

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING PROGRAM



Public Draft

2012 Central Valley Flood Protection Plan

Attachment 7: Plan Formulation Report

January 2012

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7A Local and Regional Project Summaries

1.0 Introduction

The purpose of this 2012 Plan Formulation reference document is to describe the plan formulation process for the Central Valley Flood Protection Plan (CVFPP). This section introduces the reference document and describes the 2012 CVFPP authorizing legislation and its requirements, the contents of the 2012 CVFPP, and the organization of this reference document.

1.1 Background and Plan Authority

The Central Valley has experienced some of the State of California's (State) largest and most damaging floods. The most recent significant floods in the Central Valley, which occurred in 1986 and 1997, together caused more than \$1 billion in damage (USACE, 1997).

The existing flood management system in the Central Valley consists of a number of projects individually constructed over the last 150 years, including dams and reservoirs, levees, channels, weirs, bypasses, and other features that provide varying levels of flood protection. This system supports public safety, has prevented billions of dollars in flood damages in the Central Valley, and the system's multiple benefits have contributed to a vibrant California economy.

But today, much of this legacy flood management system is characterized by aging facilities built using outdated techniques, and the system is being relied on to provide benefits that were not envisioned when its elements were first constructed. Also, along many reaches of river in the system, ecosystem functions and natural habitats have been severely degraded over time. As currently configured, the system is prone to erosive river forces, is easily distressed from high water, and does not support healthy ecosystem functions and natural floodplain habitats. Further, because of limited funding and other constraints, State and local agencies have found it increasingly difficult to carry out adequate flood management system maintenance programs. At the same time, escalating development in Central Valley floodplains has increased the population at risk from flooding and the potential for flood damages to homes, businesses, communities, and critical statewide facilities.

Despite the protection provided by the current flood management system, residual flood risk in the Central Valley remains among the highest in the country. Currently, even small flood events with only a 5 percent annual chance of occurrence can stress parts of the flood management system.

A combination of recent events, including flooding related to Hurricane Katrina in New Orleans and recent flooding along the Mississippi River and its tributaries, has highlighted the vulnerability of the Central Valley to catastrophic floods, the potential consequences to life and property (particularly in deep floodplains), and possible impacts to the financial stability of the State.

In fall 2007, the California Legislature passed five interrelated bills aimed at addressing the problems of flood protection and flood damage liability. These bills included Senate Bill (SB) 5, SB 17, Assembly Bill (AB) 5, AB 70, and AB 156. Primary authorization for the CVFPP originates in SB 5, also known as the Central Valley Flood Protection Act of 2008.¹ In addition, the Disaster Preparedness and Flood Prevention Bond Act (Proposition 1E) and the Safe Drinking Water, Water Quality and Supply, Flood Control Protection Bond Act (Proposition 84) provide both specific and general authority for related State flood management efforts. AB 162, another flood-related bill passed in 2007, required additional consideration of flood risk in local land-use planning throughout California. These bills added or amended sections in the California Government Code (CGC), Health and Safety Code, Public Resources Code (PRC), and California Water Code² (CWC), and included specific requirements for developing the CVFPP. The 2007 flood-related legislation and plan authority are further discussed in Section 1.2.

In 2008, the California Department of Water Resources (DWR) embarked on the Central Valley Flood Management Planning (CVFMP) Program, a long-term planning effort to improve integrated flood management within the Central Valley, and carry out direction from the California Legislature. DWR, in collaboration with the U.S. Army Corps of Engineers (USACE), was required to prepare a sustainable,³ integrated flood management⁴ plan

¹ More detailed information on authority and guidance is included in Chapter 1 of the draft *Regional Conditions Report – A Working Document* (DWR, 2010b).

² Relevant code sections are highlighted in the *2007 Flood Legislation Summary* (DWR, 2007a) and *2007 Flood Legislation Companion Reference* (DWR, 2007b).

³ A project is considered “sustainable” when it is socially, environmentally, and financially feasible for an enduring period.

⁴ Integrated flood management is an approach to flood risk that recognizes the interconnection of flood management actions within broader water resources management and 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 sustainability (DWR, 2008a).

called the CVFPP by January 1, 2012. The 2012 CVFPP is to be considered and adopted by the Reclamation Board (now the Central Valley Flood Protection Board (Board)). The Board is directed to adopt the 2012 CVFPP no later than July 1, 2012. The CVFPP outlines a systemwide approach to protecting lands currently protected from flooding by existing facilities of the State Plan of Flood Control^{5,6} (SPFC), and will be updated every 5 years thereafter (in years ending in 7 and 2).

1.1.1 FloodSAFE California

The 2012 CVFPP is being developed under DWR's FloodSAFE California (FloodSAFE), a multifaceted and collaborative, long-term statewide initiative to improve public safety through integrated flood management. FloodSAFE uses a systemwide approach to flood management, while reducing flood risk at regional and local levels.

DWR and the Board will provide leadership, through FloodSAFE and work with State, federal, tribal, local and regional officials to improve emergency response, improve flood management systems, improve operations and maintenance (O&M), and inform the public about flood preparedness and safety.

FloodSAFE will coordinate flood management efforts so that (1) the 2012 CVFPP and its future updates contain the best available information and inputs from other FloodSAFE projects and programs, and (2) existing and ongoing FloodSAFE functions and funding mechanisms are efficiently used to help implement 2012 CVFPP recommendations.

