Concrete Dam

existing gates and piers. Static modifications would be undertaken to the RWD, LWD, Dikes 4, 5, and 6, and MIAD. Reclamation will independently identify the final environmental mitigations and commitments for this effort under a stand-alone ROD.

3. **Security** improvements will be undertaken by Reclamation to key Folsom facilities to address national security concerns. Reclamation will independently identify the final environmental mitigations and commitments for this effort under the dam safety ROD.
4. **Flood Damage Reduction** improvements in addition to the 6STG will be undertaken by the Corps including modification or replacement of existing emergency spillway gates and a 3.5-ft raise to all Folsom embankment facilities. The Corps will prepare a separate ROD for the 3.5-ft raise, emergency gate modifications or replacement, and other flood damage reduction features. As described more in this section, detailed design for these flood damage reduction features at the Folsom Facility would occur during the Corps' pre-construction, engineering and design phase. The issuance of a ROD by the Corps for such improvements at the Folsom Facility is not expected to occur in conjunction with the currently proposed DS/FDR actions, but rather would occur later as a separate action with supplemental environmental documentation if necessary.

## **Changes to the Project Since the Release of the Draft EIS/EIR**

The following section introduces the changes to the project description since the release of the Draft EIS/EIR; changes are based on additional engineering analysis and responding to public comments on the Draft EIS/EIR.

### **Sequencing and Length of the Folsom DS/FDR Actions**

The proposed sequencing of construction at each of the Folsom facilities has been modified since issuance of the Draft EIS/EIR. The Partner Agencies have extended the proposed completion dates for certain dam safety actions and have scheduled less overlap of construction work for the dikes and wing dams. The new Auxiliary Spillway would be constructed as part of three phases. Table ES-2 provides the proposed sequencing of the Folsom DS/FDR actions. It is important to note that the schedule proposed in Table ES-2 is tentative and subject to change based on engineering design considerations and availability of funding for each activity.

**Table ES-2**  
**Folsom DS/FDR Project Phase Sequencing**

<b>Activity ID</b>	<b>Folsom Facility</b>	<b>Construction Period</b>
1	Auxiliary Spillway Excavation Phase 1	September 2007 to March 2009
2	Right and Left Wing Dam Static Modifications	October 2007 to November 2008
3	MIAD Jet Grouting	July 2008 to November 2009
4	Auxiliary Spillway Excavation Phase 2	September 2010 to January 2014
5	Dike 5 Static Modifications	September 2009 to May 2010
6	MIAD Seismic Overlay	June 2015 to April 2017
7	Dikes 4 and 6 Static Modifications	September 2017 to April 2018
8a	Pier Tendon Installation at Main Dam	January 2014 to March 2015
8b	Spillway Pier Wraps & Braces	August 2016 to April 2018
8c	Spillway Gate Repairs	January 2018 to August 2020
9	Auxiliary Spillway Approach Channel Excavation Phase 3 and Gate Structure Construction	September 2011 to November 2014
10	Raise of all Folsom Facilities	May 2010 to September 2014

### **Inundation Due to Raises**

The Draft EIS/EIR introduced the possibility of constructing a Folsom Facility raise of greater than 4 ft that could result in constructing new embankments to contain reservoir water resulting from an increased reservoir surface elevation beyond existing conditions. Since publishing the Draft EIS/EIR, Reclamation has determined that a Fuseplug Spillway alternative could pass the PMF without the need for embankment raises above the current crest elevation. As a result, Reclamation has determined that no property takes, flowage easements, or additional small scale impoundment features such as dikes or berms are planned as part of its role in the Folsom DS/FDR actions.

Based upon additional engineering analysis since the Draft EIS/EIR was published, the Corps has concluded that with optimization of all elements of the Selected Plan, 6STG, emergency spillway gate modification and 3.5-ft raise, an increase to maximum reservoir water surface elevation beyond current dam crest elevation is not anticipated to provide flood damage reduction benefits.

The future maximum reservoir water surface elevation under the Selected Plan would not exceed the existing take line for a 200-year design event and there would be a lower maximum water surface elevation than the without-project condition for all flood events inclusive of a PMF event. This would eliminate the flood risk to surrounding properties. Consequently, no property takes, flowage easements or additional small scale impoundment features such as dikes or berms beyond the existing take line are planned in the Final EIS/EIR. The 3.5-ft raise portion of the

Selected Plan will undergo further design during the Corps' pre-construction, engineering, and design phase and if needed, supplemental NEPA/CEQA documentation would be prepared.

### **Folsom DS/FDR Optimized Project Area**

The project footprint evaluated in the Draft EIS/EIR included areas required to construct raises of all structures up to 17 ft in height (Alternative 5).<sup>1</sup> Based upon further engineering analysis and considering public comments on the Draft EIS/EIR, the Partner Agencies have concluded that raises above 3.5-ft are not required and have eliminated them as project alternatives. As a result, the project footprint has been reduced to the minimum area necessary to support the new Auxiliary Spillway; work on the Main Concrete Dam; the seismic and static modifications to Dikes 4, 5, 6, LWD, RWD and MIAD; and any 3.5-ft raise. Reducing the project footprint would reduce impacts to those presented in the Draft EIS/EIR. The most significant reduction of impacts pertains to recreation, vegetation and wildlife, and other elements of vital concern to the surrounding communities. After project use, staging areas, haul roads, stockpiles, temporary access roads, detours, trails and paths or similar features will either be reclaimed/restored as close to practical to the pre-existing condition and/or similar to the surrounding terrain and/or be graded to provide unimproved platforms as elected by Reclamation.

### ***Optimized Borrow***

The Draft EIS/EIR discussed the potential for developing borrow sites near each of the Folsom facilities to produce earthen materials for raising structures and additional shell material. The Partner Agencies have determined that the majority of borrow would be produced from the Auxiliary Spillway excavation site, which would reduce the need to develop in-reservoir borrow sites and impacting recreational opportunities. However, both agencies may determine the need to develop other borrow sites for supplemental use (as a contingency) and have retained these options in the final project description.

Supplemental borrow site requirements would be limited to in-reservoir areas, between elevation 400.0 ft and 425.9 ft, north of Beal's Point at an area below Mooney Ridge and the cove area below Dike 8. Also, outside the reservoir near MIAD at the D1/D2 area has been retained as both a contractor staging area and potential borrow site. Borrow would no longer occur in the immediate vicinity of the Granite Bay or Browns Ravine recreation areas.

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<sup>1</sup> While several of the alternatives considered in the Draft EIS/EIR propose a dam/facility raise less than the 17 feet anticipated under Alternative 5, a single most-conservative impact footprint was used in the programmatic-level analysis of all alternatives that proposed any raise (i.e., Alternatives 2 through 5).

Optimization of borrow operations would substantially reduce the adverse effects by reducing potential in-reservoir traffic, air quality, recreation and noise impacts on roadways and to communities adjacent to the reservoir. Reclamation's Central California Area Office would notify local agencies and the general public and accept input prior to initiating supplemental borrow activities at these sites.

### ***Staging Areas***

In response to public comments on the Draft EIS/EIR, the Partner Agencies have reduced the amount of acreage needed for staging purposes by eliminating, consolidating, or reducing acreage from that presented in the Draft EIS/EIR. In principle, contractor staging areas would emphasize use of areas with no current public access, away from residential areas, use of excess materials to create platforms above the normal operating reservoir water surface elevation of 466.0 ft and be placed so as to maintain existing or equivalent public recreation access and use capacity during the peak recreation season. This change, along with other impact reduction measures below would reduce vegetation and wildlife and recreational impacts.

- 1) Staging area(s) for work on the RWD at Beal's Point recreation site was removed through construction of a staging platform south of the recreation area.
- 2) Staging for work at Dikes 4, 5, and 6 would be in the immediate vicinity of the dikes, or would use the platform established south of Beal's Point. These locations would be in areas typically not accessible by the general public and away from residential areas.
- 3) Staging for work at the Auxiliary Spillway site would be at multiple locations along the toe of the LWD, at the Observation Point, at a constructed platform at Dike 7, and at the D1/D2 location.
- 4) Staging for work on MIAD would be at the D1/D2 location.

To minimize potential impacts to recreation, staging areas at Beal's Point and Folsom Point would be placed on constructed platforms or on adjacent unimproved areas a safe distance from primary recreational activities. Public safety would be maintained through the use of fencing or other similar measures. There would be nearly continuous public access to recreation areas and trails throughout the construction period through the use of traffic control measures and/or grade separated vehicular and/or pedestrian crossings and/or temporary alternate public access detours. Exceptions could include temporary closure incidental to completing construction of the grade separation itself or other access measures or to meet unforeseen project circumstances. In such cases, temporary closures would be accomplished during off-peak days or the off-season to minimize impacts on recreation activities. Reclamation's Central California Area Office would notify

local agencies and the general public and accept input in advance of any possible extended closure(s) that may be necessary due to unforeseen project circumstances.

