CENTRAL VALLEY
FLOOD MANAGEMENT
PLANNING PROGRAM

FloodSAFE
CALIFORNIA

2012 Central Valley Flood Protection Plan

Regional Conditions Report – A Working Document

March 2010

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Preface

What is the Regional Conditions Report – A Working Document?

The Regional Conditions Report – A Working Document (RCR) is a reference document to be used in the development of the Central Valley Flood Protection Plan (CVFPP). The purpose of the RCR is to define existing conditions and likely future challenges; identify problems and opportunities from various perspectives; and define goals, principles, and objectives to guide development and implementation of the CVFPP. This detailed, interim report is being made available to the public, partners, and interested parties to help verify that State, federal, tribal, local, regional, and other perspectives have been recognized and applied appropriately to the development of the 2012 CVFPP.

How was the RCR Developed?

The RCR was developed with the support of a robust outreach effort aimed to integrate study partners and interested parties in a planning process that is open and transparent. Much of the information in the RCR has been compiled using existing and available sources and with the assistance and input from working groups composed of members of the public, representatives from numerous flood and related interest groups, and subject-matter experts. These included Regional Conditions work groups in five geographic regions (Upper Sacramento, Lower Sacramento, Delta, Lower San Joaquin, and Upper San Joaquin), Topic work groups composed of subject-matter experts (climate change, environmental stewardship, levee performance, and operations and maintenance (O&M)), and a Joint Subcommittee on agricultural stewardship. The information gathered reflects the regional and local conditions and resource areas that participants considered to be important to the CVFPP.

How Will the RCR be Used?

The RCR serves as a technical foundation for CVFPP development. It provides work group participants, the general public, and California Department of Water Resources (DWR) with a comprehensive, detailed characterization of the planning setting from which problems are identified, goals are developed, and actions will be formulated for recommendation in the CVFPP. The reader can research existing and likely future conditions in further detail, survey various viewpoints on the multifaceted, flood-related issues facing the Central Valley, and compare the goals, principles, and objectives that will guide future CVFPP development. Information in the RCR will be updated and refined over time, as the CVFPP is developed. Information presented in the RCR will also be used to complete an environmental baseline for programmatic California

Environmental Quality Act (CEQA) compliance analysis, and be incorporated into appropriate technical reference documents to the 2012 CVFPP.

How is the RCR Organized?

The RCR contains nine chapters:

- **Chapter 1 (Introduction)** introduces the RCR and provides detailed background information on FloodSAFE California (FloodSAFE), the Central Valley Flood Management Planning (CVFMP) Program, CVFPP authority and guidance, the development process of the 2012 CVFPP, including a description of the CVFPP planning areas.

- **Chapter 2 (Planning Area Description)** further details the planning areas and characterizes existing and likely future flood management and related resource conditions in the Central Valley. Chapter 2 describes:

  - Existing physical conditions, infrastructure, biological conditions, social and economic conditions, cultural resources, institutions, and emergency planning, response, and recovery. Conditions were primarily characterized by river basin, but included a variety of geographic scales (regional, river reach, habitat, county, etc.) according to information availability.

  - Likely future conditions, including key drivers and influencing factors, and likely changes in conditions through 2050.

  - Pending projects and programs that might influence flood conditions in the future.

- **Chapter 3 (Problems and Opportunities)** describes flood management-related problems and associated opportunities from the perspectives of State, federal, tribal, regional, local, and other interests. These problems and opportunities provide the common focal point for people to come together and engage in the planning process. A wide range of contributing factors to flood problems were synthesized into five broad categories (1) risks and consequences of flooding, (2) O&M, (3) ecosystem, (4) policy and institutional, and (5) integrated water management. Summary tables provide a graphical representation of how the contributing factors vary from region to region.

- **Chapter 4 (Goals and Principles)** describes the identified goals and principles for the 2012 CVFPP. These goals provide clarity on how the CVFPP will address the defined problems and opportunities and contribute to the overarching FloodSAFE California (FloodSAFE) goals. While goals provide direction on “what” the CVFPP will accomplish, planning principles provide guidance on “how” the CVFPP will be developed and implemented, consistent with the FloodSAFE guiding principles.

- **Chapter 5 (Initial Draft Objectives)** describes the initial draft objectives for the 2012 CVFPP identified to date. Objectives serve as a means of measuring success in achieving those CVFPP goals over time.

- **Chapter 6 (References)** lists sources referenced in preparation of the RCR.

- **Chapter 7 (Acronyms and Abbreviations)** provides an acronyms and abbreviations list.

- **Chapter 8 (Glossary)** provides definitions to key terms used in the RCR.

- **Chapter 9 (Acknowledgements)** acknowledges DWR staff, work group participants, and the consultant team.

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1.0 Introduction

The California Department of Water Resources (DWR) is required to prepare a sustainable,[1] integrated flood management[2] plan called the Central Valley Flood Protection Plan (CVFPP) by January 1, 2012, for adoption by the Reclamation Board (now the Central Valley Flood Protection Board) (Board) by July 1, 2012. The CVFPP is to provide a systemwide approach to protecting lands currently protected from flooding by existing facilities of the State Plan of Flood Control[3,4] (SPFC), and will be updated every 5 years thereafter.

This Regional Conditions Report – A Working Document (RCR) presents information and findings from the first phase of the CVFPP planning process: existing conditions and likely future challenges, problems and opportunities, and goals and objectives. A companion document to this report, the Interim Progress Summary No. 1, presents an abbreviated summary of key findings and outcomes.

