

Prologue

This document is the Consolidated Final Program Environmental Impact Report (FPEIR) for the 2012 Central Valley Flood Protection Plan (CVFPP). The term “Consolidated” refers to the combining of the CVFPP Draft PEIR (DPEIR) and FPEIR into a single document. The typical process for preparation of an EIR is to complete a DEIR as a standalone document, make available the DEIR for public review, and then complete a separate standalone FEIR. The FEIR typically contains responses to comments provided on the DEIR as well as changes and/or corrections to the DEIR, typically recorded via errata pages or a similar means. This organizational structure can complicate proper use of a certified EIR, because a reader must find the desired information in the DEIR, and then refer to the FEIR to determine whether any changes were made to the relevant text after the DIER was published.

This Consolidated FPEIR combines the CVFPP DPEIR and FPEIR into a single document by incorporating the changes and corrections presented in the FPEIR into the DPEIR. It also encompasses the contents of the FPEIR, including the final 2012 CVFPP with accompanying Central Valley Flood Protection Board adoption resolution. The Consolidated FPEIR provides CVFPP PEIR users with a single and complete point of reference, avoiding the need to cross-check the DPEIR against the FPEIR. The Consolidated FPEIR simplifies the use of the PEIR for Lead, Responsible, and Trustee agencies under the California Environmental Quality Act (CEQA); levee maintaining agencies; local jurisdictions; interested stakeholders, and the public.

1.0 Introduction

This document is an environmental impact report (EIR) prepared under the California Environmental Quality Act (CEQA) by the California Department of Water Resources (DWR) for the Central Valley Flood Protection Plan (CVFPP). It is consistent with Title 14, Division 6, Chapter 3 of the California Code of Regulations—that is, the CEQA Guidelines, as amended. More specifically, this EIR is a program EIR (PEIR) prepared pursuant to and consistent with the requirements of Section 15168 of the CEQA Guidelines.

The Central Valley Flood Management Planning (CVFMP) Program is one of several programs managed by DWR under FloodSAFE California, a multifaceted initiative launched in 2006 to improve integrated flood management in California. The CVFMP Program addresses flood management planning activities in the Central Valley that require leadership and participation by the State of California (State). The CVFPP is one of several documents prepared to collectively meet the requirements of flood legislation passed in 2007 and, specifically, the Central Valley Flood Protection Act of 2008.

This PEIR analyzes the broad, potential impacts associated with implementing actions described in the CVFPP at a program level of detail. A PEIR is the appropriate document to present such an analysis because the CVFPP includes numerous actions that are related geographically and would have similar environmental effects, but that are not yet sufficiently well-defined with respect to specific locations, project-level details, or implementation strategies to allow preparation of a project-level EIR. Consequently, the impact analysis takes a broad, programmatic approach to defining significant impacts and feasible mitigation measures. According to legislation, the CVFPP is to be adopted by the Central Valley Flood Protection Board (Board) by July 1, 2012. Subsequent implementation actions stemming from adoption of the CVFPP would generally require project-level environmental review and documentation for CEQA compliance.

The primary use of this PEIR is to inform DWR, which is developing the CVFPP, and the Board, which will adopt the CVFPP, about potential program-level environmental effects and mitigation measures early in the CVFPP planning process. DWR and the Board will be able to rely on this PEIR for future planning and feasibility studies pertinent to implementation of the proposed program. Additional information regarding the uses of the PEIR is described in Section 1.7, “Uses of the PEIR.”

1.1 CVFPP Background

The Central Valley has experienced some of California’s largest and most damaging floods. The valley’s existing flood management system consists of numerous projects implemented individually over the last 150 years, with dams and reservoirs, levees, channels, weirs, bypasses, flood easements, flood warning systems, and other features that provide varying levels of flood protection. This system protects public safety, has prevented billions of dollars in flood damages in the Central Valley, and supports a vibrant California economy through its multiple benefits.

Today, much of this legacy system is characterized by aging infrastructure, and for a variety of reasons, DWR and local flood control and maintaining agencies have found it increasingly difficult to carry out maintenance programs. The flood management system is easily distressed from high water, and in many reaches, its current configuration is prone to erosive river forces and geologic conditions (e.g., vulnerability to subsidence, earthquakes, and seepage) that pose chronic maintenance challenges. At the same time, the flood management system is being relied on to provide benefits not envisioned when its elements were constructed, such as protecting dense urban populations and supporting functioning riverine ecosystems. Escalating development in Central Valley floodplains has increased the population at risk and the potential for flood damages to homes, businesses, communities, and critical statewide infrastructure. Further, the natural environment has been severely degraded over time along numerous reaches of the river system, many of which no longer support healthy ecosystem functions and natural floodplain habitats.