### **Cofferdams**

The Partner Agencies have eliminated cofferdams proposed at Dikes 7 and 8. This would result in fewer adverse water quality and recreation impacts.

### **Materials Storage, Processing and Batch Plants**

The Partner Agencies currently anticipate that commercial and processed materials (cement, concrete aggregates, sand and gravel, steel etc.) required for the project would be obtained from local commercial off-site suppliers. The revised Preferred Alternative includes the option of conducting processing (crushing and screening) of materials excavated from the new Auxiliary Spillway site, but limits such activity to areas away from residential areas and off limits to public access. The change to the use of commercially acquired materials would reduce air quality, noise, viewshed, and recreational impacts.

## **Environmental Consequences**

The following sections summarize the environmental effects of the Preferred Alternative (Alternative 3). The environmental baseline used to establish the basis for determining effects of the Folsom DS/FDR alternatives is derived from the NEPA definition of future conditions without project and the CEQA definition of existing conditions. The reader is referred to the individual resource chapters in the Draft EIS/EIR for discussions on how the baseline is being applied to each resource. Table ES-3 provides a summary of the impacts by resource area and the associated mitigation measures.

<b>Resource Area</b>	<b>Impact</b>	<b>Potential Mitigation</b>
Hydrology	<ul style="list-style-type: none"> <li>• Reduce water source to wetlands</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water levels before/during/after construction</li> </ul>
Water Quality	<ul style="list-style-type: none"> <li>• Increased siltation</li> <li>• Increased turbidity</li> <li>• MAID water quality impacts</li> <li>• Metals and mercury impacts from dredging</li> </ul>	<ul style="list-style-type: none"> <li>• Best management practices</li> <li>• Best management practices</li> <li>• Best management practices</li> <li>• Best management practices</li> </ul>
Groundwater	<ul style="list-style-type: none"> <li>• Localized groundwater level fluctuations</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water levels before/during/after construction</li> </ul>
Water Supply	<ul style="list-style-type: none"> <li>• Potential short-term disruption of Natomas pipeline</li> <li>• Reduction in storage of less than 1% from placement of materials in reservoir</li> </ul>	<ul style="list-style-type: none"> <li>• Establish temporary water source</li> <li>• None required</li> </ul>

<b>Table ES-3</b>		
<b>Impacts and Proposed Mitigation Measures Summary - Folsom DS/FDR EIS/EIR</b>		
<b>Resource Area</b>	<b>Impact</b>	<b>Potential Mitigation</b>
Air Quality	<ul style="list-style-type: none"> <li>• Uncontrolled NO<sub>x</sub> emissions from construction vehicles exceeding de minimis thresholds</li> <li>• Particulate (PM<sub>10</sub>) emissions exceeding de minimis thresholds</li> </ul>	<ul style="list-style-type: none"> <li>• Develop construction sequencing plan that includes best available emissions control practices.</li> <li>• Best management controls for roadway, processing facility, and batch plant particulate emissions</li> </ul>
Aquatic Resources	<ul style="list-style-type: none"> <li>• Less than significant impact to fish</li> <li>• Potential loss of vernal pool habitat and impacts to vernal pool invertebrates</li> <li>• Displacement of fish species from stilling basin</li> </ul>	<ul style="list-style-type: none"> <li>• None required for fish</li> <li>• Mitigation and monitoring plan</li> <li>• Fish removal and recovery plan</li> </ul>
Terrestrial Vegetation and Wildlife	<ul style="list-style-type: none"> <li>• Potential impact to special status plant and animal species</li> <li>• Direct or indirect impacts to oak and pine woodlands, riparian woodland and chaparral habitats</li> <li>• Permanent loss of wetlands and temporary disturbance</li> <li>• Adverse impacts to the Valley Elderberry Long-Horn Beetle and its habitat</li> <li>• Potential impact to special-status amphibian, reptile, bird, and mammalian species and habitat</li> <li>• Impacts to migrating/wintering birds</li> <li>• Impacts to birds protected by MBTA</li> <li>• Impacts to wildlife from underwater blasting</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation plans will be developed that could include (where appropriate and feasible):</li> <li>• Pre-construction surveys to identify species and avoid where possible</li> <li>• Environmental awareness training to construction personnel</li> <li>• Revegetation plans</li> <li>• Consultation with CDFG and USFWS to develop appropriate plans and mitigation measures</li> <li>• Placement of fencing to avoid plant or animal species</li> <li>• Habitat to special-status species would be removed during non-breeding season to preclude return to project area during construction</li> <li>• Appropriate compensation for vegetation and wetlands based on FWCAR and MMRP</li> <li>• Buffer zones around wetlands</li> <li>• Implement recommendation of FWCAR and complete mitigation in the FWCAR for all affected habitats</li> <li>• Qualified Biologists on-site to identify any at-risk special-status species</li> <li>• Develop and implement bird monitoring plan</li> <li>• Avoid removal of vegetation during bird breeding season, whenever possible</li> </ul>
Soils	<ul style="list-style-type: none"> <li>• Loss of soil resource through excavation and borrow site development</li> </ul>	<ul style="list-style-type: none"> <li>• Obtain appropriate permits, apply best management practices</li> </ul>
Minerals	<ul style="list-style-type: none"> <li>• Decomposed granite and other minerals would be excavated and used during construction</li> </ul>	<ul style="list-style-type: none"> <li>• None Required</li> </ul>

<b>Table ES-3</b>		
<b>Impacts and Proposed Mitigation Measures Summary - Folsom DS/FDR EIS/EIR</b>		
<b>Resource Area</b>	<b>Impact</b>	<b>Potential Mitigation</b>
Geological Resources	<ul style="list-style-type: none"> <li>• Commitment of geological resources for facility construction</li> <li>• Naturally occurring asbestos disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• Asbestos abatement plan incorporating best management practices</li> </ul>
Visual Resources	<ul style="list-style-type: none"> <li>• Temporary reduction in visual quality as a result of borrow development and construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Siting of processing facilities in less obtrusive areas</li> </ul>
Agricultural Resources	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>
Transportation and Circulation Element	<ul style="list-style-type: none"> <li>• Significant impact to roadways with current poor level of service</li> </ul>	<ul style="list-style-type: none"> <li>• Complete a peak hour capacity analysis to identify potential roadway improvements or operations modifications</li> <li>• Prepare a transportation management plan that outlines contractor haul routes for coordination with the local entities</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Increase in area noise levels due to construction, processing, and transport</li> <li>• Significant increase in nighttime noise levels at three sensitive receptor locations</li> </ul>	<ul style="list-style-type: none"> <li>• Construct portable noise barriers</li> <li>• Maintenance of exhaust mufflers</li> <li>• Scheduling truck traffic to day time hours</li> <li>• Blasting during daytime hours only</li> <li>• Monitoring of construction noise levels at sensitive locations</li> </ul>
Cultural Resources	<ul style="list-style-type: none"> <li>• Potential loss or disturbance of historic properties and/or historical resources</li> </ul>	<ul style="list-style-type: none"> <li>• Consultation with the State Historic Preservation Office and implementation of mitigation plan and appropriate procedures will be followed if human remains are discovered</li> </ul>
Land Use, Planning, Zoning	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>
Recreation	<ul style="list-style-type: none"> <li>• Potential damage to recreational facilities and trails</li> <li>• Closure of trails within and near construction sites</li> <li>• Potential loss of visitor days and recreation revenues</li> </ul>	<ul style="list-style-type: none"> <li>• Construction related impacts to recreation facilities will be replaced in kind by the lead construction agency and disturbed recreation areas and facilities will be restored to pre-construction condition</li> <li>• Prepare signage and announcements related to construction schedules and closures</li> <li>• Establish detours with signs for roads/trails</li> <li>• Following borrow excavation, recontour beach areas for public use</li> <li>• Construction, borrow, and staging areas will be sited as far from recreation areas as is practical</li> <li>• Use flagmen to control traffic</li> <li>• No closure of any recreation facility during high use periods</li> </ul>

<b>Table ES-3</b>		
<b>Impacts and Proposed Mitigation Measures Summary - Folsom DS/FDR EIS/EIR</b>		
<b>Resource Area</b>	<b>Impact</b>	<b>Potential Mitigation</b>
Public Services and Utilities	<ul style="list-style-type: none"> <li>• Potential for temporary disruptions</li> <li>• Damage to rest rooms and roads</li> <li>• Relocate Natomas Pipeline</li> <li>• Would create solid waste</li> </ul>	<ul style="list-style-type: none"> <li>• Stage utility relocations and prior announcements</li> <li>• Repair or relocate</li> <li>• Establish temporary water source</li> <li>• Recycle when possible, select licensed landfills</li> </ul>
Hydropower	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>
Population and Housing	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>
Public Health and Safety	<ul style="list-style-type: none"> <li>• Work site, roadway, and recreation site safety control</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and implement Public Health and Safety Plan, Worker Health and Safety Plan, Fire Suppression Plan, Hazardous Materials Management Plan, Environmental Site Assessments</li> </ul>
Indian Trust Assets	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>
Environmental Justice	<ul style="list-style-type: none"> <li>• No impact</li> </ul>	<ul style="list-style-type: none"> <li>• None required</li> </ul>

### **Hydrology, Water Quality, and Groundwater**

Construction of any of the Folsom DS/FDR alternatives would not change the hydrology of the American River or alter current operations of the reservoir. Construction of the project would result in improved hydrologic control of the American River watershed flood flows, providing flood damage reduction benefits to the Sacramento region.