DWR is implementing various aspects of FloodSAFE using funds from Proposition 1E and Proposition 84, with direction from the 2007 flood legislation. It is recognized that funding provided by Propositions 1E and 84 will not be sufficient to realize all of the envisioned improvements to flood management in the Central Valley; these improvements will take many years to complete. Successful implementation of FloodSAFE and the 2012 CVFPP will require additional, sustainable funding streams for

⁵ CWC Section 8523 defines the SPFC as the State and federal flood control works, lands, programs, plans, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project (CWC Section 8350) and flood control projects in the Sacramento River and San Joaquin River watersheds (river basins) for which the Board or DWR has provided assurances, and of those facilities identified in CWC Section 8361.

⁶ The assurances (satisfactory to the Secretary of War) are that the State will provide, without cost to the United States, all lands, easements, and rights-of-way necessary for the completion of the project; bear the expense of necessary highway, railroad, and bridge alterations; hold and save the United States free from claims for damages resulting from construction of the works; and maintain and operate all works after completion.

improvement projects and core flood management functions such as inspections and O&M.

1.2 Central Valley Flood Protection Plan Requirements

As discussed previously, primary authorization for the 2012 CVFPP originates in SB 5. In addition, Propositions 1E and 84 provide both specific and general authority for related State flood management efforts. SB 5 and SB 17, and AB 5, AB 70, and AB 156 added or amended sections in the CGC, Health and Safety Code, PRC, and CWC, and included specific requirements for developing the 2012 CVFPP.

Several documents are being prepared to collectively meet the intent and requirements of the 2007 flood-related bonds and legislation. CVFPP Attachment 1: Legislative Reference contains more detailed information related to the requirements and how they have been satisfied. The 2012 CVFPP contributes to meeting the bond and legislation requirements.

The 2007 flood-related legislation also require cities and counties in the Sacramento-San Joaquin Valley to incorporate consistent information from the 2012 CVFPP into their local land-use plans after the 2012 CVFPP is adopted. Cities and counties that do not comply with these and other related requirements may be subject to restrictions when approving new development in urban and urbanizing areas.

The 2012 CVFPP seeks to prioritize State investments to most effectively advance the State interest in flood risk reduction. Investments will focus on the long-term sustainability of the flood management system as a whole, rather than on a project-by-project basis, with consideration for the value of environmental and agricultural stewardship in the Central Valley.

As required by the legislation, the CVFPP is to be updated every 5 years, with the first update to occur in 2017. DWR anticipates that updates will incorporate new and revised information and also that goals and actions will be reviewed and realigned as specific projects are implemented and conditions evolve in the Central Valley. Additional activities, such as local and regional studies, federal feasibility studies, and investigations of environmental integration activities, will occur to support implementation of physical elements or features of the CVFPP. As specific projects are undertaken, environmental review and detailed design will be carried out to meet legal requirements.

To meet legislative requirements, the following documents were, or are in the process of being, developed in addition to and in support of the 2012 CVFPP (Figure 1-1).

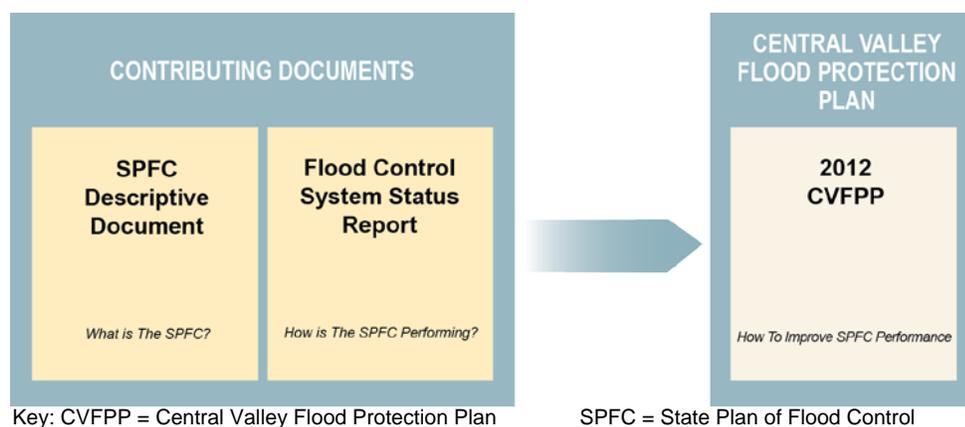


Figure 1-1. Contributing Documents

- The *State Plan of Flood Control Descriptive Document* (Descriptive Document) (DWR, 2010a) complies with Proposition 1E, which requires that information on the SPFC “...be updated by department and compiled into a single document...” and inform development of the 2012 CVFPP. The Descriptive Document (DWR, 2010a) provides an inventory of flood management projects and works (facilities), lands, programs, plans, conditions, and mode of O&M for the State-federal flood protection system in the Sacramento River and San Joaquin river basins of California. The Descriptive Document is the first inventory of the SPFC compiled or referenced in a single report. The report is structured as a reference document for the SPFC and includes narrative descriptions, tables, and figures, especially maps, to help the reader find information about this complex flood protection system.
- The *Flood Control System Status Report* (FCSSR) (DWR, 2011a) was created to comply with CWC Section 9120 and to contribute to CVFPP development. The FCSSR describes the current status (physical condition) of SPFC facilities at a systemwide level. The FCSSR is primarily intended to present information on the physical condition of SPFC facilities, and to help guide future inspection, evaluation, reconstruction, and improvement of the facilities.
- A *Program Environmental Impact Report* (PEIR) (DWR, anticipated 2012) is being prepared by DWR under the California Environmental Quality Act (CEQA) to facilitate Board adoption of the 2012 CVFPP. Completion is expected in 2012. The report analyzes the broad potential impacts associated with adopting the CVFPP, at a program scale.