A combination of events has highlighted the vulnerability of the Central Valley to catastrophic floods, including the risk to life and property (particularly in deep floodplains) and risks to the State's financial stability. In 2008, DWR embarked on the CVFMP Program, a long-term planning effort to improve integrated flood management in the Central Valley and carry out direction from the California Legislature. Several documents have been prepared under the CVFMP Program to collectively meet requirements of the Central Valley Flood Protection Act of 2008 and related flood legislation passed in 2007. A central component of the CVFMP Program, the CVFPP is a sustainable, integrated flood management plan that recognizes the interconnection of flood management actions within the context of broader water resources management. The program considers land use planning, the value of coordinating across geographic and agency boundaries, the need to evaluate opportunities and potential impacts from a system perspective, and the importance of environmental stewardship and ecosystem sustainability. (For a complete description of the CVFPP, see Appendix A, "2012 Central Valley Flood Protection Plan.")

1.1.1 Legislation

Primary authorization for the CVFPP originates in the Central Valley Flood Protection Act of 2008 (also known as Senate Bill 5). Assembly Bill 162, a flood-related bill passed in 2007, requires additional consideration of flood risk in local land use planning throughout California. These bills added Sections 9610–9616 to the California Water Code (CWC) and describe specific requirements regarding preparation of the CVFPP. Sections of the California Government Code, Health and Safety Code, and Public

Resources Code were also added or amended with requirements related to flood management in the Central Valley. In addition, the Disaster Preparedness and Flood Prevention Bond Act (Proposition 1E) and the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act (Proposition 84) provide both specific and general authority for related State flood management efforts.

According to CWC Section 9612, DWR is required to prepare the CVFPP by January 1, 2012, for adoption by the Board by July 1, 2012. The Board may make changes to the CVFPP to resolve issues raised in hearings or to respond to public comments received by the Board. The Board must publish its proposed changes to the CVFPP at least 2 weeks before adopting the plan (CWC Section 9612(d)). The CVFPP must be updated on a 5-year cycle.

The legislated content requirements of the CVFPP include the State Plan of Flood Control (SPFC) Descriptive Document and the Flood Control System Status Report (FCSSR) (Figure 1-1). The SPFC Descriptive Document inventories and describes flood management facilities, land, programs, conditions, and modes of operation and maintenance for the State-federal flood protection system in the Central Valley. The FCSSR assesses and summarizes the performance of each existing SPFC facility, including risks of failure and associated performance uncertainties, and is to be updated periodically.