[1] A project is considered "sustainable" when it is socially, environmentally, and financially feasible for an enduring period.

[2] 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, Draft FloodSAFE Strategic Plan, 2008a).

[3] California Water Code Section 8523 defines 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 of flood control projects in the Sacramento River and San Joaquin River watersheds (river basins) for which the Board or DWR has provided the assurances, and of those facilities identified in CWC Section 8361.

[4] 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.

1.1 Background

Major flooding throughout the Central Valley of California has been documented since the mid-1800s, prompting various planning efforts by local, State of California (State), and federal entities over the last century. These efforts have resulted in the construction of flood management features and systems throughout the Central Valley. Despite these activities, damages from flooding in February 1986, March 1995, and January 1997 were the highest on record, shedding light on the susceptibility of the Central Valley and its growing communities to catastrophic flooding. The devastation and loss of life resulting from Hurricane Katrina in 2005 further raised public awareness of the potential for catastrophic storm events throughout the nation. In response, California voters passed 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) in November 2006, providing nearly a combined $5 billion in State funding for flood management and related improvements.

In the latter part of 2007, the California Legislature passed five interrelated bills aimed at addressing the problems of flood protection and liability, Senate Bill (SB) 5, SB 17, Assembly Bill (AB) 5, AB 70, and AB 156. AB 162, another flood-related bill, passed in 2007 and requires additional consideration of flood risk within 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 Code (CWC), and included specific requirements for development of the CVFPP.

DWR and the Board provide leadership and work with local, regional, State, federal, and tribal officials to improve flood management and emergency response systems throughout California, consistent with legislative direction. DWR is also investing the funds provided by Propositions 1E and 84 to reduce potential flood damages within the next 10 years. This work is being managed by DWR under FloodSAFE California[5] (FloodSAFE).

The Central Valley Flood Management Planning (CVFMP) Program is one of several programs being managed within FloodSAFE, and addresses flood-related planning activities that require State leadership and participation within the Central Valley. Preparation of the CVFPP is one of several related projects and activities that will be completed under the CVFMP Program. More information on the interrelationships between the CVFMP and other FloodSAFE projects can be found at the CVFMP website (http://www.water.ca.gov/cvfmp).

[5] DWR's multifaceted initiative launched in 2006 to improve public safety through integrated flood management and reduce potential flood damages in the state's highest risk areas. Although led at the State level and initially funded by Proposition 1E and 84 bond money, FloodSAFE implementation relies on the cooperation and assistance of federal partners, tribal entities, local sponsors, and other stakeholders.

1.2 FloodSAFE Vision, Goals, and Objectives

FloodSAFE is an initiative to improve integrated flood management in California through a systemwide approach, while reducing flood risk at regional and local levels (DWR, 2010a). The flood management improvements will, therefore, be achieved through three processes:

- Improve basic flood management functions including Flood Emergency Response, Operations and Maintenance of the flood control facilities, management of the floodplains, fixing the erosion sites, and implementation of local projects.

- Implement regional projects to reduce flood risks including "Early Implementation Projects" and implementation of U.S. Army Corps of Engineers (USACE) projects.

- Adopt a systemwide approach in which broad system evaluation is conducted (i.e., map the floodplains and evaluate the conditions of the levees throughout the system) to determine flood system deficiencies and define feasible projects/programs to fix system deficiencies by developing a comprehensive systemwide flood protection plan for the Central Valley.

The FloodSAFE Vision is as follows:

> *A sustainable integrated flood management and emergency response system throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding.*

The FloodSAFE Program is a collaborative statewide effort designed to accomplish five broad goals:

- Reduce the chance of flooding
- Reduce consequences of flooding
- Sustain economic growth
- Protect and enhance ecosystems
- Promote sustainability

These goals provide over-arching guidance to all FloodSAFE efforts, including preparation of the CVFPP.

1.3 Central Valley Flood Management Planning Program Goals and Objectives

The goal of the CVFMP Program is to conduct, support, and improve integrated flood management planning to address risk and improve system performance in the Sacramento and San Joaquin valleys by (DWR, 2009k):

- Creating a strong working partnership among USACE; the Board; DWR; local flood project maintaining agencies; resource agencies; and other State, federal, tribal, regional, or local flood protection interests.
- Improving understanding among the Central Valley's public agencies and constituent groups about flood risks by evaluating existing State-federal flood management systems.
- Fostering widespread participation in developing and building broad support for the CVFPP.
- Developing a sustainable plan that addresses long-term maintenance costs and reduces conflicts among social, environmental, engineering, and financial interests.

The CVFMP Program consists of two primary projects: SPFC and CVFPP.

The SPFC effort will include preparation of the SPFC Descriptive Document and the Flood Control System Status Report. The SPFC Descriptive Document will inventory and describe the flood management facilities, land, programs, conditions, and mode of operations and maintenance (O&M) for the State-federal flood protection system in the Central Valley. The Flood Control System Status Report will complement the SPFC Descriptive Document by providing an assessment and summary of performance for existing SPFC facilities.

1.4 CVFPP Authority and Guidance

The following sections describe the authority and guidance for preparation of the CVFPP.

1.4.1 State-Legislated Findings and Actions

The Legislature signed SB 5 in 2007 requiring DWR to prepare the CVFPP. SB 5 includes general guidance and requirements, plan content, and the process and timeline for plan development. In addition to SB 5, the Delta Protection Act also influences how the State will address resource challenges, including flood management, in the Legal Sacramento-San Joaquin Delta (Delta). Also, Propositions 84 and 1E provide both specific and general authority for State flood management efforts. General guidance and requirements for the CVFPP are summarized below. To see the exact code language, note the corresponding section of CWC or PRC or refer to the 2007 Flood Legislation Summary and Reference Document (http://www.water.ca.gov/legislation/).