Subsequent implementation actions stemming from adoption of the CVFPP will likely require project-level environmental review for CEQA compliance. Per agreement with the Board, DWR will act as lead agency and be responsible for compliance with CEQA requirements and guidelines, and for certifying the PEIR. As a responsible agency, the Board will independently consider the findings in the PEIR, and reach its own conclusions related to adoption of the 2012 CVFPP.

Collectively, this body of work fulfills the intent and requirements of the Central Valley Flood Protection Act of 2008, embedded in SB 5 (2007) and codified in Sections 9616 through 9625 of the CWC.

1.3 Contents of Central Valley Flood Protection Plan

Contents of the 2012 CVFPP include the following:

- Responding to the need for improved flood management in the Central Valley
- Preliminary approaches
- State Systemwide Investment Approach (SSIA)
- Implementing and managing the SSIA

As discussed above, DWR has prepared or is preparing several plan-related studies to collectively fulfill the legislative mandate described above. Similar to the 2012 CVFPP, these documents were or are being developed using a collaborative planning process involving interested parties. The 2012 CVFPP and its supporting documents contain the following to meet the requirements of CWC Section 9614:

- Description of the Sacramento-San Joaquin River Flood Management System and the cities and counties included in the system
- Description of the system performance and the challenges to modifying the system to provide appropriate levels of flood protection using available information

- Description of the facilities included in the SPFC, including all of the following:
 - Precise location and a brief description of each facility; a description of the population and property protected by the facility; system benefits provided by the facility, if any, and a brief history of the facility, including the year of construction; improvements to the facility; and any failures of the facility
 - Design capacity of each facility
- Description and evaluation of the performance of each facility, including the following:
 - An evaluation of failure risks due to each of the following:
 - Overtopping
 - Under-seepage and through-seepage
 - Structural failure
 - Other sources of risk, including seismic risks, that DWR or the Board determines are applicable
 - Description of any uncertainties regarding performance capability, including uncertainties arising from the need for additional engineering evaluations or uncertainties arising from changed conditions, such as changes in estimated channel capacities
- Description of each existing dam that is not part of the SPFC that provides either significant systemwide benefits for managing flood risks within the Sacramento and San Joaquin river basins, or protects urban areas within the Sacramento and San Joaquin river basins
- Description of each existing levee and other flood management facility that is not part of the SPFC and that provides either significant systemwide benefits for managing flood risks within the Sacramento and San Joaquin river basins, or protects urban areas within the Sacramento and San Joaquin river basins
- Description of the probable impacts of projected climate change, projected land-use patterns, and other potential flood management challenges on the ability of the system to provide adequate levels of flood protection

- Evaluation of the structural improvements and repairs necessary to bring each SPFC facility to within its design standard, including a prioritized list of recommended actions
- List of facilities (included in the evaluation) recommended to be removed from the SPFC. For each facility recommended for removal, the evaluation will identify both of the following:
 - Reasons for proposing removal of the facility from the SPFC
 - Any additional recommended actions associated with removing the facility from the SPFC
- Description of structural and nonstructural methods for providing an urban level of flood protection to current urban areas. The description will also include a list of recommended next steps to improve urban flood protection
- Description of structural and nonstructural means for enabling or improving systemwide riverine ecosystem function, including, but not limited to, establishing riparian habitat and seasonal inundation of available floodplains, where feasible

The 2012 CVFPP focuses on improving integrated flood management and flood protection for areas protected by SPFC facilities. While the CVFPP focuses on areas protected by SPFC facilities, the O&M of facilities in tributary watersheds that influence SPFC-protected areas are also considered.

The 2012 CVFPP recognizes the connection of flood management actions to water resources management; land-use planning; environmental stewardship; and long-term economic, environmental, and social sustainability. Integrated flood management also recognizes the importance of evaluating opportunities and potential impacts from a systemwide perspective, and the importance of coordinating across geographic and agency boundaries to treat entire hydrologic units.

The 2012 CVFPP provides opportunities to mitigate some of the negative effects of current trends while promoting wise investments of State, federal, and local funds:

- The 2012 CVFPP will emphasize wise floodplain management, which, in concert with the Federal Emergency Management Agency (FEMA) National Flood Insurance Program, will limit excessive floodplain development and promote the continued sustainability of the current

rural-agricultural economy and small communities in the Central valley.

- Investments in levees and other flood protection infrastructure will be considered on a systemwide basis. It is likely that urban communities with the greatest concentrations of population and damageable property will continue to receive the greatest share of available State and federal funds. However, the 2012 CVFPP gives careful attention to repairing known weaknesses in the rural-agricultural levee system and also protecting small communities. Because rural-agricultural areas are less developed, the State is interested in seeing more nonstructural improvements, as these often can have lower long-term annual O&M costs and higher system benefits. With this in mind, the 2012 CVFPP provides a framework for a much broader benefit analysis than the traditional approach, which relies almost entirely on the benefit-to-cost ratio and net economic development indicators to guide investments. The 2012 CVFPP considers potential system improvements, such as expanded bypasses and associated ecosystem enhancements, which are beyond the sponsorship capabilities of even the most robust local agencies.
- The 2012 CVFPP proposes to take an integrated system approach to flood system maintenance and ecosystem restoration. In practice, this means developing more extensive and robust wildlife habitat along the Central Valley flood management system, such that periodic maintenance, which temporarily disrupts habitat, is compensated for by acreage of appropriate and connected habitat, improved maintenance techniques, and other tools.
- The 2012 CVFPP focuses on implementation of an integrated system approach to flood management programs and considers the sequential phasing of incremental elements of the programs. This approach relies on development of a firm technical foundation to inform implementation actions in future CVFPP phases, with an initial focus on the most urgent flood management system needs. It also supports development of a sound funding strategy to pursue effective, long-term flood management in the Central Valley.