Road construction, excavation, and placement of fill within the water side of the Folsom facility would have the potential for significant water quality impacts. Water quality impacts would result from soil erosion both during and after the excavation of borrow material. This effect would be mitigated through best management practices, appropriate permits, implementation of a water quality monitoring plan, and consultation with Central Valley Regional Water Quality Control Board (CVRWQCB).

Since the release of the Draft EIS/EIR, the revisions to the project description have resulted in the removal of the coffer dams at Dike 7 and Dike 8. The water quality impacts associated with the placement of material in the reservoir for construction of the coffer dams would be eliminated.

Jet grouting at the downstream foundation of MIAD could affect water quality and could reduce the water source for a portion of the wetlands around MIAD. The Partner Agencies would monitor water levels before, during, and after construction. They would also perform tests to ensure the jet grout does not migrate into the surrounding wetlands. All temporary jet grout areas would be lined with material to prevent the migration of grout.

In-reservoir dredging could affect water quality because of the presence of metals and mercury. Best management practices and mitigation measures would be implemented after consultation with CVRWQCB.

### **Water Supply**

The chute alignment of the Auxiliary Spillway would cross a portion of the Natomas Pipeline. This raw water pipeline supplies water to the City of Folsom and California Department of Corrections water treatment plants, and the Corps' Resident Office fire protection system. Approximately 300 ft of the pipeline would need to be replaced with an above ground pipeline that could temporarily interrupt water supplies. The Partner Agencies would provide for an alternative intake and connection to the pipeline so that any disruption would be minimal. This action was accomplished successfully the winter of 2006-2007 as part of a valve replacement project.

Excess material from the excavation of the spillway or unusable material from borrow sites may be placed in the reservoir. Placement of excess material within the reservoir would reduce water supplies by less than 1 percent.

### **Air Quality**

The Partner Agencies are required to conform to federal U.S Environmental Protection Agency (USEPA) air quality regulations, being enforced by the SMAQMD. All air quality emissions will be required to be controlled to levels that must be in compliance with limits established by SMAQMD in the project's air quality permits. In addition to watering roadways, excavation, and deposition sites to minimize dust, the Partner Agencies will be required to use the most up-to-date pollution reduction equipment on all fossil fuel powered construction equipment. The specific air pollution control measures to be employed and adhered to will be described in detail in the project's air quality permits. Refinements to the project, including an air quality assessment of a more practical project, have shown that the project can conform to the Clean Air Act requirements. These refinements include:

- Identification of available air quality emission credits,
- Redistribution of material hauling and disposal to minimize haulage miles
- Scheduling and sequencing of excavation and hauling work so that there is not a significant overlap with other project activities that contribute to air quality emissions,
- Use of electrical power for all stationary equipment (note: electrical power will be obtained from commercial sources and will not impact Western Area Power Authority or CVP users and customers), and
- Use of the most recent pollution control equipment for all off-road equipment.

### **Aquatic Resources**

Construction of the DS/FDR actions would have less than a significant impact on in-reservoir aquatic resources. The majority of the fish species inhabiting the reservoir are introduced game or non native species. Special status species are not known to inhabit the immediate vicinity of the project sites.

Construction near Dike 6 would have the potential to remove seasonal wetlands. Consultation with California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) would occur to develop mitigation and monitoring plans. Loss of wetland would be considered significant and would require mitigation compensation.

Dewatering of the stilling basin would result in the removal of primarily non-native fish species from this man-made habitat. A removal and recovery plan would be developed in consultation with CDFG and USFWS.

### **Terrestrial Vegetation and Wildlife**

Construction of any of the project alternatives would have the potential to adversely affect special status species, native habitats, and wetlands. Consultation with CDFG and USFWS would occur to develop mitigation and monitoring plans. Folsom DS/FDR agencies would implement all recommendations in the Fish and Wildlife Coordination Act Report (FWCAR). Measure to avoid impacts to wildlife and habitat would be implemented, and appropriate compensation would be provided when required.

The changes to the project description after the release of the Draft EIS/EIR have led to a substantial reduction in the overall project footprint. It is anticipated that this would reduce impacts to terrestrial vegetation, wildlife, and wildlife habitat in most areas around the Folsom Facility, compared to what was described in the Draft EIS/EIR.

### **Soils, Minerals, and Geological Resources**

Construction activities, particularly in the area of Auxiliary Spillway, the wing dams, MIAD, and dikes, would result in the loss of topsoil resources. This impact would be mitigated to non-significant levels through the implementation of Best Management Practices (BMPs), and the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Use of granitic material from within the reservoir for the raising the dikes and dams represents a long-term commitment of this resource. The schist based bedrock comprising the borrow material east of dike 7 may contain low-levels of asbestos. The schist will be managed to reduce air borne release of the asbestos fibers. A Dust Mitigation Plan will be prepared that specifies the activities and BMPs to minimize airborne naturally-occurring asbestos.

### **Visual Resources**

Establishment of the material processing facilities, excavation of borrow sites, and construction work on the Folsom dams and dikes would result in a significant but temporary visual impact to FLSRA visitors and to the home owners bordering the reservoir. The visual resource impairment would be an unavoidable adverse impact until construction work was completed at each structure.

### **Agricultural Resources**

The Folsom DS/FDR actions would not impact local or regional agricultural resources.

### **Transportation and Circulation**

The Draft EIS/EIR identified several locations where Level of Service (LOS) indices could be reduced as a result of transport of materials and supplies to the project sites. The Draft EIS/EIR noted the importance of a Traffic Management Plan to prevent significant impacts from occurring. Although refinements to the Preferred Alternative have changed some of the sequencing of hauling of materials, the refinements have not substantially changed the quantities of material transported to the project sites. The Partner Agencies remain committed to a Traffic Management Plan to ensure that significant disruption of traffic flow does not occur as a result of the hauling of materials. The Traffic Management Plan would include a peak hour analysis to aid in the determination of timing of construction traffic flow versus existing and future level of service information.

### **Noise**

The refinements to the Preferred Alternative have eliminated a materials processing plant near Folsom Point and opposite to Mooney Ridge, reducing noise sources at those locations. Processing of materials would still occur south of Beal's Point, at the Auxiliary Spillway excavation site (LWD and Observation Point) and at MIAD (D1/D2 locations). The processing of materials at Beal's Point would have the potential for affecting recreational activities, including camping, near the processing site. At present, the Partner Agencies plan to conduct processing during the winter months when recreational use is at its lowest. Construction of seepage filters at Dike 5 would be in the vicinity of the RV parking lot. Construction at this location would be only off-peak recreation season months and would not occur at night.

The hauling of material from the Auxiliary Spillway site eastward to MIAD would still occur, although the Partner Agencies would seek to use stockpile and disposal sites at the LWD, Observation Point, and Dike 7 first to minimize truck noise. As part of the refinements to the Preferred Alternative, the Partner Agencies would reinforce their commitment to employ all possible noise-reduction measures to keep noise levels from excavation, hauling, placement, and processing materials to remain below local noise ordinance limits.

### **Cultural Resources**

Cultural resources are known to exist at many locations proposed for staging, borrow development, and facility construction. The potential loss or disturbance of these historic properties and/or historical resources could occur during construction activities. Cultural resource impacts would be mitigated for under a programmatic agreement in consultation with the State Historic Preservation Office (SHPO). Because the project footprint for the Preferred Alternative has been reduced since the release of the Draft EIS/EIR, partially to avoid Cultural Resources, it is anticipated that fewer cultural resources would be affected.

### **Land Use, Planning, and Zoning**

Construction of staging, borrow site, and Facility improvements would be conducted in compliance with local planning and zone rules, and solely on Federal property. New embankments, flowage easements, and/or property acquisition would no longer be necessary under the Preferred Alternative; therefore, there would be no significant land use, planning, or zoning impacts.