CVFPP Requirements

- The CVFPP will be a descriptive document, and neither the plan nor anything in this part will be construed to expand the liability of the State for the operation or maintenance of any flood management facility beyond the scope of the SPFC, except as specifically determined by the Board pursuant to CWC Section 9611. Neither the development nor the adoption of the CVFPP will be construed to constitute any commitment by the State to provide, to continue to provide, or to maintain at, or to increase flood protection to, any particular level (CWC Section 9603(a)).

- The CVFPP will reflect a systemwide approach to protecting the lands currently protected from flooding by existing facilities of the SPFC. Any flood protection benefits accruing to lands or communities outside the SPFC will be incidental and will not constitute any commitment by the State to provide, to continue to provide, or to maintain at, or to increase flood protection to, any particular level (CWC Section 9603(b)). The different planning areas are discussed in Section 1.5.1.

- The CVFPP, wherever feasible, will promote natural dynamic hydrologic and geomorphic processes; increase and improve the quantity, diversity, and connectivity of riparian, wetland, floodplain, and shaded riverine aquatic (SRA) habitats, including the agricultural and ecological values of these lands; and promote the recovery and

stability of native species populations and overall biotic community diversity (CWC Section 9616(a)).

- The CVFPP, wherever feasible, will identify opportunities and incentives for expanding or increasing use of floodway corridors (CWC Section 9616(a)).

- DWR and the Board will investigate and evaluate the feasibility of potential bypasses or floodways that would significantly reduce the flood stage in the San Joaquin River watershed, upstream and south of Paradise Cut (CWC Section 9613(c)).

- In conjunction with the CVFPP, DWR will prepare an investment strategy to meet long-term flood protection needs and minimize State taxpayer liabilities from flooding (PRC Section 5096.820(b)(3), CWC Section 9620(c)).

- The CVFPP should also help prioritize State investments and develop a long-term investment strategy (PRC Section 5096.820; CWC Section 9616(b) and 9620(c)). Upon the adoption of the CVFPP by the Board, DWR is directed to develop a recommended schedule and funding plan to implement the recommendations of the plan. To develop the recommended schedule and funding plan, DWR may collaborate with local and federal agencies.

Funding of the CVFPP through Proposition 84 is available to DWR for the following flood control projects (PRC Section 75032):

- The inspection and evaluation of the integrity and capability of existing flood control project facilities and the development of an economically viable flood control rehabilitation plan.

- Improvement, construction, modification, and relocation of flood control levees, weirs, or bypasses including repair of critical bank and levee erosion.

- Projects to improve DWR's emergency response capability.

- Environmental mitigation and infrastructure relocation costs related to projects under PRC Section 75032.

- To the extent feasible, DWR shall implement a multiobjective management approach for floodplains that would include, but not be limited to, increased flood protection, ecosystem restoration, and farmland protection.

Funding of the CVFPP through Proposition 1E is available for the following purposes (PRC Section 5096.821):

- The evaluation, repair, rehabilitation, reconstruction, or replacement of levees, weirs, bypasses, and facilities of the SPFC by all of the following actions:
  - Repairing erosion sites and removing sediment from channels or bypasses.
  - Evaluating and repairing levees and any other facilities of the SPFC.
  - Implementing mitigation measures for a project undertaken pursuant to this subdivision. The department may fund participation in a natural community conservation plan pursuant to Chapter 10 (commencing with Section 2800) of Division 3 of the Fish and Game Code to facilitate projects authorized by this subdivision.
- Improving or adding facilities to the SPFC to increase levels of flood prevention for urban areas, including all related costs for mitigation and infrastructure relocation. Funds made available by this subdivision may be expended for State financial participation in federal- and State-authorized flood control projects, feasibility studies and design of federal flood damage reduction and related projects, and reservoir reoperation and groundwater flood storage projects. Not more than two hundred million dollars ($200,000,000) may be expended on a single project, excluding authorized flood control improvements to Folsom Dam.
  - To reduce the risk of levee failure in the Delta.
  - The funds made available for the purpose specified in paragraph (1) will be expended for both of the following purposes:
    - Local assistance under the Delta levee maintenance subventions program under Part 9 (commencing with Section 12980) of Division 6 of the CWC, as that part may be amended.
    - Special flood protection projects under Chapter 2 (commencing with Section12310) of Part 4.8 of Division 6 of the CWC, as that chapter may be amended.

Required CVFPP Content

The CVFPP shall include all of the following (CWC Section 9614):

- A description of the Sacramento-San Joaquin River Flood Management System and the cities and counties included in the system.
- A description of the performance of the system and the challenges to modifying the system to provide appropriate levels of flood protection using available information.
- A description of the facilities included in the SPFC, including all of the following:
  - The precise location and a brief description of each facility, a description of the population and property protected by the facility, the system benefits provided by the facility, if any, and a brief history of the facility, including the year of construction, major improvements to the facility, and any failures of the facility.
  - The design capacity of each facility.
  - A 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 seepage.
      - Structural failure.
      - Other sources of risk, including seismic risks, that DWR or the Board determines are applicable.
    - A 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.
- A 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.

- A description of each existing levee and other flood management facility not described in subdivision (d) 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 an urban area.

- A 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.

- An evaluation of the structural improvements and repairs necessary to bring each of the facilities of the SPFC to within its design standard. The evaluation shall include a prioritized list of recommended actions necessary to bring each facility not identified in subdivision (h) to within its design standard.