1.4 Report Organization

The purpose of this reference document is to describe the plan formulation process, including the SSIA, for the 2012 CVFPP. This document is organized into the following sections:

Section 1 (Introduction) provides context for this reference document, background and plan authority, CVFPP requirements, and contents of the 2012 CVFPP.

Section 2 (Plan Development) describes the plan development process, planning area, anticipated uses of the CVFPP, and studies and reports related to the CVFPP.

Section 3 (Systemwide Conditions) discusses existing systemwide conditions, including environmental, physical, social and economic, and policy and institutional conditions. The section also discusses likely future systemwide conditions through 2050 and the key drivers and influencing factors of likely changes.

Section 4 (Flood and Related Resource Problems) discusses environmental, physical, social and economic, and policy and institutional problems.

Section 5 (Goals, Principles, and Objectives) discusses FloodSAFE and CVFPP goals and their relationship, CVFPP guiding principles, and legislative and planning objectives.

Section 6 (Management Actions) identifies management actions, describes preliminary evaluation and consolidation of management actions, and summarizes management actions carried forward.

Section 7 (Preliminary Approaches) describes the preliminary approach formulation process for No Project, Achieve SPFC Design Flow Capacity Approach, Protect High-Risk Communities Approach, and Enhance Flood System Capacity Approach; evaluates and compares accomplishments; and summarizes findings.

Section 8 (State Systemwide Investment Approach) describes the elements and selection of the SSIA, including formulation, systemwide concepts, regional elements, performance of the approach, and the investment strategy. This approach is compared to No Project based on estimated costs, benefits, completeness, effectiveness, efficiency, and acceptability.

Section 9 (Local and Regional Project Summaries) summarizes local and regional projects in the Systemwide Planning Area.

Section 10 (References) lists sources referenced in preparation of this reference document.

Section 11 (Acronyms and Abbreviations) lists the acronyms and abbreviations used in this reference document.

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2.0 Plan Development

This section describes the plan development process, planning area, anticipated uses of the CVFPP, and related studies and reports.

2.1 Plan Development Process

The 2012 CVFPP was developed using an iterative planning process. Extensive public engagement occurred as part of Phases 1 and 2. Originally outlined in four phases, the concluding phases of CVFPP development (Phases 3 and 4) were redefined and streamlined based on input from partners and interested parties (Figure 2-1).

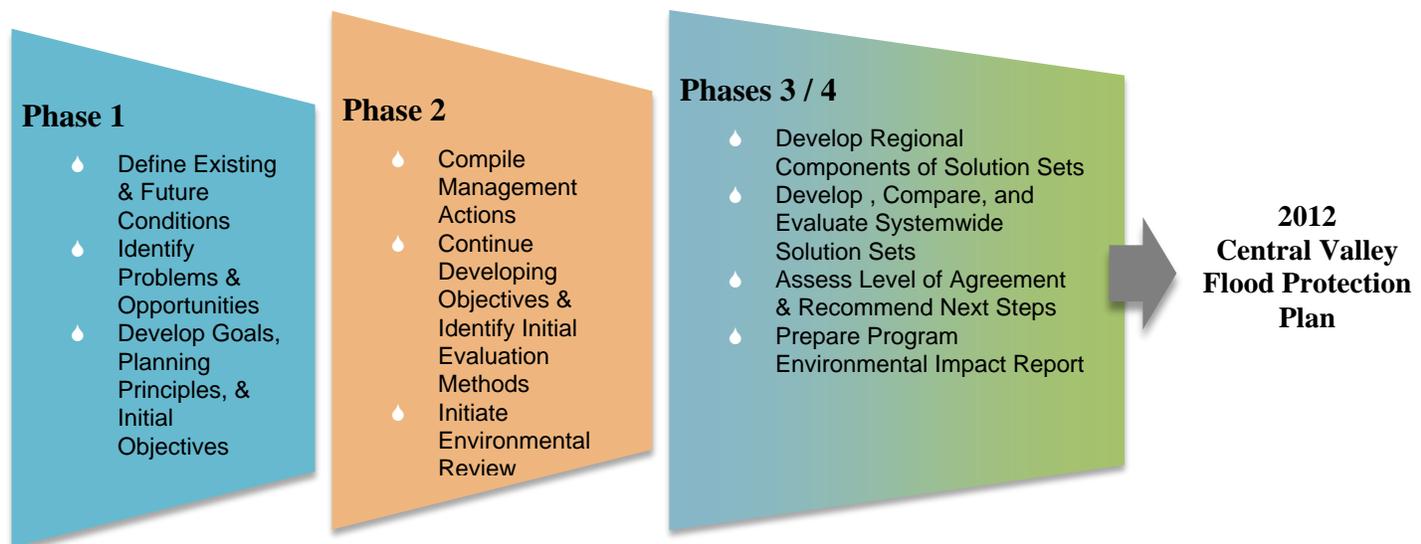


Figure 2-1. Planning process for 2012 Central Valley Flood Protection Plan Development