### **Recreation**

The Draft EIS/EIR assessed impacts to recreation resources at FLSRA as a result of closure of recreational facilities due public safety and construction staging needs. In response to public comments on the Draft EIS/EIR, the Partner Agencies have reduced the amount of acreage needed for staging purposes by eliminating, consolidating, or reducing acreage from that presented in the Draft EIS/EIR. In principle, contractor staging areas would emphasize use of areas with no current public access, away from residential areas, use of excess materials to create platforms above the normal operating reservoir water surface elevation of 466.0 ft and be placed so as to maintain existing or equivalent public recreation access and use capacity during the peak recreation season.

To minimize potential impacts to recreation, staging areas at Beal's Point and Folsom Point would be placed on constructed platforms or on adjacent unimproved areas a safe distance from primary recreational activities. Public safety would be maintained through the use of fencing or other similar measures. There would be nearly continuous public access to recreation areas and trails throughout the construction period through the use of traffic control measures and/or grade separated vehicular and/or pedestrian crossings and/or temporary alternate public access detours. Closures could occur while the Partner Agencies are implementing these new measures that allow continued access or to address public safety and facility security objectives. In such cases, temporary closures would be accomplished during off-peak days or the off-season to minimize impacts on recreation activities. Reclamation's Central California Area Office would notify local agencies and the general public and accept input in advance of any possible extended closure(s) that may be necessary due to unforeseen project circumstances.

The Draft EIS/EIR also introduced the possibility of construction use at, or near, Granite Bay and Browns Ravine. Under the revised Preferred Alternative, use or work at Granite Bay and Browns Ravine has been eliminated. There would also be no impacts at Rattlesnake Bar, the Peninsula Campground, Doton's Point, and Beeks Bight.

The Partner Agencies remain committed to providing year round access to FLSRA is, although it is recognized that some inconvenience to the visiting public remains possible to address public safety and facility security objectives. The Partner Agencies also remain committed to replace any recreation structure, facility, or trail that is damaged or moved as part of construction work. Under current authorities, the Partner Agencies can replace in-kind existing facilities affected by the project, but cannot enhance or improve existing or new facilities.

### **Public Services and Utilities**

Construction planning and sequencing would be performed so that existing utilities would not be affected by Folsom DS/FDR construction activities. Mitigation measures would reduce interruptions in service. All roads and other utilities damaged from the project would be repaired or replaced, in kind.

### **Hydropower**

Construction of the Folsom DS/FDR actions would not affect hydropower operations at Folsom or Nimbus Dams.

### **Population and Housing**

New embankments, flowage easements, and/or property acquisition would no longer be necessary under the Preferred Alternative; therefore, the displacement and relocation of residents would not occur. There would be no impacts to population and housing.

### **Public Health and Safety**

The Folsom DS/FDR would include the development and implementation of health and safety plans that would provide safety considerations for construction personnel, the public, and visitors to the FLSRA.

### **Indian Trust Assets**

There are no Indian Trust Assets within the project area that would be affected by Folsom DS/FDR construction activities.

### **Environmental Justice**

There are no ethnic or low income groups defined by Environmental Justice guidance within the project area that would be disproportionately affected by Folsom DS/FDR activities.

## **Socioeconomics**

In response to public comments on the Draft EIS/EIR, the Partner Agencies are no longer planning to close any recreation facility during the peak recreation season (May through September). Facility entry kiosks staffed by CDPR personnel would remain open and CDPR would continue to collect park fees. During the non-peak season when use of the facilities is low, visitors would still be able to use volunteer pay stations when they access open recreation sites. Because FLSRA would remain accessible throughout the year, frequent users would still purchase annual passes. Therefore, under the revised Preferred Alternative, there would not be a notable loss of revenues to CDPR. In the event of closures to recreation facilities due to uncontrollable circumstances, economic impact to the local economy and CDPR would occur. Regional economic impacts would be minimal because visitors would still be able to recreate at other local recreation areas and open FLSRA facilities; and, the benefits of construction worker spending would continue to offset any losses in recreational expenditures. CDPR would lose some revenues as a result of unexpected closures.

## **Compliance with Applicable Laws and Regulations**

This EIS/EIR complies with NEPA and CEQA requirements. The implementation of the Preferred Alternative, as defined herein, would comply with all Federal, State, and local laws and permitting requirements. See Table 1-2 in Chapter 1 for additional information on laws, rules, regulations, and executive orders applicable to this project.

## **Identification of Environmentally Preferred Alternative**

The No Action/No Project Alternative would not involve any construction activity and would have the fewest environmental effects to the project area; however, it would not meet the project's purpose and need. The No Action/No Project Alternative would also have the greatest potential for lower American River impacts resulting from the inability to control large storm events with the existing Folsom Facility.

Alternative 1 would have fewer environmental impacts than the other action alternatives because it does not include Phase 3 construction on the Auxiliary Spillway. However, Alternative 1 would not fully address the project's purpose and need because it does not adequately address the flood damage reduction goals of the Corps and non-federal sponsors for the Sacramento region. It could result in flood impacts on the lower American River.

Alternative 2 with the inclusion of the Fuseplug Spillway with a gated tunnel partially addresses flood damage reduction objectives because it does not completely achieve the 200-year level of flood protection of the purpose and need. Also,

Alternative 2 would have greater environmental impacts than Alternatives 1 and 3 because it requires substantially more earthen material.

Alternative 3 fully addresses the purpose and need for dam safety and flood damage reduction objectives for the Sacramento Region. Alternative 3, however, would have greater environmental impacts than only Alternative 1 because it includes all 3 phases of construction on the Auxiliary Spillway.

Alternative 4 would meet the project's purpose and need but would have greater environmental impacts than Alternatives 1 through 3 due to the increased amount of earthen material excavated, processed, and placed at the facilities. Alternative 5 would have the greatest environmental impacts of all alternatives because it would require complete development of all potential in-reservoir borrow sites to provide the earthen material necessary to construct the 17-ft raise.

Based on this summary, the Partner Agencies have identified Alternative 3 as the environmentally Preferred Alternative. This meets the CEQA requirement to identify the environmentally preferred alternative in the EIR.

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Appendix D – Folsom DS/FDR Biological Assessment

Appendix E – Folsom DS/FDR Revised Draft Fish and Wildlife Coordination Act Report

### List of Acronyms

APCD	Air Pollution Control District
APE	Area of Potential Effect
AQMD	Air Quality Management District
BA	Biological Assessment
BACT	Best Available Control Technology
BMP	Best Management Practice
CALTRANS	California Department of Transportation
CARB	California Air Resources Board
CAS	Corrective Action Study
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
Corps	U.S. Army Corps of Engineers
CRHR	California Register of Historical Resources
CSA	Contractor Staging Area
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DS/FDR	Dam Safety and Flood Damage Reduction
DWR	California Department of Water Resources
EA	Environmental Assessment
EGR	Exhaust Gas Recirculation
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
ENSA	Environmental Site Assessment
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FLSRA	Folsom Lake State Recreation Area
FWCA	Fish and Wildlife Coordination Act

FWCAR	U.S. Fish and Wildlife Coordination Act Report
FY	Fiscal Year
HMTA	Hazardous Material Transportation Act
HTRW	Hazardous, toxic, and radioactive wastes
IO	Input Output
IS	Initial Study
ITA	Indian Trust Asset
JFP	Joint Federal Project
LOS	Level of Service
LWD	Left Wing Dam
M&I	Municipal and Industrial
MBTA	Migratory Bird Treaty Act of 1918
MIAD	Mormon Island Auxiliary Dam
MMRP	Mitigation Monitoring and Reporting Program
NAC	Noise abatement criteria
NCCPA	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OHWM	Ordinary high water mark
PAC	Post Authorization Change
Partner Agencies	Reclamation, Corps, DWR, and SAFCA
PL	Public Law
PMF	Probable Maximum Flood
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
Reclamation Board	State Reclamation Board
ROD	Record of Decision
RWD	Right Wing Dam
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SARA	Superfund Amendment Reauthorization Act
SDWA	Safe Drinking Water Act
SEL	Sound Exposure Level
SHPO	State Historic Preservation Officer
SMARA	Surface Mining and Reclamation Act
SMAQMD	Sacramento Metropolitan Air Quality Management District
SSLE	Safety, Security and Law Enforcement
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TPH	Total petroleum hydrocarbons

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VELB	Valley Elderberry Longhorn Beetle
VOC	Volatile organic compounds
Williamson Act	California Land Conservation Act
WRDA	Water Resources Development Act
6STG	Six submerged tainter gates

### List of Abbreviations

cfs	cubic feet per second
CO	carbon monoxide
dBA	decibels adjusted
ft	foot
Ldn	day-night average level
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
O <sub>3</sub>	ozone
Pb	lead
PM <sub>2.5</sub>	fine particulate matter
PM <sub>10</sub>	inhalable particulate matter
ppm	parts per million
SO <sub>2</sub>	sulfur dioxide

# Chapter 1

## Introduction

### 1.1 Introduction

On December 1, 2006, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the U.S. Army Corps of Engineers (Corps), and the Corps non-federal sponsors, the State Reclamation Board (Reclamation Board)/California Department of Water Resources (DWR) and the Sacramento Area Flood Control Agency (SAFCA), released the Folsom Dam Safety and Flood Damage Reduction (Folsom DS/FDR) Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for public review and comment. The Draft EIS/EIR (State Clearinghouse # 2006022091) identified five alternatives to address dam safety, security, and flood damage reduction at Folsom Dam and Appurtenant Facilities (Folsom Facility). The Folsom DS/FDR agencies held public hearings to receive oral and written comments at the following locations: Sacramento, January 9<sup>th</sup>, 2007; and Folsom, January 10<sup>th</sup>, 2007. Transcripts were obtained for all oral comments at the public hearings. The comment period on the Draft EIS/EIR closed on January 26, 2007, after a four day extension was issued by Reclamation. Verbal and written comments were submitted from Federal, State, and local agencies, non-profit organizations, local businesses, and members of the public.