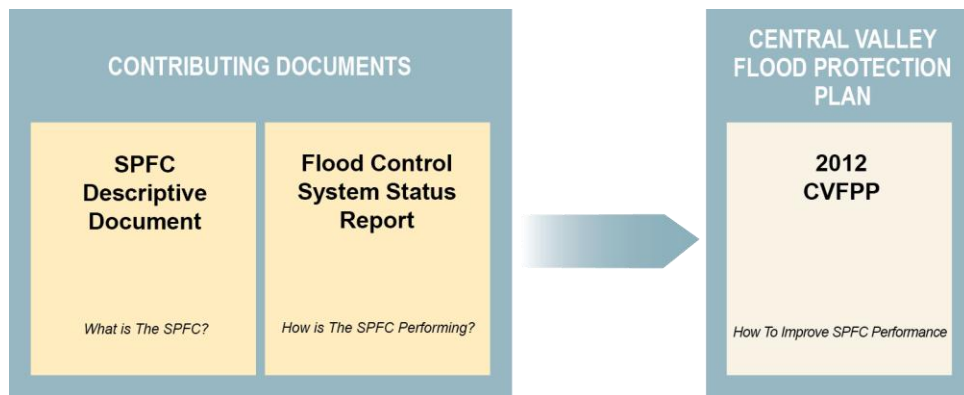
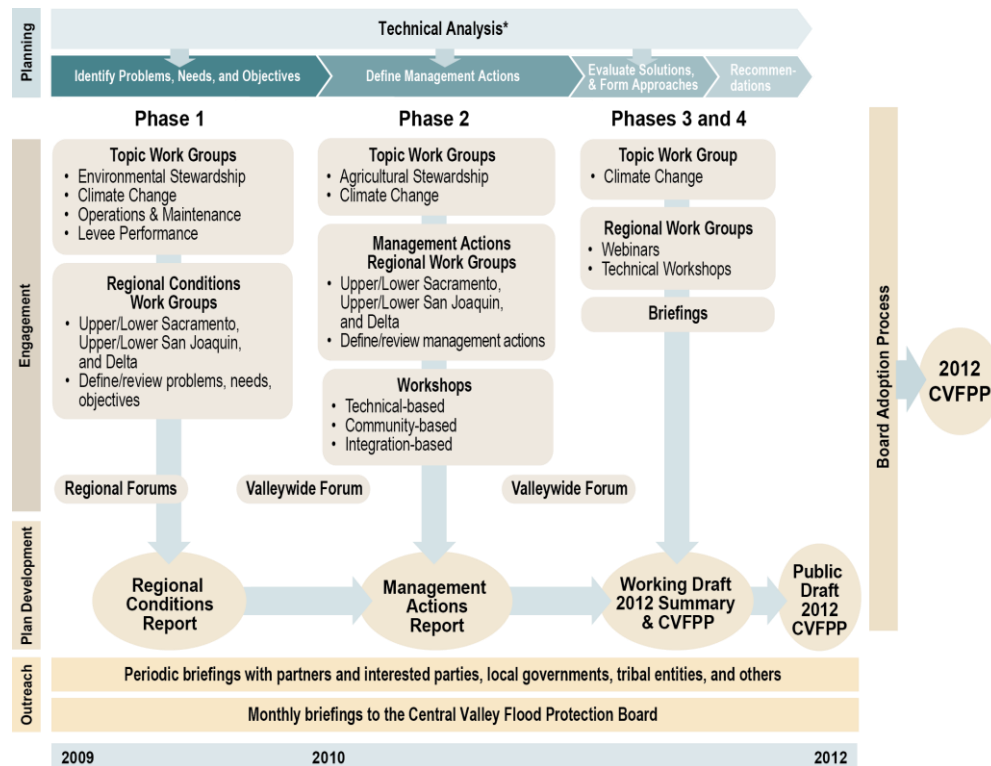


Figure 1-1. Central Valley Flood Management Planning Program Efforts that Collectively Meet the Requirements of the Central Valley Flood Protection Act of 2008

1.2 Development of the CVFPP

The 2012 CVFPP was developed through a multiphase, cooperative planning process (Figure 1-2). During Phases 1 and 2, DWR, the Board, and their partners and interested parties worked together to define problems

and opportunities; draft goals, objectives, and study principles; and identify a comprehensive set of individual management actions. (See Appendix B, “2012 Central Valley Flood Protection Plan: Management Actions Report,” for a complete list of management actions.) During Phases 3 and 4, which were combined into a single concluding phase, management actions were grouped to form a range of fundamentally different approaches to flood management.



* State Plan of Flood Control Descriptive Document and Flood Control System Status Report inform technical analysis

Figure 1-2. Plan Development Process for the 2012 CVFPP

After these approaches were compared, improvements to the flood management system were identified, and the State Systemwide Investment Approach was developed. As described in the CVFPP, this approach is the State’s preferred alternative for Board adoption. Therefore, the State Systemwide Investment Approach is the proposed program evaluated in this PEIR.

The State Systemwide Investment Approach is a broad plan for flood system improvements and additional work is needed to refine its individual elements. Ongoing planning studies, engineering, feasibility studies, designs, funding, and partnering are required to better define, and incrementally fund and implement, these elements over the next 20 to 25 years.

1.3 Geographic Scope of the CVFPP

Because of the interconnected nature of flood management, water supply, and land use management decision making, the CVFPP study area encompasses much of the Central Valley of California.

1.3.1 CVFPP Planning Areas

State legislation helps define the geographic range of potential flood management actions to be included in the CVFPP:

- CWC Section 9603(b) states that “the Central Valley Flood Protection Plan reflects a systemwide approach to protecting the lands currently protected from flooding by existing facilities of the State Plan of Flood Control (SPFC).”
- CWC Section 9651(g) defines the SPFC as “the state and federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to Article 2 (commencing with Section 12648) of Chapter 2 of Part 6 of Division 6 for which the board or the department has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Section 8361.”