- The evaluation shall include a list of facilities recommended to be removed from the SPFC. For each facility recommended for removal, the evaluation shall identify both of the following:

    - The reasons for proposing the removal of the facility from the SPFC.

    - Any additional recommended actions associated with removing the facility from the SPFC.

- A description of both structural and nonstructural methods for providing an urban level of flood protection to current urban areas. The description shall also include a list of recommended next steps to improve urban flood protection.

- A description of structural and nonstructural means for enabling or improving systemwide riverine ecosystem function, including, but not limited to, establishment of riparian habitat and seasonal inundation of available flood plains where feasible.

Note that the SPFC Descriptive Document and the Flood Control System Status Report will provide much of the information and content for the first five elements described above. The CVFPP will reference these companion documents.

The CVFPP is also to incorporate multiobjective planning where feasible. CWC Section 9616 identifies the objectives to be achieved by the CVFPP, to the greatest extent possible:

- Reduce the risk to human life, health, and safety from flooding and protect public safety infrastructure.
- Expand the capacity of the system to reduce flood flows or convey flood flows away from urban areas.
- Link the flood protection system with the water supply system.
- Reduce flood risks in currently nonurbanized areas.
- Increase the engagement of local agencies to promote a better connection between State flood management and local land-use decisions.
- Improve flood protection for urban areas to the urban level of protection.
- Promote natural dynamic hydrologic and geomorphic processes.
- Reduce damage from flooding.
- Increase and improve the quantity, diversity, and connectivity of riparian, wetland, flood plain, and SRA habitats, including the agricultural and ecological value of these lands.
- Minimize O&M requirements.
- Promote the recovery and sustainability of native species populations and overall biotic community diversity.
- Identify opportunities and incentives for expanding or increasing use of floodway corridors.
- Provide a feasible, comprehensive, long-term financing plan.
- Identify opportunities for reservoir reoperation in conjunction with groundwater storage.

The CVFPP will include the best available maps of 100- and 200-year floodplains protected by project levees (CWC Section 9610(a)). Updated maps are currently under development by the FloodSAFE Central Valley Floodplain Evaluation and Delineation (CVFED) Program.

Process and Timeline for CVFPP Development

The process and timeline for plan development is:

- On or before December 31, 2010, DWR will prepare a status report on the progress and development of the CVFPP. DWR will post this information on the Board's Web site (http://www.cvfpb.ca.gov/), and make it available to the public (CWC Section 9610(c)).

- DWR will prepare the CVFPP and will transmit the plan to the Board no later than January 1, 2012 (CWC Section 9612(b)).

- DWR or the Board may appoint one or more advisory committees to assist in the preparation of the CVFPP. If DWR or the Board appoints one or more advisory committees, the advisory committee(s) will include representation by interested organizations (CWC Section 9612(f)).

- For the purposes of preparing the CVFPP, DWR will collaborate with U.S. Army Corps of Engineers (USACE) and the owners and operators of flood management facilities (CWC Section 9615).

- DWR will collaborate with State and federal agencies, if appropriate, regarding multiobjective flood management strategies to improve long-term system O&M and develop procedures to facilitate environmental permitting and resource protection (CWC Section 8590(e)).

- Upon completion of the CVFPP, DWR may identify and propose to the Board additional structural and nonstructural facilities to be included in the SPFC, consistent with the CVFPP (CWC Section 9611 (c)). The Board may add those facilities to the SPFC based on a determination of the following:

    - Significant systemwide benefits for managing flood risks[6] within the Sacramento-San Joaquin Valley

    - Protection of urban areas[7] within the Sacramento-San Joaquin Valley

[6] A flood risk is defined as the probability of flooding combined with the damages that could result when flooding occurs.

[7] An urban area is defined as a developed area in which there are 10,000 residents or more (CGC Section 65007 (i)).

1.5 2012 CVFPP Purpose and Scope

The purposes of the 2012 CVFPP, as established by SB 5, are as follows:

- Promote understanding related to integrated flood management from State, federal, local, regional, tribal, and other perspectives
- Create a broadly supported vision for improving integrated flood management in the Central Valley
- Develop new data and information that can be shared for many purposes (i.e., hydrological data, levee evaluation reports)

The scope of the 2012 CVFPP includes the following:

- Define flood and related resources problems
- Describe system, performance, and risks
- Develop goals and objectives
- Identify management actions for the following:
  - Repairing and improving flood protection
  - Implementing integrated flood management
  - Improving systemwide riverine ecosystem functions
- Evaluate management actions for system improvement

The CVFPP is to be updated every 5 years, with the first update completed in 2017.

1.5.1 CVFPP Planning Areas

A planning area is the geographic area taken into consideration when formulating a plan. There are two relevant geographic areas relevant to CVFPP Planning and development:

- SPFC Planning Area (SPFCPA)
- Systemwide Planning Area (SPA)

Both planning areas are shown on Figure 1-1. The SPFCPA is the lands currently receiving protection from facilities of the SPFC. The State's flood management liability is limited to the SPFCPA. The SPFCPA is best delineated by the Levee Flood Protection Zone (LFPZ) maps and the area protected by the only SPFC reservoir, Lake Oroville.

The SPA is the geographic area that includes those lands that are protected from flooding under the current facilities and operation of the Sacramento-San Joaquin River Flood Management System[8]. The SPA is best delineated by the floodplain that could be affected directly or indirectly by the SPFC. The SPFCPA is completely contained within the SPA. After the floodplain delineation work under the CVFED is finished, updated floodplains will be available for defining the SPA.