The Partner Agencies (Reclamation, Corps, Reclamation Board/DWR, and SAFCA) reviewed the comments in relation to impacts to the biological, physical and socioeconomic environments and made changes to the actions addressed in the Draft EIS/EIR. The proposed changes, as discussed in Sections 2.0 and 3.0 of this Final EIS/EIR, have substantially reduced the impacts, thereby addressing issues raised by the many reviewers.

This document, in conjunction with the Draft EIS/EIR and other related materials, as described below, constitutes the Final EIS/EIR for the Proposed Project. More specifically, the Final EIS/EIR for the proposed Folsom DS/FDR actions (i.e., the Proposed Project) consists of the following:

**Volume I - Draft EIS/EIR December 2006:** This volume of the Final EIS/EIR is effectively the Draft EIS/EIR released for public review on December 1, 2006. Minor editorial corrections and clarifications have been made to the Draft EIS/EIR as presented in this Final EIS/EIR (Volume III Appendix C), at the request of the Corps and the DWR; however, no material changes or additions were made to the Draft EIS/EIR that was published and distributed in December 2006. The errata sheet for the Draft EIS/EIR is available in hard copy; the Draft EIS/EIR is only available in electronic format.

**Volume II - Draft EIS/EIR Appendices December 2006:** This volume of the Final EIS/EIR includes the Public Scoping Report and all the technical data and reports that were included as part of the Draft EIS/EIR published in December 2006. Similar to Volume I above, this volume is presented as part of the Final EIS/EIR in electronic format only.

**Volume III - Responses to Comments and Related Information:** This volume of the Final EIS/EIR, presented herein, provides the responses to all comments received on the Draft EIS/EIR during the comment period from December 1, 2006 to January 26, 2007, including comments received at the two public hearings. Additionally, this volume of the Final EIS/EIR presents revisions to the project description based on comments received on the Draft EIS/EIR and discussion of potential impacts to the natural, physical, and/or socioeconomic environments associated with those revisions to the project description, based largely on information and related analysis presented previously in the Draft EIS/EIR. The revisions made to the project description and attendant environmental analysis presented herein are indicative of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) review processes, whereby the original project proposal can, and should, be revised in light of public and agency comments received on the Draft EIS/EIR circulated for the project. The information and analysis presented herein will, however, be made available for public review during the 30-day comment period associated with release of the Final EIS/EIR. Section 1.7 further describes the contents of Volume III.

Reclamation and the Corps have identified Alternative 3, as addressed in the Draft EIS/EIR, and subsequently refined based on public and agency comments received on the Draft EIS/EIR (i.e., the revised project description referenced above), as the Preferred Alternative. Alternative 3, as addressed in the Draft EIS/EIR, includes the Joint Federal Project (JFP) Auxiliary Spillway, seismic improvements to the Main Concrete Dam and Mormon Island Auxiliary Dam (MIAD), static improvements to earthen structures, security upgrades, replacement of the Main Concrete Dam spillway gates, and a 3.5-foot (ft) raise to all Folsom Facility structures. Table 1-1 below provides the relationship of the components of the Preferred Alternative with the agency responsible for the action and issue that the action addresses. Section 2.2 of the Draft EIS/EIR provides a discussion on the concerns for the Folsom Facility and measures considered to address those concerns.

## **1.2 Joint Federal Project Coordination**

The Energy and Water Development Appropriations Act of 2006 included language supporting Reclamation's and the Corps' collaboration in determining a joint dam safety and flood damage reduction project. According to Section 128 of the Act:

<b>Table 1-1 Components of the Preferred Alternative (Alternative 3)</b>		
<b>Action</b>	<b>Responsible Agency</b>	<b>Concern Addressed</b>
JFP Auxiliary Spillway construction	Reclamation and Corps	Dam Safety, Flood Damage Reduction, hydrologic control
MIAD foundation stabilization and overlay	Reclamation	Dam Safety, seismic upgrades
Left and Right Wing Dams, Dikes 4, 5, 6 upgrades	Reclamation	Dam Safety, static upgrades
Main Dam concrete block, pier, and gates reinforcement	Reclamation	Dam Safety, seismic upgrades
Facility Security Improvements	Reclamation	National Security
Existing Spillway Gates Replacement	Corps	Flood Damage Reduction
Facility Raise	Corps	Flood Damage Reduction

“American River Watershed, California (Folsom Dam and Permanent Bridge)-

(a) COORDINATION OF FLOOD DAMAGE REDUCTION AND DAM SAFETY- The Secretary of the Army and the Secretary of the Interior are directed to collaborate on authorized activities to maximize flood damage reduction improvements and address dam safety needs at Folsom Dam and Reservoir, California. The Secretaries shall expedite technical reviews for flood damage reduction and dam safety improvements. In developing improvements under this section, the Secretaries shall consider reasonable modifications to existing authorized activities, including a potential Auxiliary Spillway. In conducting such activities, the Secretaries are authorized to expend funds for coordinated technical reviews and joint planning, and preliminary design activities.”

The Folsom DS/FDR EIS/EIR meets the requirements of the Energy and Water Development Appropriations Act of 2006 by evaluating the JFP and other alternatives that meet Reclamation’s dam safety hydrologic objective and the Corps’ flood damage reduction objective. In addition, this EIS/EIR evaluates a range of alternatives that address other stand-alone dam safety (seismic and static), dam security, and flood damage reduction actions at the Folsom Facility.

### **1.3 Relationship of the Folsom DS/FDR EIS/EIR Proposed Project with the Corps' Post Authorization Change Report**

#### ***Authorized Corps of Engineers Flood Damage Reduction Projects***

By way of background, the Corps' Folsom Modifications and Folsom Dam Raise projects share an objective of improving flood management on the lower American River, primarily through structural modifications to the existing Folsom Dam and Appurtenant Facilities. The Folsom Modifications Project, as authorized in Section 101(a) (6) of the Water Resources Development Act (WRDA) of 1999, Public Law (PL) 106-53, consists of enlarging the eight existing outlets on the dam and enhancing the use of surcharge space in the reservoir through modifications to the emergency spillway and related operational changes. These modifications would allow for an objective release capacity of 115,000 cubic feet per second (cfs) earlier than under without project conditions in a flood event. The Folsom Dam Raise Project, as authorized in Section 128 of the Energy and Water Development Appropriations Act of 2004 (PL 109-103), consists of raising the Main Concrete Dam and associated wing dams, dikes and other appurtenances by 7 feet, providing additional flood storage capacity in the reservoir. These two projects, in combination with other authorized elements downstream from the dam, such as the Common Features project, were expected to reduce the risk of flooding to Sacramento to an annual exceedence probability of 0.0057 (a 1 in 175 chance in any given year).

Because of escalating costs and technical issues, the Folsom Modifications Project was delayed. There is now an emphasis on reconsidering the Folsom Modifications Project and the Folsom Dam Raise Project in a more integrated manner. Also, the Energy and Water Development Appropriations Act of 2006 directed the Corps and Reclamation to collaborate on flood damage reduction and dam safety at the Folsom Facility. The Corps has prepared a Post Authorization Change (PAC) Report in part to respond to Congress' request.

#### ***Recommended Changes to Authorized Flood Damage Reduction Projects***

The PAC Report documents recommended changes to the Folsom Modifications and Folsom Dam Raise projects. It is anticipated that these changes would reduce flood risk to areas along the American River generally equivalent to the flood risk reduction intended to be provided by the originally authorized projects, but more efficiently and effectively addresses the flood damage reduction objectives of the authorized projects as well as Reclamation dam safety objectives.