Therefore, for planning and analysis purposes, two geographic areas are important for the CVFPP:

- **SPFC Planning Area**—This area encompasses the lands currently receiving protection from the SPFC.
- **Systemwide Planning Area (SPA)**—This area includes lands subject to flooding under the current facilities and operation of the Sacramento–San Joaquin River Flood Management System, including lands with facilities that provide substantial systemwide benefits or that protect urban areas in the Sacramento–San Joaquin Valley. The SPFC Planning Area is completely contained within the SPA. The SPA also includes lands with facilities that are not part of the SPFC, including federal and local reservoirs that have allocated flood storage.

These planning areas are illustrated in Figure 1-3. The SPA was delineated using the following information and locations:

- The 500-year floodplain as characterized in the *Sacramento and San Joaquin River Basins Comprehensive Study* (Comprehensive Study)

(USACE and DWR 2002), with an update from the American River Economic Reevaluation Report (USACE 2008)

- The Comprehensive Study's 200-year floodplain along the Sacramento River from Redding to Red Bluff, which was prepared by DWR's Northern District for the Comprehensive Study to supplement the floodplain information outside of the Comprehensive Study's UNET model (USACE and DWR 2002)
- Preliminary mapping conducted by DWR in 2010 of lands that could be inundated if a project levee fails while flows are at maximum reasonable capacity
- The boundary of the legal Sacramento–San Joaquin Delta (Delta) (CWC Section 12220)
- The river reaches between major reservoirs with flood management functions that are tributary to the Comprehensive Study's 500-year floodplain (USACE and DWR 2002)

The CVFPP focuses on addressing issues associated with the facilities of the SPFC and lands protected by the SPFC. However, the scope of possible solutions to these issues encompasses any action that can be implemented or influenced by the Board, regardless of whether implementation takes place in the SPFC Planning Area. The SPA is included in the CVFPP because many issues related to the SPFC are influenced by factors outside the SPFC Planning Area.

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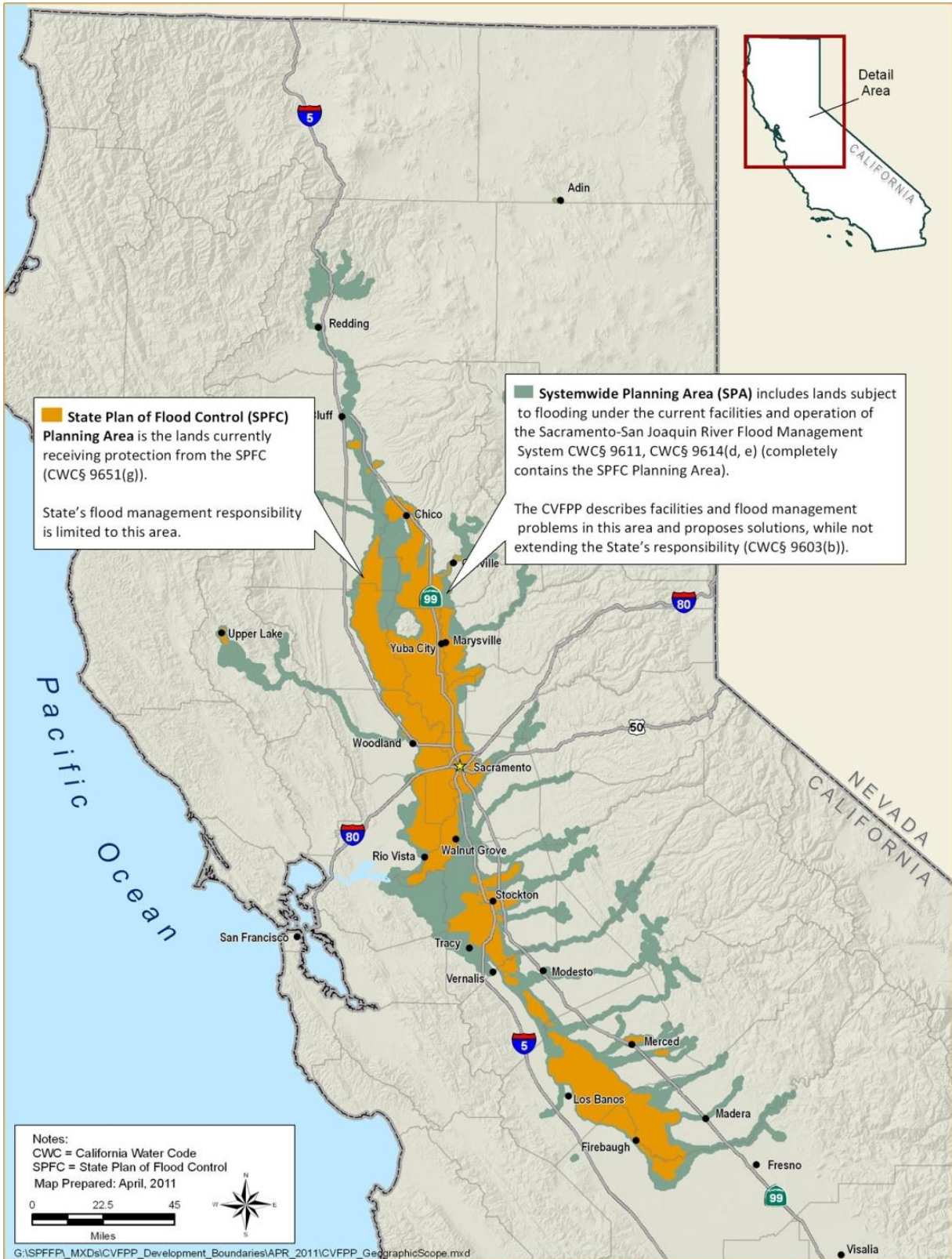