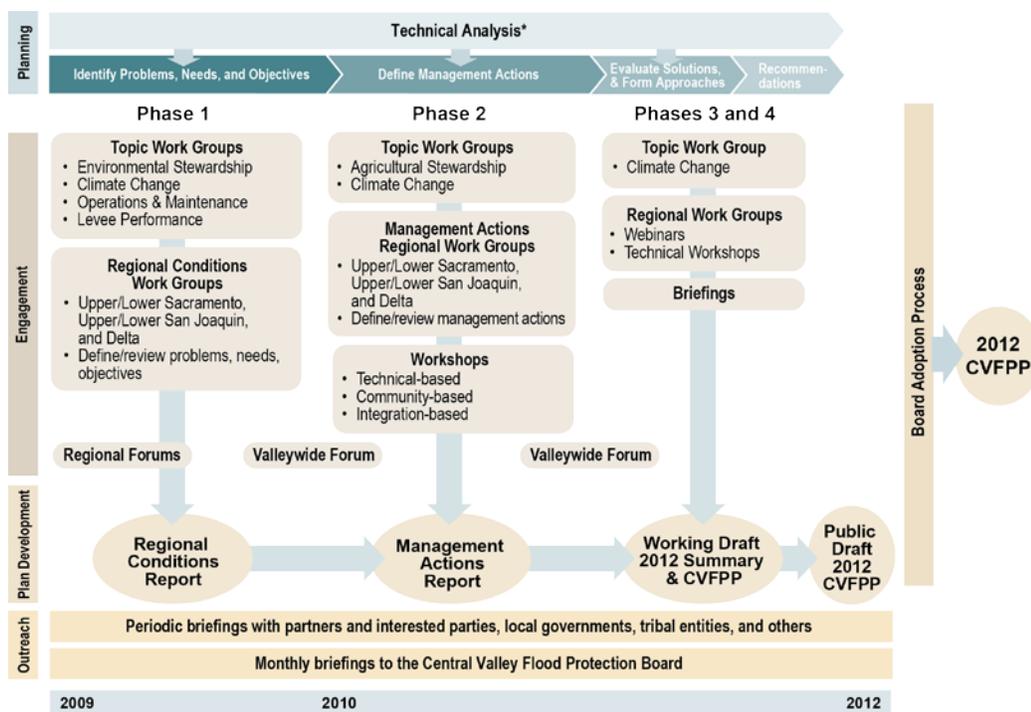
Concurrent with public engagement, DWR gathered systemwide data and conducted evaluations for the SPFC. DWR also (1) prepared a PEIR documenting environmental impacts associated with the CVFPP, and (2) performed supporting technical analyses related to hydrology, reservoir operations, riverine and estuarine hydraulics, levee system performance, economic flood damages, life risk, regional economics, designs and costs, climate change, and groundwater recharge.

Results of these efforts contributed to developing three preliminary approaches to improving the flood management system, and ultimately an SSIA.

2.1.1 Public Engagement Process

DWR initiated an extensive communications and public engagement process for the 2012 CVFPP by reaching out to partnering agencies, interested parties, and the public, allowing them to share and solicit information and offer input and recommendations. The intent was to facilitate open communication and provide opportunities to participate in CVFPP development in a variety of ways, depending on interest and availability of potential stakeholders. Outreach activities, including outreach to Native American tribes and disadvantaged communities, are detailed in Attachment 5: Engagement Record.

A comprehensive, multiphase, public engagement planning process was essential in developing the CVFPP. Figure 2-2 depicts the phases and major components of the engagement process. In addition, all public engagement activities are detailed in Attachment 5: Engagement Record.



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

Key: Board = Central Valley Flood Protection Board CVFPP = Central Valley Flood Protection Plan

Figure 2-2. Communication and Public Engagement Process

The four phases of CVFPP public engagement were completed as follows:

- **Phase 1** – Defined existing conditions and likely future challenges; identified problems from various perspectives; and defined goals, principles, and objectives to guide development and implementation of the plan. Results from this planning phase are described in the

Regional Conditions Report – A Working Document (RCR) (DWR, 2010b) and summarized in *Interim Progress Summary No. 1* (DWR, 2010c).

- **Phase 2** – Identified a broad range of potential structural and nonstructural management actions for meeting the plan’s objectives, consistent with the guiding principles, and defined evaluation methods and screening criteria to be applied. Results from this phase were summarized in the *Management Actions Report* (DWR, 2010d) and *Interim Progress Summary No. 2* (DWR, 2010e).
- **Phases 3 and 4** – Phases 3 and 4 were combined to become the final phase of plan development. Following development of individual management actions, three preliminary approaches were formulated to reduce the number of possible combinations of individual management actions. Finally, an SSIA was developed that incorporates the most promising features and elements of each of the preliminary approaches.

For the 2012 CVFPP, flood and related resource problems were identified from input provided by State, federal, regional, local, and tribal interests. Many of these interested parties participated in planning area work groups and/or topic work groups convened to help articulate existing resource conditions for the 2012CVFPP; flood and related resource problem identification was an important output of those meetings. The public engagement process is described in detail in Attachment 5: Engagement Record.

2.1.2 Systemwide Documentation and Technical Analyses

DWR gathered systemwide data and conducted evaluations for the SPFC to meet specific legislative requirements, and support CVFPP development concurrent with public engagement. A PEIR was prepared documenting environmental impacts associated with the CVFPP, and supporting technical analyses were performed and documented. Additional detail and reference information for supporting documents are provided in Section 2.4. Information from these efforts contributed to CVFPP plan development, as follows:

- **Existing Conditions (Section 3)** – *SPFC Descriptive Document* (DWR, 2010a), RCR (DWR, 2010b), PEIR, Attachment 8: Technical Analysis Summary Report
- **Flood and Related Resource Problems (Section 4)** – RCR (DWR, 2010b), FCSSR(DWR, 2011a), PEIR, Attachment 2: Conservation Framework, Attachment 8: Technical Analysis Summary Report

- **Goals, Principles, and Objectives (Section 5)** – RCR (DWR, 2010b), Attachment 2: Conservation Framework, Attachment 8: Technical Analysis Summary Report, Implementation
- **Management Actions (Section 6)** – *Management Actions Report* (DWR, 2010d), Attachment 2: Conservation Framework, Attachment 8: Technical Analysis Summary Report
- **Preliminary Approaches (Section 7)** – PEIR; Attachment 2: Conservation Framework, Attachment 8: Technical Analysis Summary Report
- **State Systemwide Investment Approach (Section 8)** – PEIR, Attachment 2: Conservation Framework, Attachment 8: Technical Analysis Summary Report

2.2 Planning Area

Two relevant geographic areas are relevant to CVFPP development:

- SPFC Planning Area
- Systemwide Planning Area

Both planning areas are shown in Figure 2-3. The SPFC Planning Area is a geographic area that includes lands currently receiving protection from flooding by facilities of the SPFC. The State's flood management responsibility is limited to the SPFC Planning Area. The SPFC Planning Area is best delineated by Levee Flood Protection Zone (FPZ) maps (DWR, 2008c), and the area inundated by the only SPFC reservoirs, Lake Oroville and Castle Lake (Merced County).