Chapter 4 of the PAC Report details the process for identifying, evaluating, and selecting a plan to jointly address the Corps' authorized flood damage reduction

projects and Reclamation's dam safety issues. The PAC Report describes the Corps' Selected Plan (recommended changes to the two authorized projects) as well as the Refined Authorized Project, which includes the Selected Plan and two other features: ecosystem restoration and the Folsom Bridge, which would proceed for implementation as originally authorized with no recommended changes. Potential environmental impacts of these two other features are disclosed in the 2002 American River Watershed Long-Term Study Final Supplemental Plan Formulation Report EIS/EIR and 2005 American River Watershed Folsom Dam Modification Project Final Environmental Assessment (EA)/Initial Study (IS), respectively. The Revised Authorized Plan also includes the deletion of the surcharge component of the Folsom Dam Modifications Project, as it is no longer necessary for flood damage reduction with the Folsom Dam Raise Project, and deletion of the L.L. Anderson Dam component of the Folsom Dam Raise Project, as these modifications are being accomplished independently by the Placer County Water Agency.

Features of the Corps' Selected Plan include the following:

- **Auxiliary Spillway with Six Submerged Tainter Gates** – A new Auxiliary Spillway would be located southwest of Folsom Dam. This feature is the JFP, addressing flood damage reduction and dam safety objectives, and thus would be designed and constructed jointly by the Corps and Reclamation, as described in Section 2.4 of this Final EIS/EIR.
- **Spillway Gate Replacement** - Replacement of the three existing 42-ft by 53-ft emergency spillway gates at Folsom Dam with 42-ft wide by 59-ft high tainter gates. This would allow 2 feet of freeboard for the emergency spillway tainter gates (in a closed position) when the reservoir is operated to maintain controlled releases up to 160,000 cfs (emergency objective release). This feature would address flood damage reduction objectives, and thus would be designed and constructed by the Corps.
- **Folsom Dam Raise** – This feature would include raising the two wing dams, MIAD, and Dikes 1 to 8 by up to 3.5 feet, and replacing three emergency spillway gates at Folsom Dam. These features would address flood damage reduction objectives, and thus would be designed and constructed by Corps. The raise will not, however, be included in the Record of Decision (ROD) for the JFP. The 3.5-ft raise project will be included in a separate ROD for flood damage reduction features. The 3.5-ft raise portion of the selected plan will undergo further design during the Corps' pre-construction, engineering, and design phase and if needed, supplemental NEPA/CEQA documentation would be prepared. In addition the raise construction would begin after construction of the JFP has commenced; this could be prior to 2014.

- **Flood Space Operations** – The authorization for the Folsom Dam Modifications Project directs the Corps to change the variable flood storage space at Folsom Lake from the current interim operation of 400,000 acre-feet to 670,000 acre-feet to a 400,000 acre-feet to 600,000 acre-feet (400/600) permanent variable flood space operation once the Folsom Dam Modifications Project has been implemented. The Corps, with coordination by Reclamation, will develop a new flood control manual for Folsom Dam for implementation prior to completion of the JFP Auxiliary Spillway. The new flood control manual feature is currently being scoped as a parallel process. Therefore, in this EIS/EIR, operations are analyzed and disclosed based upon current operational requirements. The parallel flood control manual development and study will include variable flood storage space, including analysis of forecast based operations, new flood release schedules and a plan component for repayment of potential water supply losses resulting from implementation of this flood control manual. This parallel study will be a collaborative process with the appropriate level of environmental analysis, public, agency and stakeholder coordination, and appropriate NEPA/CEQA documentation.

The Folsom DS/FDR EIS/EIR analyzes alternatives that include features that address Corps' flood damage reduction objectives, as discussed in Section 4.2 of the PAC Report, as well as Reclamation dam safety objectives, as described in Chapter 1 of the Draft EIS/EIR. The alternatives include features that would address the Corps' flood damage reduction objectives and Reclamation's dam safety objectives jointly, which would be designed and constructed jointly (the six submerged tainter gates [6STG] Auxiliary Spillway), as well as features that would exclusively address dam safety, security or flood damage reduction concerns, and this would be constructed by the respective agencies. Since the EIS/EIR alternatives include features addressing objectives not addressed in the Corps' PAC Report, the Folsom DS/FDR EIS/EIR perspective differs from that of the PAC Report. However, the features of the Corps' Selected Plan are included in Alternative 3 of this EIS/EIR.

The Corps intends to adopt the DS/FDR EIS/EIR prior to the completion of the JFP ROD in accordance with 40 CFR Part 1506.3 (c). Additionally, the raise portion of the selected plan will undergo further design during the Corps' pre-construction, engineering, and design phase and if needed, supplemental NEPA/CEQA documentation would be prepared.

## **1.4 Folsom DS/FDR Purpose and Need/Project Objectives**

The Folsom Facility consists of 4 dams (Main Concrete Dam, MIAD, Right Wing Dam, and Left Wing Dam) and 8 dikes (Dikes 1 to 8), which impound flows on the American River forming Folsom Reservoir, which is a critical component of the Central Valley Project (CVP). The Folsom Facility was constructed between 1948 and 1956 by the Corps as a multi-purpose facility operated for flood control,

municipal and industrial (M&I) water supply, agricultural water supply, power, fish and wildlife, recreation, and water quality benefits. Upon completion of construction of the dams and dikes, ownership of the Folsom Facility was transferred to Reclamation for operation and maintenance as a financially and operationally integrated feature of the CVP. The Folsom Powerplant construction, which began in 1952 and was completed in 1956, was supervised by Reclamation.

Both Reclamation and the Corps share in the responsibility of ensuring that the Folsom Facility is maintained and operated under their respective agency's dam safety regulations and guidelines, as defined by Congress. Reclamation is responsible for dam safety, operations, and maintenance at Folsom Dam. Reclamation operates and maintains the Folsom Facility to supply M&I water users, hydroelectric power, and recreational opportunities and is responsible for the dam safety program. The Corps is responsible for flood damage reduction capital improvements and establishing flood operation requirements at Folsom Reservoir. The Corps provides regulations governing the flood damage reduction operations of the dam by setting release criteria and flood storage requirements during critical seasons.

As a part of their responsibilities, Reclamation and the Corps have determined that the Folsom Facility requires structural improvements to increase overall public safety above existing conditions by improving the facilities' ability to reduce flood damages and address dam safety issues posed by hydrologic (flood), seismic (earthquake), and static (seepage) events and security issues at the Folsom Facility. These events have a low probability of occurrence in a given year; however, due to the large population downstream of Folsom Dam, modifying the facilities is prudent and required to improve public safety above current baseline conditions.

Reclamation has identified the need for expedited action to reduce hydrologic, static, and seismic risks under its Safety of Dams Program and security issues under its Security Program. The identified risks are among the highest of all dams in Reclamation's inventory and the Folsom Facility is among Reclamation's highest priorities within its Safety of Dams Program. Additionally, there is a need to upgrade security infrastructure at the Folsom Facility under Reclamation's Safety, Security and Law Enforcement (SSLE) Program. Reclamation's primary interest for participating in the Folsom DS/FDR is to realize an expedited improvement in overall public protection and cost sharing benefits of a combined project.

The Corps, in partnership with the non-federal sponsors, has determined that Folsom Reservoir does not have sufficient release capacity to adequately manage severe flood flows nor do the downstream levees have sustained capacity to exceed base flood event flows of 145,000 cfs (Corps 2004).

The non-federal sponsors have identified the need to reduce the risk of flooding in the Sacramento area. Due to the number and value of the exposed structures and the size of the population at risk, Sacramento has been identified as one of the most at risk communities in the nation. Consequently, there is a need to expeditiously reduce this risk through interim and permanent flood damage reduction measures. The goal of non-federal sponsors is to safely pass the 200-year computed design event as a minimum objective as anticipated in the Congressionally authorized Folsom Dam Modifications and Folsom Dam Raise projects. Pursuit of this goal constitutes non-federal sponsors' primary interest for participating in the Folsom DS/FDR actions.

Both Reclamation and the Corps have conducted engineering studies to identify potential corrective measures for the Folsom Facility to alleviate seismic, static, and hydrologic dam safety issues, and flood management concerns. These two federal agencies have combined their efforts resulting in (1) a JFP for addressing Reclamation's dam safety hydrologic risk and the Corps' flood damage reduction objectives and (2) other stand-alone flood damage reduction and dam safety actions to be completed by the respective agencies in a coordinated manner. Among the latter are separate, but related, downstream levee projects that are underway to increase flood damage reduction along the lower American River.