Figure 1-3. CVFPP Study Area

1.3.2 PEIR Study Area

The proposed program would be implemented primarily in the SPA. Some management actions could be implemented in the watersheds upstream from the SPA if they could be shown to provide substantial benefits to flood management in the SPA (i.e., reduced peak runoff through upper watershed management).

The effects of management actions implemented in the SPA could extend beyond this area. These effects could include altered downstream flows or water quality conditions, changes to water deliveries, consequences of borrow or disposal activities at sites outside of the SPA, and habitat loss or population effects for animal species that move inside and outside the SPA.

For these reasons, the PEIR study area is divided into three regions for describing the environmental setting and potential environmental effects of implementing the CVFPP: the Extended SPA, the Sacramento and San Joaquin Valley watersheds, and the Southern California/coastal service areas of the Central Valley Project (CVP) and State Water Project (SWP) (referred to in this document as the “SoCal/coastal CVP/SWP service areas”). These areas are described below and illustrated in Figure 1-4.

Systemwide Planning Area Plus 2-Mile Buffer and Suisun Extension (Extended Systemwide Planning Area)

The Extended SPA generally includes a 2-mile-wide buffer around the SPA to provide the environmental context for direct and indirect impacts on areas adjacent to the SPA. Because of topographical and land use considerations, the buffer is 1 mile wide in urban areas and does not extend beyond the adjacent ridgeline along foothill waterways. The buffer is wider than 2 miles in the Suisun Marsh area so that the Extended SPA completely encompasses the hydrologically influenced areas. The Extended SPA is divided into two subregions:

- **Sacramento and San Joaquin Valley and Foothills**—This area of the Extended SPA consists of the Sacramento and San Joaquin valleys and the surrounding foothills along several major waterways. Most of the management actions would be implemented in this area.
- **Delta and Suisun Marsh**—This area encompasses the Sacramento–San Joaquin Delta and portions of Suisun Marsh where upstream management actions may affect water flows or quality. At Suisun Marsh, the boundary is at the western end of Montezuma Slough.