[8] CWC Section 9611 defines the Sacramento-San Joaquin River Flood Management System as the system that includes the facilities of the State Plan of Flood Control, as amended, and any existing dam, levee, or other flood management facility that is not part of the State Plan of Flood Control if the board determines, upon recommendation of the department, that the facility does one or more of the following:
(1) Provides significant systemwide benefits for managing flood risks within the Sacramento-San Joaquin Valley; (2) Protects urban areas within the Sacramento-San Joaquin Valley (where urban area herein is defined as "*any contiguous area in which more than 10,000 residents are protected by project levees*").

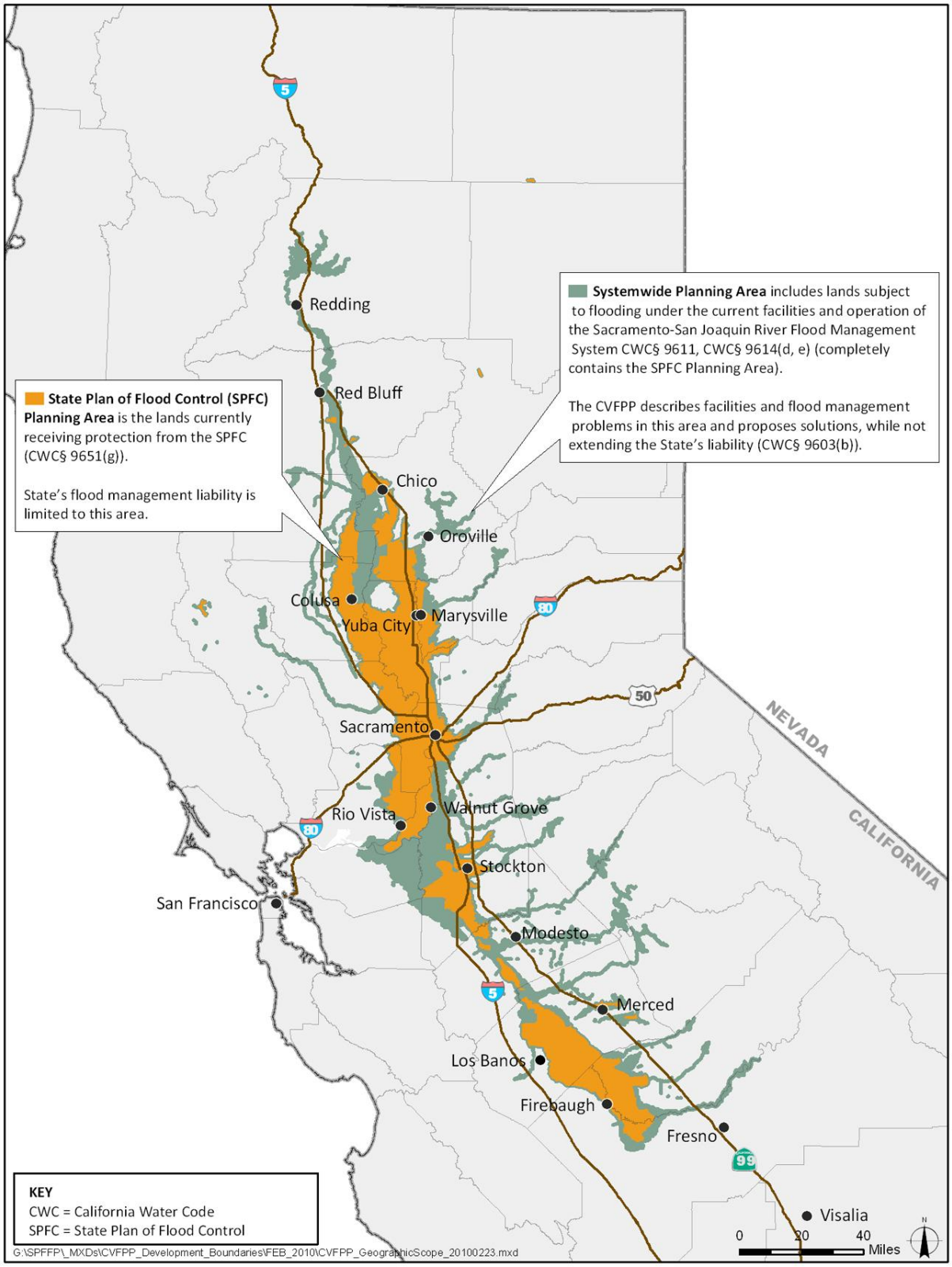

Figure 1-1. Geographic Scope of CVFPP

Until then, the SPA area is delineated through the combination of the following currently available information:

- Sacramento and San Joaquin River Basins Comprehensive Study (Comprehensive Study) 500-year floodplain, with an update from the American River Economic Reevaluation Report.

- Comprehensive Study's 200-year floodplain along the Sacramento River from Redding to Red Bluff, which was prepared by DWR Northern District for the Comprehensive Study to supplement the floodplain information outside of the Comprehensive Study's Unsteady flow through a NETwork of open channels (UNET) model.

- Draft LFPZ maps, currently defined as the area that could be inundated should a project levee fail while flowing at maximum reasonable capacity. (These inundation areas do not have a uniform flood frequency association.)

- The Delta boundary.

For the SPA (including the SPFCPA), the CVFPP will:

- Describe the key components of the Sacramento-San Joaquin Flood Management System.