#### **1.4.1 Statement of Purpose and Need**

There is a need to expeditiously implement engineering measures for the Folsom Facility in order to reduce potential failure due to seismic, static, and hydrologic conditions. There is also a need to incrementally increase minimum flood damage reduction via flood storage capacity and/or reservoir pool release mechanisms. Furthermore, there is a need to implement security improvements at the Folsom Facility consistent with its designation as a National Critical Infrastructure Facility. The purpose of the Folsom DS/FDR is to increase overall public safety, ensure the reliability of local power and water supply, and maintain an important recreational resource by: (1) expediting corrective action to address risks identified with the structural integrity of Folsom Dam and appurtenant structures in accordance with Reclamation's Public Protection Guidelines; (2) incrementally improving the flood management capacity of the Folsom Facility to meet or exceed the 200-year recurrence level; and (3) upgrading security infrastructure at the Folsom Facility.

#### **1.4.2 Project Objectives**

In addition to the underlying purpose of the project above, specific project objectives were developed to meet CEQA (California Environmental Quality Act) guidelines. The CEQA-related project objectives are:

- Expeditiously reduce hydrologic (flooding) risk of overtopping-related failure of any retention structure during a probable maximum flood (PMF) event in accordance with Reclamation's Public Protection Guidelines;

- Expediently reduce the risk of structural failure of any retention structure during a potential seismic (earthquake) event in accordance with Reclamation’s Public Protection Guidelines;
- Expediently reduce the risk of structural failure of any retention structure during a potential static (seepage) event in accordance with Reclamation’s Public Protection Guidelines;
- Expediently improve the security infrastructure at the Folsom Facility in accordance with Reclamation’s Public Protection Guidelines; and
- Expediently improve the flood management capacity of the facilities in a manner functionally equivalent to the Corps’ authorized projects.

## 1.5 Federal, State, and Local Requirements

The Folsom DS/FDR actions must fulfill or comply with the Federal, State, regional, and local environmental requirements described in Table 1-2.

<b>Table 1-2 Related Laws, Rules, Regulations, and Executive Orders</b>			
<b>Statute</b>	<b>Section of Draft EIS/EIR with Description</b>	<b>Relevant Permits/Processes</b>	<b>Status of Compliance</b>
<b>Federal Statute</b>			
National Environmental Policy Act of 1969 (NEPA)	Section 1.10.1.1	EIS, Record of Decision	Ongoing
National Historic Preservation Act of 1966 (NHPA)	Sections 1.10.1.6, 3.11.1.2	Section 106 Consultation	Ongoing
Clean Air Act (Section 176)	Sections 1.10.1.8, 3.3.1.2, 3.6.1.2	Conformity provisions, mitigation measures	Ongoing
Rivers and Harbors Act (Section 9)	Sections 1.10.1.7, 3.2.1.2, 3.5.1.2	Analyzed in EIS/EIR <sup>(1)</sup>	In Compliance
Clean Water Act (CWA)	Sections 1.10.1.10, 3.1.1.2, 3.5.1.2, 3.6.1.2	Section 401 and 404 requirements, National Pollution Discharge Elimination System (NPDES) permit	Ongoing
Endangered Species Act (ESA)	Sections 1.10.1.2, 3.4.1.2, 3.5.1.2	Section 7 Consultation, Biological Assessment	Ongoing
Fish and Wildlife Coordination Act (FWCA)	Sections 1.10.1.4, 3.4.1.2	Coordination Action Report	Ongoing
Migratory Bird Treaty Act of 1918 (MBTA)	Sections 1.10.1.11, 3.5.1.2	Analyzed in EIS/EIR	In Compliance
Executive Order 11990, Protection of Wetlands	Section 3.5.1.2	Analyzed in EIS/EIR	In Compliance

<b>Table 1-2</b> <b>Related Laws, Rules, Regulations, and Executive Orders</b>			
<b>Statute</b>	<b>Section of Draft EIS/EIR with Description</b>	<b>Relevant Permits/Processes</b>	<b>Status of Compliance</b>
Executive Order 12898, Environmental Justice	Sections 1.10.1.9, 3.19.1.2	Analyzed in EIS/EIR	In Compliance
Farmland Protection Policy Act	Sections 1.10.1.5, 3.8.1.2.1	Analyzed in EIS/EIR	In Compliance
Indian Trust Assets (ITA)	Section 3.18	Analyzed in EIS/EIR	In Compliance
Magnuson-Stevens Fishery Conservation & Management Act	Sections 1.10.1.3, 3.4.1.2	Analyzed in EIS/EIR	Ongoing
Federal Highway Administration (FHWA) noise abatement criteria (NAC) (23 CFR Part 772)	Section 3.10.1.3	Analyzed in EIS/EIR	Ongoing
Safe Drinking Water Act (SDWA)	Section 3.1.1.2	Analyzed in EIS/EIR	Ongoing
Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970	Sections 1.10.1.12, 3.16.1.2	Analyzed in EIS/EIR	In Compliance
National Wild and Scenic Rivers Act	Section 1.10.1.13	Analyzed in EIS/EIR	In Compliance
Central Valley Project Improvement Act (CVPIA)	Section 3.2.1.2	Analyzed in EIS/EIR	In Compliance
Federal Power Act & Electric Consumers Protection Act	Section 3.15.1.2	Analyzed in EIS/EIR	In Compliance
Federal Guidelines for Dam Safety	Section 3.17.1.2	Analyzed in EIS/EIR	In Compliance
Resource Conservation and Recovery Act (RCRA)	Sections 3.14.1.2, 3.17.1.2	Permitting	Ongoing
Hazardous Material Transportation Act (HMTA)	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing
Comprehensive Environmental Response Compensation and Liability Act (CERCLA, 43 United States Code 9601)	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing
Superfund Amendment Reauthorization Act (SARA) Title 3	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing
40 CFR 260-279 Federal Regulations on hazardous waste management	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing
40 CFR, Section 301 et seq. Emergency Planning and	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing

<b>Table 1-2 Related Laws, Rules, Regulations, and Executive Orders</b>			
<b>Statute</b>	<b>Section of Draft EIS/EIR with Description</b>	<b>Relevant Permits/Processes</b>	<b>Status of Compliance</b>
Community Right to Know Act			
Toxic Substances Control Act (15 United States Code 2601)	Section 3.17.1.2	Analyzed in EIS/EIR	Ongoing
<b>State Statute</b>			
California Environmental Quality Act (CEQA)	Section 1.10.2.1	EIR	Ongoing
Porter-Cologne Water Quality Control Act	Sections 1.10.2.4, 3.1.1.2, 3.6.1.2	NPDES, Waste Discharge Requirements	Ongoing
California ESA	Sections 1.10.2.2, 3.4.1.2, 3.5.1.2	California Department of Fish and Game (CDFG) consultation	Ongoing
Natural Community Conservation Planning Act (NCCPA)	Section 1.10.2.3	CDFG consultation	Ongoing
Government Code Section 65040.12(e) Environmental Justice	Sections 1.10.2.6, 3.19.1.2	Analyzed in EIS/EIR	In Compliance
California Land Conservation Act (Williamson Act)	Section 3.8.1.2.2	Analyzed in EIS/EIR	In Compliance
California Clean Air Act (CCAA)	Section 3.3.1.2	Ambient air quality standards, mitigation measures	Ongoing
Native Plant Protection Act of 1977; CA Fish and Game Code Section 1900 et seq.	Section 3.5.1.2	Analyzed in EIS/EIR	Ongoing
California Species Preservation Act of 1970; CA Fish and Game Code Section 900-903	Section 3.5.1.2	Analyzed in EIS/EIR	Ongoing
CA Fish and Game Code Section 3511 and 5050	Section 3.5.1.2	Analyzed in EIS/EIR	Ongoing
CA Fish and Game Code 1930-1933	Section 3.5.1.2	Analyzed in EIS/EIR	Ongoing
CA Fish and Game Code 1600	Section 3.6.1.2	Federal Government is not required to submit a 1600 permit; however, similar to a Federal CWA 404 permit.	Ongoing
Airborne Toxic Control Measures (17 CCR Sections 93105 and 93106)	Sections 1.10.2.5, 3.6.1.2	Analyzed in EIS/EIR	In Compliance
Alquist-Priolo Earthquake Fault Zoning Act	Section 3.6.1.2	Analyzed in EIS/EIR	In Compliance
Seismic Hazards Mapping Act	Section 3.6.1.2	Analyzed in EIS/EIR	In Compliance