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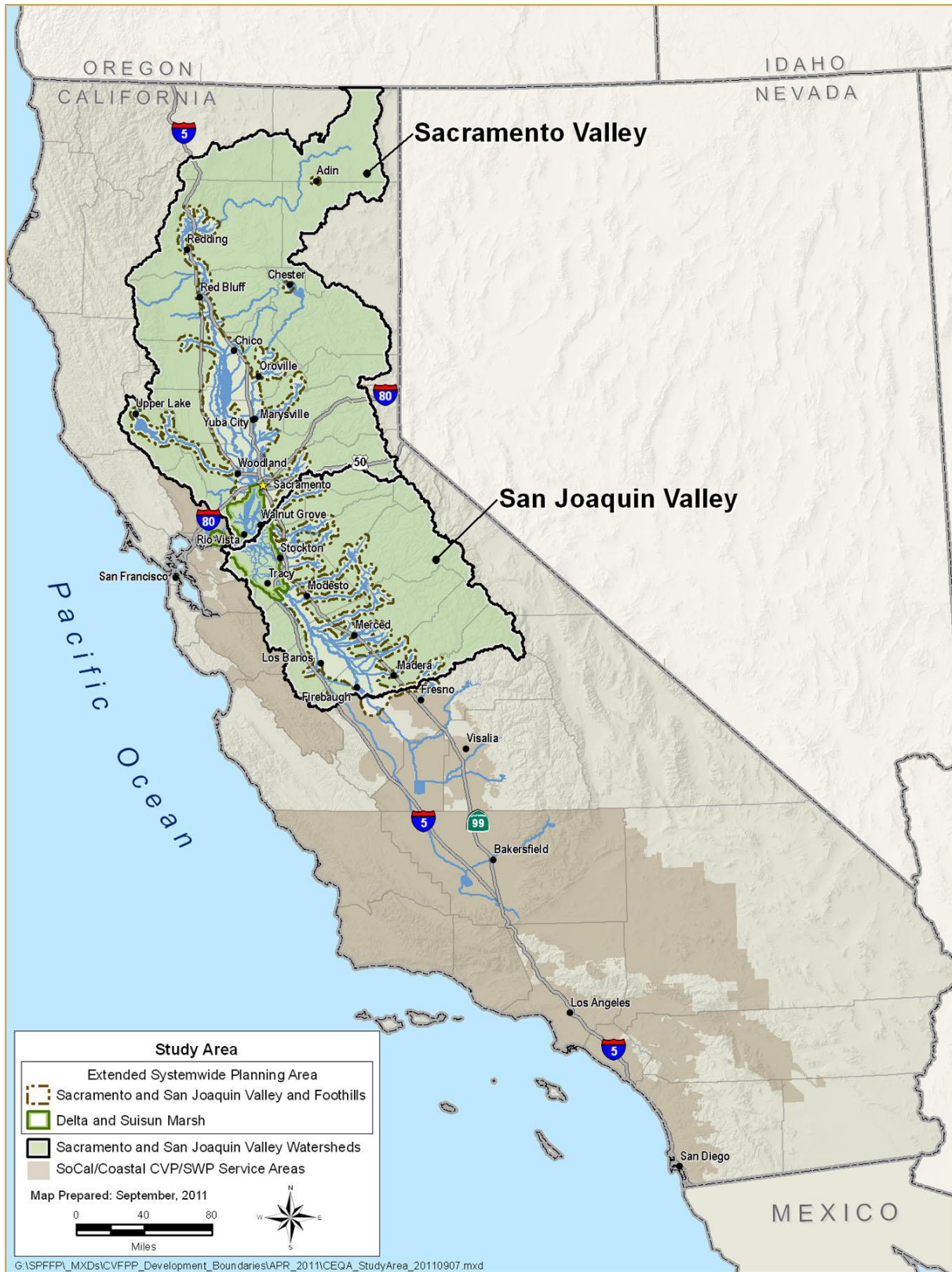


Figure 1-4. PEIR Study Area

Sacramento and San Joaquin Valley Watersheds

The Sacramento and San Joaquin Valley watersheds are the portions of the watershed upstream from the Extended SPA that may be affected by the management actions employed in these watersheds. These watersheds are discussed in less detail in this PEIR than the Extended SPA.

SoCal/Coastal CVP/SWP Service Areas

The SoCal/coastal CVP/SWP service areas consist of those portions of the CVP/SWP service areas that are not in the Extended SPA. These CVFP/SWP service areas are located primarily in Southern California and the Central Coast areas and include CVP/SWP service areas in the Tulare Lake Basin. They are discussed in less detail in this PEIR than the Extended SPA and Sacramento and San Joaquin Valley watersheds.

1.4 Public Participation in the CEQA Process

The process of determining the scope, focus, and content of a PEIR is known as “scoping.” CEQA promotes early consultation through a scoping process. The following information on scoping is presented in the CEQA Guidelines (Section 15083):

- (a) *Scoping has been helpful to agencies in identifying the range of actions, alternatives, mitigation measures, and significant impacts to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important.*
- (b) *Scoping has been found to be an effective way to bring together and resolve the concerns of affected federal, state, and local agencies, the proponent of the action, and other interested persons including those who might not be in accord with the action on environmental grounds.*

A notice of preparation (NOP) was prepared to begin the CVFPP PEIR scoping process. The NOP was publicly released on October 27, 2010, by the State Clearinghouse to solicit guidance regarding the scope and content of the environmental information to be included in the PEIR.

Three public scoping meetings were held in November 2010. DWR received written comments from the public and a variety of agencies before the scoping period ended on November 26, 2010.