- Identify and describe existing and future conditions, problems, opportunities, goals, principles, and objectives for the SPA that will guide the formulation, evaluation, and recommendation of potential solutions. This information developed for the SPA will serve as the problems, opportunities, goals, principles, and objectives for the CVFPP.

- Identify all potentially useful management actions[9] to address the goals and objectives for the CVFPP. (Potential management actions can be physically located either within or outside the boundary of the SPA, but all management actions within the CVFPP will be designed to produce benefits within the SPA.)

- Package and evaluate various sets of management actions that could help meet the goals and objectives of the CVFPP.

[9] Management actions include all structural and non-structural activities or projects that could be taken to improve flood management within the designated planning area.

The Sacramento and San Joaquin river basins were also broken into five smaller planning regions, as shown on Figure 1-2, for the purposes of data collection and public engagement with partners and interested parties.

- Upper Sacramento River Region (the Sacramento River above the Fremont Weir, including the Sutter Bypass to its confluence with the Feather River)

- Lower Sacramento River Region (the Feather River from its confluence with the Sutter Bypass and Sacramento River downstream from the Fremont Weir, including the Feather, Yuba, and American River watersheds)

- Upper San Joaquin River Region (the San Joaquin River upstream from the Merced River confluence and includes the Merced River watershed)

- Lower San Joaquin River Region (the San Joaquin River downstream from the Merced River confluence)

- The Delta region, which includes the legal Delta

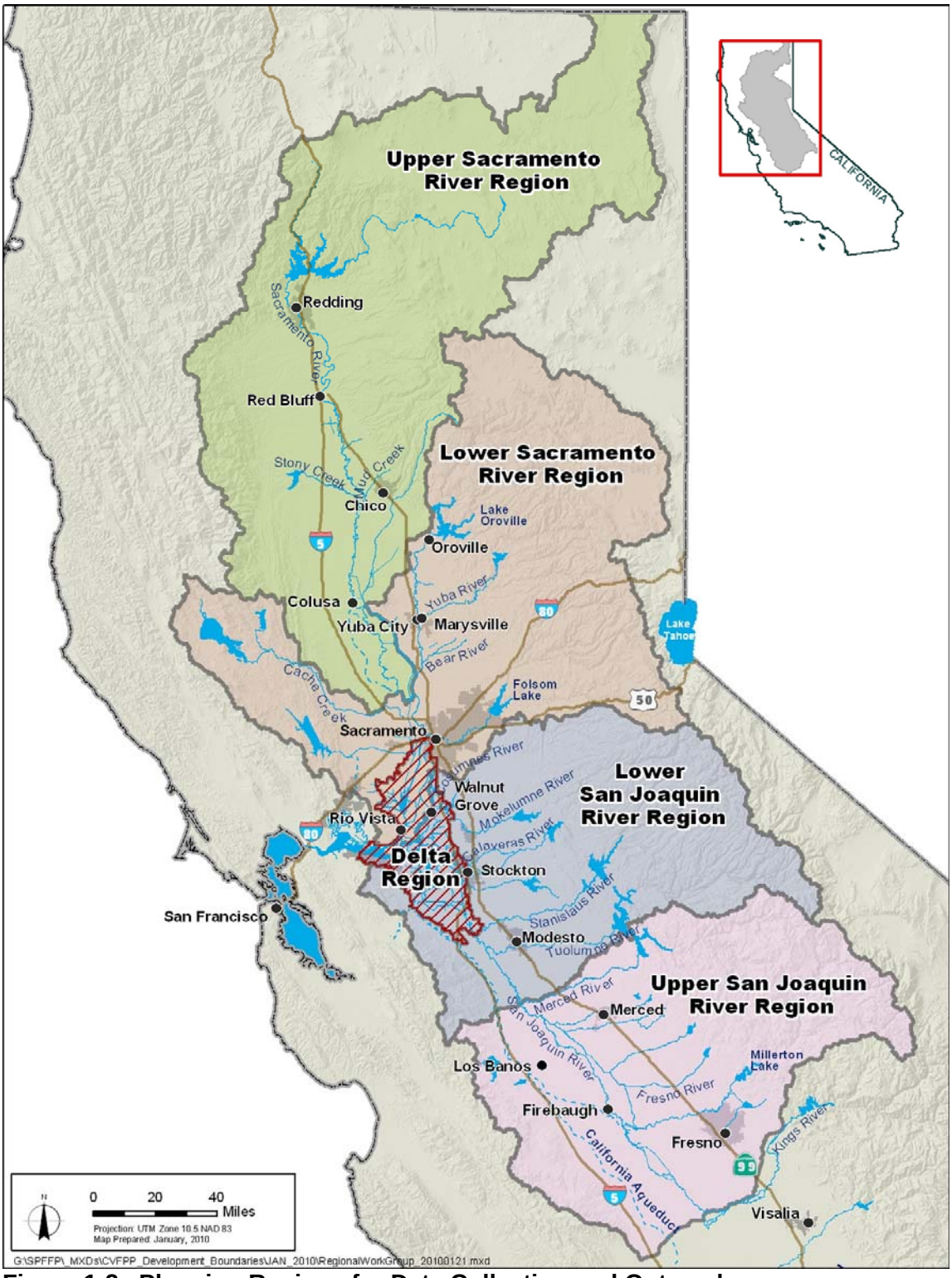

Figure 1-2. Planning Regions for Data Collection and Outreach

1.5.2 Approach and Organization

A comprehensive communications and engagement process with partners and interested parties has been implemented for use in each step of the CVFPP planning process to share and solicit information, generate plan content recommendations, promote feedback, and allow input from partners and the public. This "bottom-up" approach to developing the CVFPP is intended to promote broad public understanding of flood management challenges and threats in the Central Valley, create opportunity for collaborative planning, and increase support for the plan through broad participation by partners. This approach is also intended to incorporate environmental stewardship and conservation planning into all aspects and stages of CVFPP development.