The Systemwide Planning Area is the geographic area that includes lands currently subject to flooding and receiving protection from facilities and operation of the Sacramento-San Joaquin River Flood Management System. This area includes facilities that provide significant systemwide benefits (such as reservoirs on major tributaries) or that protect urban areas within the Sacramento-San Joaquin Valley. The SPFC Planning Area is completely contained within the Systemwide Planning Area. After floodplain delineation work under the Central Valley Flood Evaluation and Delineation Program concludes, updated floodplains will be available for refining the Systemwide Planning Area.

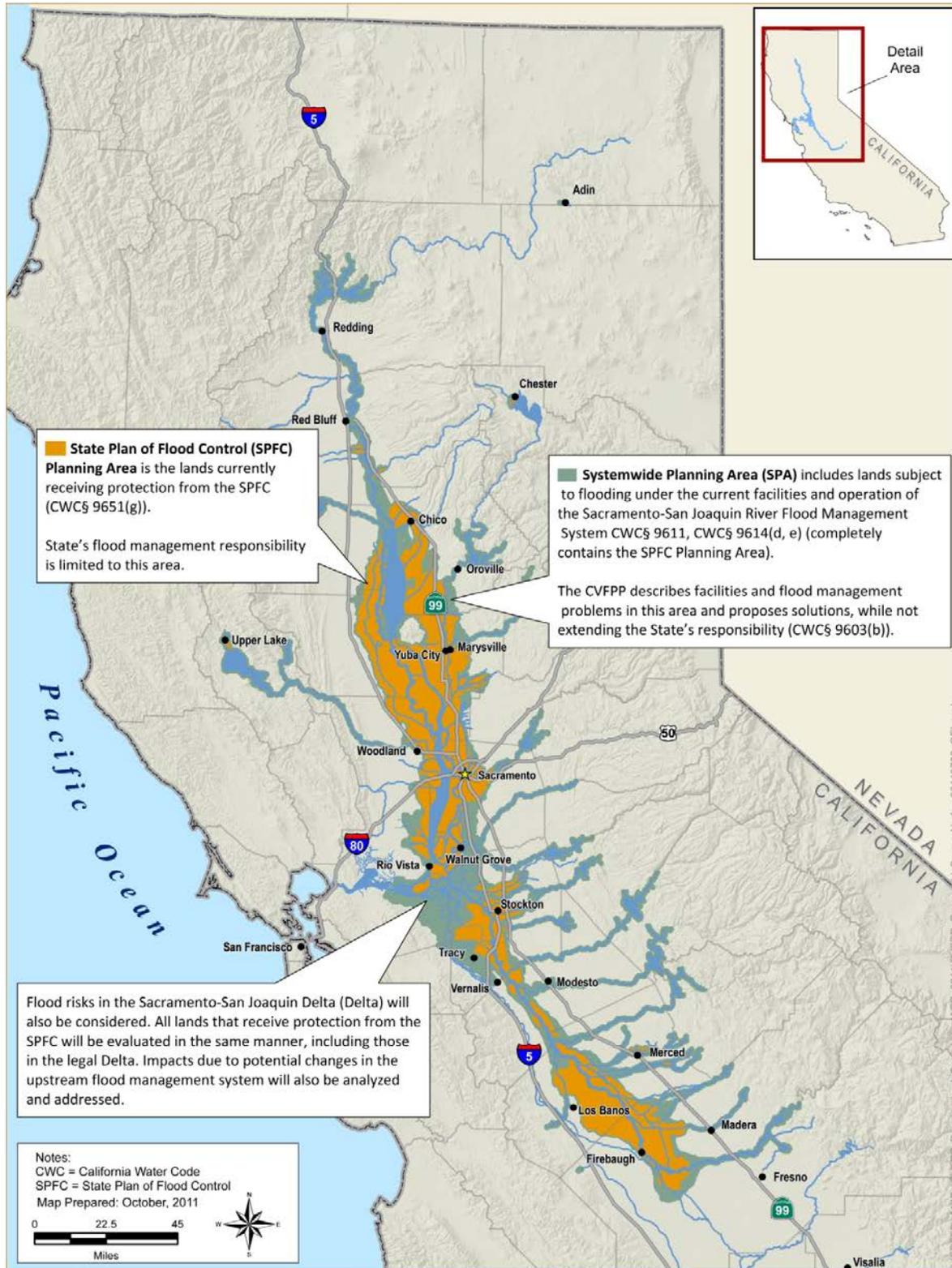


Figure 2-3. Geographic Scope of Central Valley Flood Protection Plan

The Systemwide Planning Area is delineated through a combination of the currently available floodplain information:

