FloodSAFE CALIFORNIA

FLOODSAFE OVERVIEW & ACCOMPLISHMENTS UPDATE

California Water Plan Update 2013
Tribal Engagement Workshop

PRESENTED BY

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Responding to Flood Hazards in California

RESPONSE & COORDINATION

In general, emergency resposne starts with local response agenices. As the ability of local agenices to deal with any emergency are exceeded, they call upon other county, regional, State, and finally Federal agencies to provide assistance. For flood related emergencies in California, the California Department of Water Resources's State-Federal Flood Operations Center (FOC) is legally responsible for coordinating all State level flood response activities.

The following are some of the key agencies that work together to prepare for and respond to flood emergencies in California:

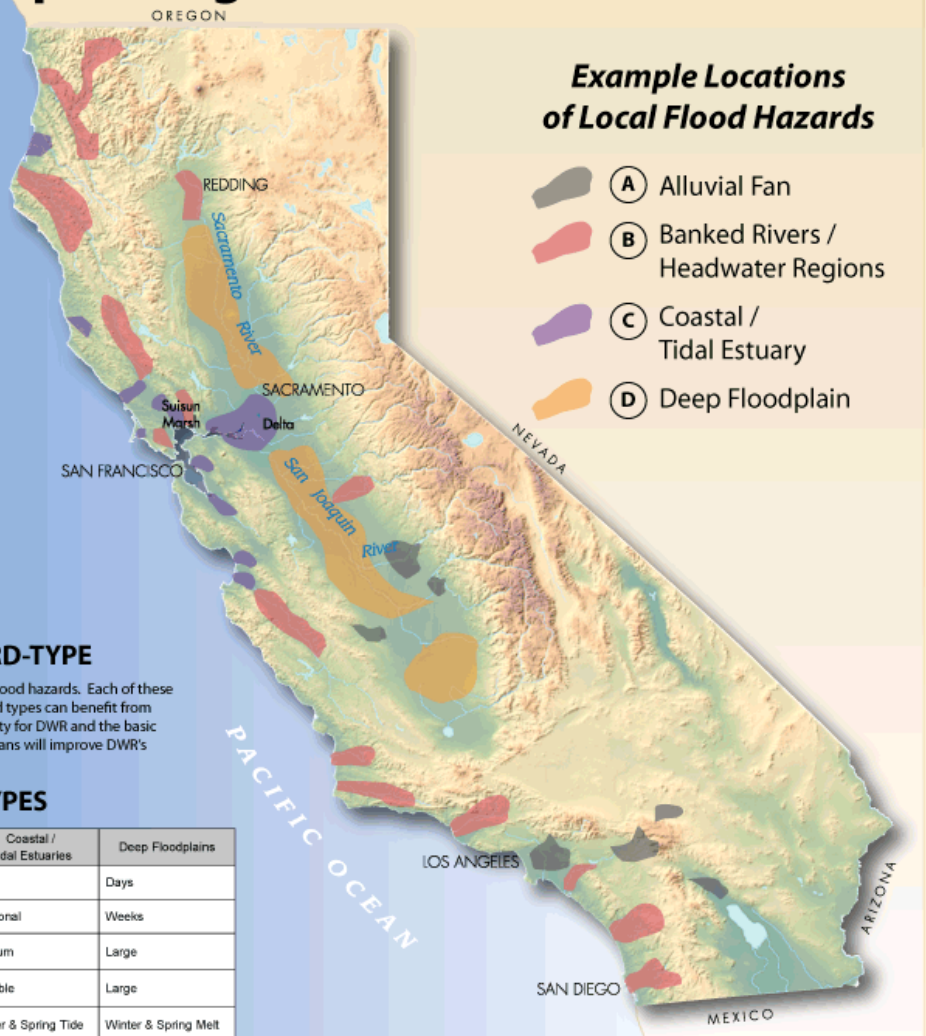
Flood Response Agency	Federal	State	Local
National Weather Service (NWS)	✓		
US Army Corps of Engineers (USACE)	✓		
US Bureau of Reclamation (USBR)	✓		
Governor's Office of Emergency Services (OES)		✓	
California Department of Water Resources (DWR)		✓	
County Offices of Emergency Services			✓
Reclamation Districts (RDs) or Levee Districts (LDs)			✓

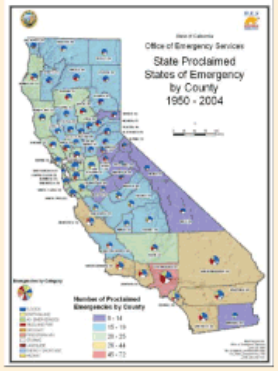
PLANNING BASED ON FLOOD HAZARD-TYPE

California population centers are principally threatened by 4 types of flood hazards. Each of these hazard-types has a different duration and spatial extent. Similar hazard types can benefit from similar preparedeness and response strategies. While the legal authority for DWR and the basic resources at its disposal will be the same for any event, type-specific plans will improve DWR's role in coordinating large-scale emergency response efforts.

DIFFERENCES OF FLOOD HAZARD-TYPES

Characteristic	Alluvial Fans	Banked Rivers / Headwaters	Coastal / Tidal Estuaries	Deep Floodplains
Time to Peak	Hours	Hours	Days	Days
Duration of Flood	Hours	Weeks	Seasonal	Weeks
Area Flooded	Small	Small	Medium	Large
Drainage Area	Small	Medium	Variable	Large
Characteristic Storm	Thunderstorm	Winter	Winter & Spring Tide	Winter & Spring Melt
High Sediment Load	Yes	No	No	No
Man-Made Levees	Rare	Rare	Variable	Common



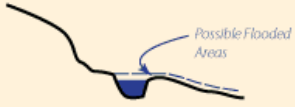


FLOOD HAZARD-TYPES

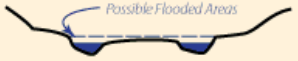
The duration and spatial extent of flooding in different hazard types is a function of both the local geography and hydrology.