See Appendix C, “2012 Central Valley Flood Protection Plan: Program Environmental Impact Report, Final Scoping Report,” for the CVFPP PEIR

Scoping Report, which includes the notification materials, scoping meeting materials, and NOP comments.

1.5 Relationship to Other EIRs

This PEIR incorporates by reference the environmental analysis and other information contained in the CALFED Bay-Delta Program Final Programmatic Environmental Impact Statement/Environmental Impact Report, July 2000, State Clearinghouse #96032083 (CALFED FEIS/R) (CALFED 2000). The CALFED FEIS/R addresses a broad range of ecosystem quality, water supply, water quality, and levee system integrity issues, with a focus on the San Francisco Bay/Delta system but also with broader consideration of upstream areas in the Sacramento and San Joaquin River drainages. It is referenced in this PEIR to provide additional information about broad-scale issues and planning efforts, cumulative activities, macro-level management alternatives, and the associated environmental effects (both beneficial and potentially adverse). In particular, the CALFED Bay-Delta Program includes a Levee System Integrity Program Plan (CALFED 2008) that evaluates a range of levee integrity issues and solutions, and analyzes the potential environmental effects of those solutions. Mitigation strategies described in the CALFED FEIS/R have been adapted for purposes of this PEIR as appropriate. The executive summary of the CALFED FEIS/R is included as Appendix D, “CALFED Bay-Delta Program Final Programmatic Environmental Impact Statement/Environmental Impact Report: Executive Summary.” The full text of the CALFED FEIS/R is available online at http://calwater.ca.gov/calfed/library/Archive_EIS.html, and in hard copy at the CALFED Bay-Delta Program Office at 1416 Ninth Street, Suite 1155, Sacramento, CA 95814.

1.6 Roles of Other Entities

Most of the Central Valley flood facilities and nearly all of the SPFC facilities are part of the State-federal flood protection system. The Board has all the responsibility and authority necessary to oversee future modifications to the SPFC, including approval or removal of encroachments within flood management projects, floodplains, floodways, and drainage areas of the Sacramento River, the San Joaquin River, and their tributaries and distributaries. The Board’s regulations are also preempted by obligations to the U.S. Army Corps of Engineers (USACE) pursuant to assurance agreements with USACE; USACE operation and maintenance manuals; and Title 33, Sections 408 and 208.10 of the Code of Federal Regulations. Any modifications, additions, or deletions to an

existing federal flood management project require federal participation and approval through USACE. At a minimum, this participation includes review of environmental and related compliance documentation sufficient to meet requirements contained in the National Environmental Policy Act. USACE and other federal agencies will review other federally required documentation such as requirements contained in the federal Endangered Species Act.

DWR will also work closely with USACE in developing both the federal Central Valley Integrated Flood Management Study and the two State-led basin-wide feasibility studies. USACE's Central Valley Integrated Flood Management Study is a feasibility study intended to evaluate flood management improvements in the Central Valley from a federal perspective, and to provide a framework for authorization and implementation of flood risk reduction projects in the Central Valley. When completed, this feasibility study ultimately will be used to determine the federal interest in implementing elements of the CVFPP and identifying nonfederal responsibilities regarding changes to the SPFC.

The primary purposes of these State-led basin-wide feasibility studies are to (1) develop a locally preferred plan for consideration by USACE in formulating and selecting a recommended plan and pursuing federal authorization, (2) prepare environmental compliance evaluations, and (3) establish the State's role in project implementation. A benefit of these State-led basin-wide feasibility studies is that the State can effectively contribute to, and help accelerate, the federal feasibility study; if USACE is not able to move forward with implementation, the State would be poised to do so.

Improving the flood system requires a coordinated partnership of federal, State, and local agencies. DWR will continue its tradition of working closely with federal and local partners to improve flood protection in the Central Valley.

1.7 Uses of the PEIR

The primary use of the PEIR is to inform DWR, which is developing the proposed program, and the Board, which will adopt the 2012 CVFPP, about the program-level environmental effects of implementing the proposed program. In addition, DWR and the Board will be able to rely on this PEIR for follow-on planning and feasibility studies pertinent to implementation of the proposed program. Cities and counties located in the Sacramento and San Joaquin valleys will be able to rely on this PEIR for guidance when amending general plans and zoning ordinances. DWR and

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maintaining agencies¹ will also be able to use this PEIR as a source of information to support the permitting processes identified in Section 2.5, “Implementation of the Proposed Program.”