- Sacramento and San Joaquin River Basins Comprehensive Study (Comprehensive Study) (USACE, 2002) 500-year floodplain, with an update from the American River Common Features General Reevaluation Report (USACE, 2010)
- Comprehensive Study (USACE, 2002) 200-year floodplain along the Sacramento River from Redding to Red Bluff. Floodplain was prepared by the DWR Northern District for the Comprehensive Study (USACE, 2002) to supplement floodplain information outside the Comprehensive Study's (USACE, 2002) unsteady flow through a network of open channels (UNET) model
- Draft FPZ maps, currently defined as showing areas that could be inundated should a project levee fail while water is flowing in a channel at maximum reasonable capacity. (These inundation areas do not have a uniform flood frequency association.)
- Information on Sacramento-San Joaquin Delta (Delta) boundary

For the Systemwide Planning Area (including the SPFC Planning Area), the CVFPP does the following:

- Describes key components of the Sacramento-San Joaquin Flood Management System
- Identifies and describes existing and future systemwide conditions, flood and related resource problems, goals, principles, and objectives for the Systemwide Planning Area that will guide the formulation, evaluation, and recommendation of potential solutions
- Identifies, packages, and evaluates all potentially useful management actions⁷ to achieve the goals and objectives of the CVFPP. Potential management actions can be physically located either within or outside the boundary of the Systemwide Planning Area, but all management actions of the CVFPP will be designed to produce benefits within the Systemwide Planning Area

In addition to the planning areas, the Sacramento and San Joaquin river basins were divided into five smaller regions, as shown in Figure 2-4, for

⁷ Management actions include all structural and nonstructural activities or projects that could be undertaken to improve flood management within the designated planning area.

the purposes of data collection and public engagement with partners and interested parties.

- **Upper Sacramento River Region** – Sacramento River above the Fremont Weir, including the Sutter Bypass to its confluence with the Feather River.
- **Lower Sacramento River Region** – Feather River from its confluence with the Sutter Bypass and Sacramento River downstream from the Fremont Weir, including the Feather, Yuba, and American river basins.
- **Upper San Joaquin River Region** – San Joaquin River upstream from the Merced River confluence, including the Merced River basin.
- **Lower San Joaquin River Region** – Joaquin River downstream from the Merced River confluence.
- **Delta Region** – Legal Delta, as defined in CWC Section 12220.

2.3 Anticipated Uses of Central Valley Flood Protection Plan

The CVFPP guides a variety of follow-on studies and planning efforts, environmental reviews, and implementation actions. It may be used differently by State, federal, regional, and local agencies, as described briefly below.

2.3.1 State Use of Central Valley Flood Protection Plan

The CVFPP recommends potential State actions to directly or indirectly improve flood risk management in the Central Valley. Neither development nor adoption of the CVFPP represents a commitment by the State to provide or to maintain any particular level of flood protection (CWC Section 9603(a)). State participation in implementing flood protection may range from leadership in project development and financial assistance to technical support. State agencies may also pursue recommended changes to policies, standards, or regulations, as appropriate to their existing authorities.



Figure 2-4. Planning Regions for Data Collection and Public Engagement

For example, DWR may participate in recommended follow-on feasibility studies, or pursue improvements to its core flood management functions (such as O&M or emergency response). The CVFPP will also help define DWR's role in future improvement projects, including risk assessments, urgent repairs, and local and regional projects. DWR is currently developing criteria for local agencies to use in demonstrating an urban level of flood protection for urban and urbanizing areas, pursuant to CWC Section 9602. After adoption of the plan, DWR will continue to provide technical assistance to local jurisdictions in applying these criteria and aligning local planning efforts with the CVFPP.

After adoption of the 2012 CVFPP, the Board may choose to take action within its existing jurisdictional and regulatory capacities. Adoption of the plan by the Board will trigger various existing requirements related to local land-use planning and management (see Local and Regional, below).

Other State agencies may also choose to take action within their existing jurisdictional roles and responsibilities based on information in the CVFPP.

2.3.2 Federal Use of Central Valley Flood Protection Plan

In mutual recognition of the importance of close collaboration and coordination on Central Valley flood risk reduction measures, USACE is conducting a parallel planning process, the *Central Valley Integrated Flood Management Study* (CVIFMS) (currently under development), with DWR and the Board as the nonfederal sponsors. Scheduled to be completed in 2017, this program-level feasibility study will complement the CVFPP. It will define a long-range flood management program for the Sacramento and San Joaquin river basins and a corresponding level of federal participation. In relation to the CVFPP, the study will also evaluate flood management improvements in the Central Valley from a federal perspective, and help determine federal interest in implementation. USACE intends to coordinate closely on CVFPP development to provide input, review documents, and produce joint data, information, and analytical tools. USACE will also provide technical expertise on flood hydrology development, reservoir operations analyses, and incorporation of risk-based decision-making processes that improve system reliability.

The CVIFMS may result in Congressional action authorizing or modifying federal participation in projects consistent with the CVFPP. The CVFPP may influence federal actions or provide information to ongoing or new USACE feasibility studies evaluating site-specific improvements to the flood management system.

The CVFPP is unlikely to directly influence current activities of FEMA, such as administration of the National Flood Insurance Program. However, the CVFPP may recommend changes to the scope or administration of federal programs related to flood risk management.

2.3.3 Local and Regional Use of Central Valley Flood Protection Plan

Adoption of the 2012 CVFPP will trigger various requirements related to local land-use planning and management. These requirements oblige local jurisdictions to consider flood risk and flood management in their planning and decision making (such as general plans, zoning ordinances, development agreements, and other discretionary actions), concurrent with development of the 2012 CVFPP and after its adoption by the Board. Local jurisdictions may use information or guidance contained in the CVFPP to demonstrate consistency with State urban flood protection requirements, or to guide development of local or regional flood projects consistent with the CVFPP to garner State financial participation.