DWR anticipates that the CVFPP planning process will use existing information, expert judgment, and new information, as available from other ongoing FloodSAFE efforts. Significant inputs to the CVFPP will be provided by two related planning activities also being conducted under the CVFMP: (1) preparation of a Descriptive Document for the SPFC, and (2) preparation of a Flood Control System Status Report for the SPFC. Additional information will be provided by the CVFED, urban and nonurban levee evaluation programs, and other projects and programs being conducted under FloodSAFE. Technical analyses to support the planning and engagement process will be performed primarily using existing and available tools and information.

Consistent with Executive Order S-13-08 and related State policies, the CVFPP will consider potential climate impacts from sea level rise, increased temperatures, changing location and timing of precipitation, and extreme weather events in developing the CVFPP. In developing appropriate assumptions for incorporating climate change into flood management planning efforts, the project will coordinate closely with existing DWR technical teams evaluating the impacts of climate change on the State's water resources.

1.5.3 Supporting Studies and Reports

Integrated flood management in the Central Valley has been studied extensively over the years. Many studies and reports have been published documenting the development of the flood management system and its associated O&M challenges, and flood management problems and opportunities in the Central Valley. The following are major recent studies and reports that address systemwide issues, and some of the major ongoing regional projects and programs. A detailed list of published reports and studies and ongoing projects and programs will be developed for reference to the 2012 CVFPP.

Flood Emergency Action Team

Under initiatives outlined by the Governor's Executive Order W-156-97, through the Governor's Office of Emergency Services (OES), the Flood Emergency Action Team produced a number of emergency management documents. These documents include Guidelines for Coordinating Flood Emergency Operations (OES, 1997a), Disaster Assistance Funding Guidance (OES, 1997b), Public Assistance Eligibility Guidelines for Floods (OES, 1997c), Protocol for Closure of Delta Waterways (OES, 1997d), Memorandum of Understanding for Animal Care During Disasters (OES, 1997e), Emergency Plans for Mobile Home Parks (OES, 1997f), Flood Preparedness Guide for Levee Maintaining Agencies (OES, 1997g), and Legal Guidelines for Flood Evacuation (OES, 1997h). These documents provide guidance to local agencies during flood emergencies and are maintained by the California Emergency Management Agency (CalEMA), the successor to OES.

FloodSAFE Strategic Plan

The draft FloodSAFE Strategic Plan (DWR, 2008a) outlines a shared vision of what will be accomplished through the FloodSAFE Initiative and describes an implementation approach that can bring about desired results through active participation by numerous partners throughout California. This Strategic Plan is intended provide a common understanding for use by the Administration, Legislature, public, and California's flood managers at State, federal, tribal, and local levels. DWR will take a lead role in implementing FloodSAFE and will work closely with State, federal, tribal, and local partners to help improve integrated flood management systems statewide. DWR invited review and comment on the draft FloodSAFE Strategic Plan, and written comments were received through July 25, 2008. Once finalized, the FloodSAFE Strategic Plan will be updated periodically by DWR and its partners based on input, experience, and new information gained during implementation.

FloodSAFE Implementation Plan

The Final Draft FloodSAFE Implementation Plan (DWR, 2010a) presents the implementation plan for California's FloodSAFE initiative. The Implementation Plan is intended to define FloodSAFE Programs' authorities, responsibilities, timelines, budgets, priorities, and expected outcomes of needed flood management programs. The implementation plan focuses on flood management work required over approximately the next five years, but also provides long-term direction to year 2025 and beyond. The implementation plan provides strategic-level guidance for implementation of California's FloodSAFE initiative by providing descriptions of how work will be accomplished in seven different functional areas. The plan will be supported by strategic plans or other detailed management plans for programs and projects as appropriate within

each functional area. The implementation plan describes major elements and components for each functional area; descriptions of detailed work activities and tasks will be left for other reports under each functional area. The FloodSAFE Implementation Plan was prepared for DWR internal use to help all managers understand the relationships among the functional areas and to help them monitor expected outcomes (deliverables and performance measures). The implementation plan is intended to be flexible, with updates prepared as conditions evolve.

Sacramento-San Joaquin River Basins Comprehensive Study

The Comprehensive Study (USACE and the Reclamation Board, 2002), was a joint effort by the California Reclamation Board (now Board) and USACE, in coordination with State, federal, and local agencies, groups, organizations, and the public. The Comprehensive Study focused on balancing and integrating multiple objectives on a local, regional, and systemwide basis by facilitating regional coordination and interaction with other programs. Numerous technical analyses were conducted during the Comprehensive Study to inventory resource conditions in the Planning Area and to analyze problems and opportunities for flood management and ecosystem restoration. The findings of the Comprehensive Study were documented in the December 2002 Interim Report (USACE, 2002a), and highlighted planning principles that should be used to guide implementation of individual flood management projects and actions in the Central Valley. Technical information and tools developed for the Comprehensive Study have been used by numerous subsequent studies and analyses.

Central Valley Integrated Flood Management Study

USACE, in conjunction with their non-Federal sponsor, DWR, will jointly implement the Central Valley Integrated Flood Management Study (CVIFMS). The CVIFMS will define a long-range program for the Sacramento and San Joaquin river basins and the corresponding level of federal participation. This program, a continuation of the Comprehensive Study, will identify opportunities to reduce flood risk by improving the flood capacity of the system while restoring and protecting floodplain and environmental features including wetlands and other fish and wildlife habitat.