This PEIR also will be used to guide the State’s development of a vegetation management policy variance in response to the USACE guidance provided in Engineering Technical Letter 1110-2-571 (ETL), *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures* and in USACE’s associated draft policy guidance letter *Process for Requesting a Variance from Vegetation Standards for Levees and Floodwalls; Additional Findings* (77 *Federal Register* 9637–9650, February 17, 2012).

This PEIR serves to meet the basic purposes of CEQA (CEQA Guidelines, Section 15002(a)) at a program level of detail, as follows:

- 1. Inform governmental decision makers and the public about the potential significant environmental effects of proposed activities.*
- 2. Identify the ways that environmental damage can be avoided or significantly reduced.*
- 3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.*
- 4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.*

This PEIR will be used to meet these purposes at a program level and, in particular, to allow DWR and the Board to consider broad policy alternatives and program-level environmental impacts and mitigation measures at an early stage, when the agency has greater flexibility to address programwide issues and cumulative impacts.

A program-level mitigation monitoring and reporting program will accompany the final PEIR.

¹ Maintaining agencies are cities, counties, districts, or other political subdivisions of the state that are authorized to maintain levees. DWR maintains levees pursuant to CWC Sections 8361 and 12878, but is not considered a local maintaining agency.

1.8 PEIR Organization

This PEIR is organized as follows:

- The **Executive Summary** provides an introduction to the CVFPP, including the history and background of flood protection in the Central Valley; describes the proposed program and its geographic scope; discusses the areas of known controversy associated with the proposed program; describes the alternatives to the proposed program; provides a summary of environmental impacts and a comparison of environmental impacts and alternatives to the proposed program; and describes the next steps for this PEIR.
- **Chapter 1.0, “Introduction,”** summarizes the background of the CVFPP and relevant legislation, development of the CVFPP, the geographic scope of the CVFPP, public participation in the CEQA process, the relationship of this PEIR to other EIRs, the roles of other entities, the uses of this PEIR, and the organization of this PEIR.
- **Chapter 2.0, “Program Description,”** summarizes the purpose and objectives of the proposed program; explains the development, characteristics, and key components of the proposed program; discusses the program management activities that make up the proposed program; describes how the proposed program would be implemented; describes how there would be no near- or long-term reduction in water or renewable energy supplies; and identifies typical construction methods.
- **Chapter 3.0, “Environmental Setting, Impacts, and Mitigation Measures,”** describes the resources that could be affected by implementing the proposed program. It addresses the environmental setting, regulatory setting, environmental impacts, and mitigation measures. This chapter also identifies the significant and unavoidable impacts of the program.
- **Chapter 4.0, “Cumulative Impacts,”** provides an analysis of the effects of the proposed program in combination with the effects of other past, present, and reasonably foreseeable future projects.
- **Chapter 5.0, “Alternatives,”** describes the No-Project Alternative—Continued Operations Scenario, No-Project Alternative—No Additional Activities Scenario, Modified State Systemwide Investment Approach Alternative, Achieve SPFC Design Flow Capacities Alternative, Achieve SPFC Design Flow Capacities with Strict ETL Compliance Alternative, Protect High-Risk Communities Alternative, Enhance Flood System Capacity Alternative and alternatives

considered but rejected; compares alternatives; and identifies the environmentally superior alternative.

- **Chapter 6.0, “Other CEQA-Required Sections and Additional Material,”** describes the growth-inducing impacts and significant and irreversible impacts of the proposed program, describes the environmental effects of various mitigation measures included in this PEIR, and presents an analysis in accordance with the California Natural Resources Agency policy on environmental justice. In addition, the chapter describes the effects of climate change on the proposed program.
- **Chapter 7.0, “References,”** provides a bibliography of the sources cited in this PEIR.
- **Chapter 8.0, “List of Preparers,”** lists the individuals who helped to prepare this PEIR and identifies the qualifications and affiliations of those individuals.
- **Chapter 9.0, “Abbreviations and Acronyms,”** lists the acronyms and abbreviations used in this PEIR.
- **Appendices** contain background information that supports the analysis presented in this PEIR. The appendices include the June 2012 CVFPP; CVFPP management actions report; PEIR scoping report; CALFED Bay-Delta Program FEIS/R Executive Summary; June 2012 CVFPP Conservation Framework; climate change information; glossary; and the Final PEIR released in June 2012.