**Table 1-2  
Related Laws, Rules, Regulations, and Executive Orders**

<b>Statute</b>	<b>Section of Draft EIS/EIR with Description</b>	<b>Relevant Permits/Processes</b>	<b>Status of Compliance</b>
Surface Mining and Reclamation Act (SMARA)	Section 3.6.1.2	Analyzed in EIS/EIR	In Compliance
Title 14, Chapter 3 – Solid waste handling and disposal. (CA Code of Regulations)	Section 3.14.1.2	Analyzed in EIS/EIR	In Compliance
Hazardous Waste Control Law	Section 3.17.1.2	Analyzed in EIS/EIR	In Compliance
Title 17, Public Health (CA Code of Regulations)	Section 3.17.12	Analyzed in EIS/EIR	In Compliance
Title 19, Public Safety (CA Code of Regulations)	Section 3.17.12	Analyzed in EIS/EIR	In Compliance
Title 22, Division 4.5 – Environmental Health Standards for the Management of Hazardous Waste (CA Code of Regulations)	Section 3.17.12	Analyzed in EIS/EIR	In Compliance
Title 26, Toxics (CA Code of Regulations)	Section 3.17.12	Analyzed in EIS/EIR	In Compliance
CA Department of Motor Vehicles, Hazardous Waste and Materials Transportation Requirements (Vehicle Code Section 31303)	Section 3.17.12	Analyzed in EIS/EIR	In Compliance
<b>Local Statute</b>			
Sacramento County General Plan	Sections 1.10.3, 3.1.1.2, 3.6.1.2, 3.9.1.2, 3.12.1.2	Zoning requirements, Level of Service (LOS) Standards, Noise Standards, water regulations, geologic hazards	In Compliance
El Dorado County General Plan	Sections 1.10.3, 3.1.1.2, , 3.6.1.2, 3.9.1.2, 3.12.1.2	Zoning requirements, LOS Standards, Noise Standards, water regulations, geologic hazards	In Compliance
Placer County General Plan	Sections 1.10.3, 3.1.1.2, 3.6.1.2, 3.9.1.2, 3.12.1.2	Zoning requirements, LOS Standards, Noise Standards, water regulations, geologic hazards	In Compliance
City of Folsom General Plan	Sections 1.10.3, 3.9.1.2	LOS Standards, Noise Standards, water regulations	In Compliance
City of Folsom Zoning Ordinance	Section 3.12.1.2	Zoning requirements	In Compliance
Granite Bay Community Plan	Sections 3.10.1.3, 3.9.1.2	Noise Standards, LOS Standards	In Compliance
City of Roseville General Plan	Sections 3.10.1.3, 3.9.1.2	Noise Standards, LOS Standards	In Compliance
City of Wheatland General Plan	Sections 3.10.1.3, 3.9.1.2	Noise Standards, LOS Standards	In Compliance

<b>Table 1-2 Related Laws, Rules, Regulations, and Executive Orders</b>			
<b>Statute</b>	<b>Section of Draft EIS/EIR with Description</b>	<b>Relevant Permits/Processes</b>	<b>Status of Compliance</b>
City of Rocklin General Plan	Sections 3.10.1.3, 3.9.1.2	Noise Standards, LOS Standards	In Compliance
Sacramento Metropolitan Air Quality Management District (SMAQMD)	Section 3.3.1.2	Mitigation measures	Ongoing
Placer County Air Pollution Control District (APCD)	Section 3.3.1.2	Mitigation measures	Ongoing
El Dorado County Air Quality Management District (AQMD)	Section 3.3.1.2	Mitigation measures	Ongoing
Feather River AQMD	Section 3.3.1.2	Mitigation measures	Ongoing

<sup>(1)</sup> regulation addressed through EIS/EIR process

Note: Ongoing – Some requirements of the regulation remain to be met by subsequent installation actions before implementation of some of the actions associated with this project. Once the statutory requirement for each action has been met, compliance will be labeled “in compliance”.

## 1.6 Related Projects

There are several related projects that are not part of the Folsom DS/FDR actions and are not evaluated as part of the alternatives in the EIS/EIR. These projects will be completed by their responsible agency using separate environmental documentation. These projects include:

- Widening of the spillway at L.L. Anderson Dam (French Meadows Reservoir) – will be carried out by Placer County Water Agency as a separate project. Included in the EIS/EIR as a cumulative project.
- Ecosystem Restoration – will be carried out by the Corps and the non-Federal sponsors as part of the originally authorized Folsom Dam Raise Project.
- Temperature Control Shutters - As described in the Corps PAC Report, the Corps originally authorized Folsom Dam Raise Project included improvements to the temperature control shutters as part of the ecosystem restoration component of the project. The Selected Plan (Refined Authorized Project) described in the PAC Report does not recommend any changes to this element of the authorized project, which is analyzed in the 2002 Long Term Feasibility Study/EIS/EIR. This feature would be completed independently of the Folsom DS/FDR by the Corps. Supplemental environmental analysis, coordination, and documentation would be completed if needed for this feature in the pre-construction, engineering and design phase of the project.

- New Folsom Bridge – will be carried out by the Corps and the non-Federal sponsors as part of the originally authorized raise project. Included in the EIS/EIR as a cumulative project.
- New Water Control Manual for Folsom Dam and Reservoir - The Corps, with coordination by Reclamation, will develop a new flood control manual for Folsom Dam for implementation prior to completion of the JFP Auxiliary Spillway. This parallel study will be a collaborative process with the appropriate level of environmental analysis, public, agency and stakeholder coordination, and appropriate NEPA/CEQA documentation. Included in the EIS/EIR as a cumulative project.

## 1.7 Overview of this Document

This document (Volume III of the Final EIS/EIR) contains a description of the Preferred Alternative (Proposed Project), as revised in light of comments received on the Draft EIS/EIR; a discussion of the environmental impacts associated with the currently Proposed Project, including acknowledgement of those impacts that are reduced by virtue of the project revisions compared to the impacts originally identified in the Draft EIS/EIR; all comments received on the Draft EIS/EIR during the public comment period; and the responses to those comments. More specifically, the elements of this volume of the Folsom DS/FDR Final EIS/EIR are as follows:

- **Chapter 1** provides an introduction to the Final EIS/EIR, including an explanation of the overall organization of the Final EIS/EIR. This chapter also provides a discussion of Joint Federal Project coordination, the relationship of the Folsom DS/FDR EIS/EIR with the Corps' PAC Report, the Folsom DS/FDR purpose and need/project objectives, the Federal, State, and local regulations and environmental requirements applicable to the Folsom DS/FDR and where such regulations and requirements are addressed in the Draft EIS/EIR, and identification of related projects.
- **Chapter 2** provides an updated project description including changes to the Preferred Alternative - Proposed Action/Project (Alternative 3) since the release of the Draft EIS/EIR. It also contains a listing of all proposed mitigation measures identified to reduce impacts associated with the Proposed Action/Project.
- **Chapter 3** provides a discussion of the impacts associated with the currently Proposed Project, as revised, including a delineation of where and how certain impacts now differ from those originally identified in the Draft EIS/EIR, based on the subsequent revisions to the Preferred Alternative. Chapter 3 only addresses those natural, physical, and socioeconomic resource areas with impact assessment changes based on the revisions to the Preferred Alternative (i.e., Alternative 3).

- **Chapter 4** presents responses to comments received on the Draft EIS/EIR during the public comment period. Many of the individual comments received were similar in nature and/or pertained to common or recurring issues. Chapter 4 provides “Topical Responses” that are designed and intended to address comments that were frequent in nature, involved a common theme, or both. Chapter 4 also includes a listing of the entities providing comments. While Chapter 4 provides Topical Responses that address, by topic, issues of concern most representative of the entirety of comments received during the public comment period, Appendix A of this document contains the individual comments along with a response for each comment. All comments received by the project agencies via e-mail, fax, comment form, or letter, and those submitted or dictated during the public hearings are included in Appendix A. The final section presents comments and responses on the Corps’ PAC Report.
- **Chapter 5** provides a list of recipients of the Final EIS/EIR, including elected officials and representatives, government departments and agencies, private organizations and businesses, and the general public.
- **Chapter 6** provides a list of references.
- **Appendix A** contains a copy of all comments received on the Draft EIS/EIR and responses to those comments.
- **Appendix B** contains the Public Hearing Summary Report.
- **Appendix C** contains Volumes I and II of the Draft EIS/EIR, including minor editorial edits for the purpose of reflecting corrections and clarifications requested by certain regulatory agencies, but not materially changing any of the information and analysis of the original document. For the purpose of this Final EIS/EIR, the Draft EIS/EIR errata sheet is presented with the editorial changes shown in "track-change" (i.e., additions to the original text are shown in underscore, italic format [*Example*] and deletions are shown in strikethrough format [~~Example~~]). The errata sheet is available in hard copy; the Draft EIS/EIR is only available electronically.
- **Appendix D** contains the Folsom DS/FDR Biological Assessment.
- **Appendix E** contains the Folsom DS/FDR Draft Fish and Wildlife Coordination Act Report by USFWS.