2.4 Studies and Reports Related to Central Valley Flood Protection Plan

Development of the 2012 CVFPP includes work to achieve various planning milestones, environmental review activities, communication and engagement with partners and interested parties, technical analyses and data collection, and related efforts. Key planning milestones completed include developing documentation related to the SPFC; defining flood and related resource problems; and identifying goals, guiding principles, objectives, and management actions.

As a companion effort to the CVFPP, DWR is developing a *Central Valley Flood System Conservation Strategy (CVFSCS)*, which is a long-term strategic approach for DWR to (1) achieve the environmental goals and objectives of the Central Valley Flood Protection Act, FloodSAFE Initiative, and CVFPP; (2) implement the environmental stewardship policy; and (3) address public environmental expectations. The goal is to integrate environmental stewardship into flood system planning and ongoing O&M. Supporting environmental enhancement as a primary planning objective has the added benefit of reducing environmental regulatory compliance issues for projects and/or operations, which then benefits DWR through increased regulatory agency support, reduces costs in project development, and reduces time frames for implementing actions. Integrating environmental stewardship in the project conception and design phase creates the opportunity to develop a project that is more sustainable

and cost effective, and that will provide ecological benefits and protect water supply and public safety. Performing initial planning for development of the CVFSCS is a key milestone for development of the CVFPP.

The CVFSCS is a long-term strategic effort that will evolve as the CVFPP is updated every 5 years. The first phase of the CVFSCS is the Conservation Framework, discussed in detail in Attachment 2: Conservation Framework. The Conservation Framework is a preview of the CVFSCS and an environmental guide for the CVFPP reader. It describes how environmental stewardship is integrated, directs the reader to relevant environmental elements, and provides environmental detail in the text and through technical supporting documentation. In some cases, conservation strategy elements may not be identified separately if the planning process is successful at integrating environmental stewardship. For example, restoration opportunities identified through the Conservation Framework Restoration Opportunity Analysis would be integrated into the SSIA.

Activities in progress now to support development of the long-term CVFSCS will continue past completion of the 2012 CVFPP and lead to completion of the long-term CVFSCS to coincide with and support the 2017 update of the CVFPP. By the 2017 update of the CVFPP, the CVFSCS will be fully developed and will complement the CVFPP and the federal CVIFMS.

Several other documents have been completed or are under preparation to meet the legislative requirements of CWC Section 9120, as previously mentioned. These documents informed the planning process for the CVFPP. They are separate, but complementary, documents in different phases of development.

Table 2-1 summarizes companion documents to the CVFPP that have been developed or are currently under development.

**2012 Central Valley Flood Protection Plan
Attachment 7: Plan Formulation Report**

Table 2-1. CVFPP Companion Documents

Name	Reference
CVFPP Program Environmental Impact Report	DWR, anticipated 2012
CVFPP Progress Report	DWR, 2011b
State Plan of Flood Control Descriptive Document	DWR, 2010a
Flood Control System Status Report	DWR, 2011a
Management Actions Report	DWR, 2010d
Regional Conditions Report – A Working Document	DWR, 2010b
Urban Levee Design Criteria	DWR, 2011a (update anticipated 2012)
Urban Level of Flood Protection	Development underway
Attachment 1: Legislative Reference	DWR, anticipated 2012
Attachment 2: Conservation Framework	DWR, anticipated 2012
Attachment 3: Documents incorporated by Reference	DWR, anticipated 2012
Attachment 4: Glossary	DWR, anticipated 2012
Attachment 5: Engagement Record	DWR, anticipated 2012
Attachment 6: Contributing Authors	DWR, anticipated 2012
Attachment 7: Plan Formulation Report	DWR, anticipated 2012
Attachment 8: Technical Analysis Summary Report	DWR, anticipated 2012

Key:
CVFPP = Central Valley Flood Protection Plan
DWR = California Department of Water Resources

Table 2-2 summarizes USACE studies, FloodSAFE documents, and other State or federal plans and studies related to the CVFPP.

Table 2-2. Documents and Ongoing Studies Related to 2012 CVFPP

Name	Authorizing Agency
American River Common Features General Reevaluation Report	USACE
Bay-Delta Conservation Plan	DWR
California Water Plan	DWR
Central Valley Integrated Flood Management Study	USACE
Delta Islands and Levees Feasibility Study	USACE
Delta Risk Management Strategy	DWR
Delta Plan	Delta Stewardship Council
FloodSAFE Implementation Plan	DWR
FloodSAFE Revised Economic Impact Analysis of the Proposed Mandatory Building Code Update for Single-Family Residential (R-3 and R-3.1) and Educational (E) Occupancy Groups	DWR
FloodSAFE Strategic Plan	DWR
Frazier Creek/Strathmore Creek Feasibility Study	USACE
Levee System Integrity Program	DWR
Lower Cache Creek General Investigation	USACE
Lower San Joaquin River Feasibility Study	USACE
Merced County Streams Feasibility Study and General Reevaluation Report	USACE
Rock Creek/Keefer Slough Feasibility Study	USACE
Sacramento-San Joaquin River Basins Comprehensive Study	USACE
Sacramento River Bank Protection Project – Phase II Supplemental Authorization	USACE
Sacramento River Bank Protection Project – Phase III	USACE
San Joaquin River Restoration Program	Reclamation
Sutter Basin Feasibility Study	USACE
West Sacramento Area Flood Control Agency Project and General Reevaluation Report	USACE
West Stanislaus County/Orestimba Creek Feasibility Study	USACE
White River/Deer Creek Feasibility Study	USACE
Yuba River Basin Project General Reevaluation Report	USACE

Key:

CVFPP = Central Valley Flood Protection Plan

DWR = California Department of Water Resources

Reclamation = U.S. Department of Interior, Bureau of Reclamation

USACE = U.S. Army Corps of Engineers

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