California Water Plan

The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The plan is updated every 5 years; the 2009 update is the latest update to the plan. The plan presents basic data and information on California's water resources – including water supply evaluations and assessments of agricultural, urban, and environmental

water uses to quantify the gap between water supplies and uses. The plan also identifies and evaluates existing and proposed statewide resource management strategies to address reducing water demand, improving operational efficiency and transfers, increasing water supply, improving water quality, practicing resources stewardship, and improving flood management.

CALFED Program

The CALFED Bay Delta Program (CALFED) is a collaboration of 25 State, federal, and local agencies that established a program to improve California's water supply and the ecological health of the Delta. The 2000 Record of Decision, a 30-year plan for the management and restoration of the Delta, laid out a science-based planning process that would enable participating agencies to make and implement better, more informed decisions and actions on future projects and programs. In 2004, the California Bay Delta Authority was created to oversee the program's implementation, and Congress adopted the plan. Major CALFED programs include Water Quality, Levee System Integrity, Conveyance, Water Use Efficiency, Storage, Ecosystem Restoration, Watershed, and Science programs. Program plans are developed annually by the implementing agencies that describe accomplishments as well as a plan for future implementation actions, actions for problem resolution, available funding, and cross-program integration.

1.6 2012 CVFPP Development Process

The 2012 CVFPP will be developed using an iterative planning process completed in four phases:

- **Phase 1 –** Define existing conditions and likely future challenges; identify problems and opportunities from various perspectives; and define goals, principles, and objectives to guide development and implementation of the plan. Results from this planning phase are described in the RCR and summarized in Interim Progress Summary No. 1.

- **Phase 2 –** Identify a broad range of potential structural and nonstructural management actions for meeting the plan's objectives, consistent with the planning principles, and define evaluation methods and screening criteria to be applied. Results from this phase will be summarized in Interim Progress Summaries No. 2 and No. 3.

- **Phase 3 –** Working closely with partners and interested parties, formulate sets of management actions (solution sets) by region to meet the goals and objectives; compare and evaluate the regional solution sets to identify tradeoffs and compromises; and refine potential regional solution sets. Results from this phase will be summarized in Interim Progress Summary No. 4.

- **Phase 4 –** Develop potential systemwide solution sets based on the regional results; compare and evaluate potential systemwide solution sets; assess level of agreement; and recommend next steps for State action (priorities, timelines, and funding strategies). Results from this phase will be summarized in the CVFPP Progress Report, and presented in the draft 2012 CVFPP.

The four planning phases are illustrated in the Figure 1-3.

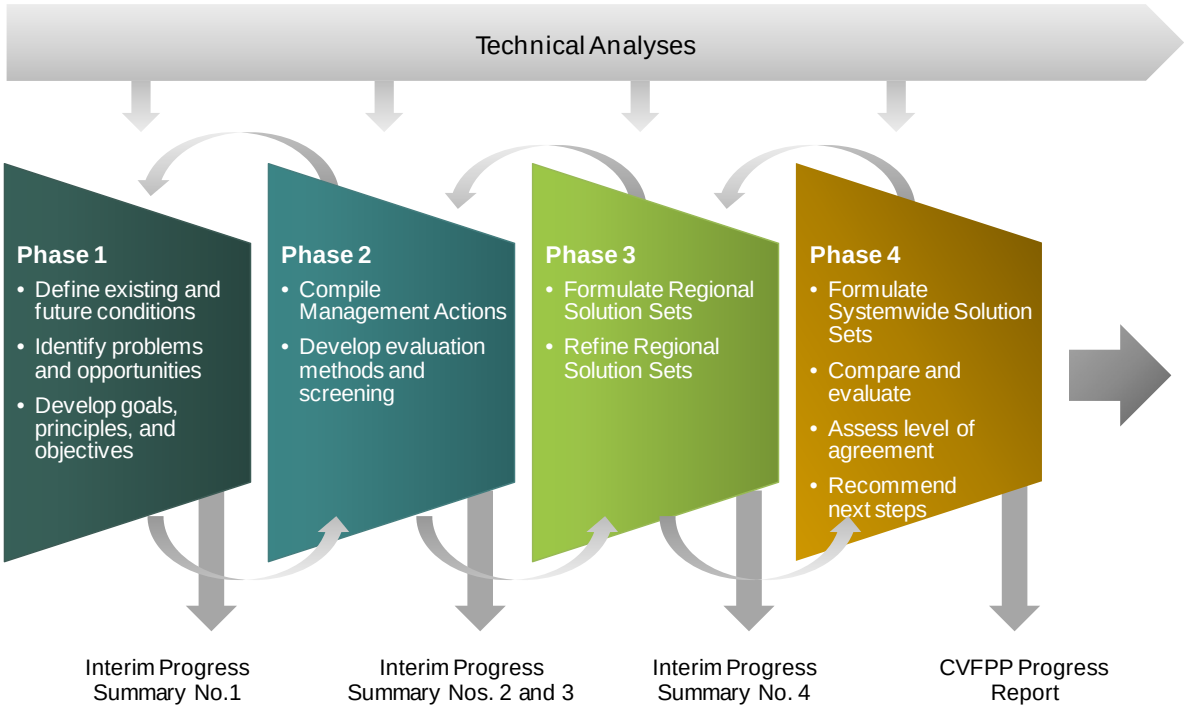

Figure 1-3. CVFPP Development Process