A Alluvial Fans have no defined river channel. They are formed when fast moving mountain streams slow down on flatter plains.

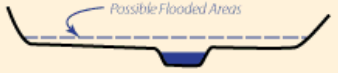
B Banked Rivers and Headwater Regions typically are located in mountainous and hilly terrain. They have defined natural banks that quickly pass flood waters.



C Coastal and Tidal Estuaries are formed where rivers meet the ocean. They are subject to daily tidal action and often have a complex network of braided channels that form small flood prone islands.



D Deep floodplains are located in flatlands that are prone to seasonal flooding. Flood waters travel slowly through these areas. These areas are often protected by levees.



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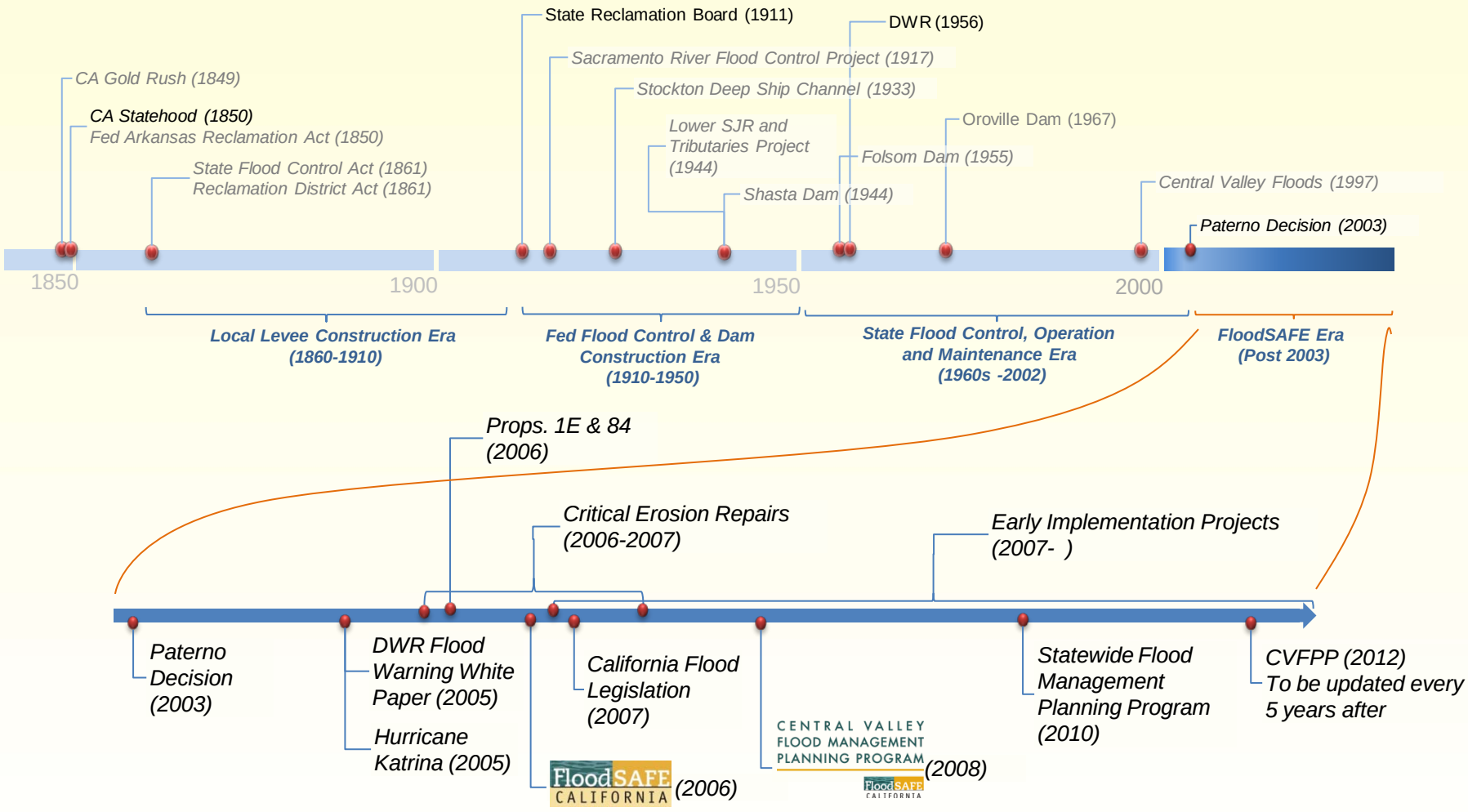
A Long History of System Evolution



Reducing Flood Risk

INITIAL RISK

Structural Improvements

- Critical levee repairs
- State-local early implementation projects
- Federal projects
- Emergency supplies and stockpiles
- Improved flood system operation and maintenance
- Delta levee improvements

Non-Structural Improvements

- Levee evaluations
- Central Valley Flood Protection Plan
- Mitigation banking
- Flood corridor easements
- Designated floodways
- Floodplain mapping
- New building standards
- Local agency risk acknowledgement
- Shared liability between State and local agencies
- System reoperation
- General Plan amendments and zoning ordinances

- Flood emergency preparedness, response, and recovery
- Flood hydrology update/climate change
- Delta flood preparedness, response, and recovery project

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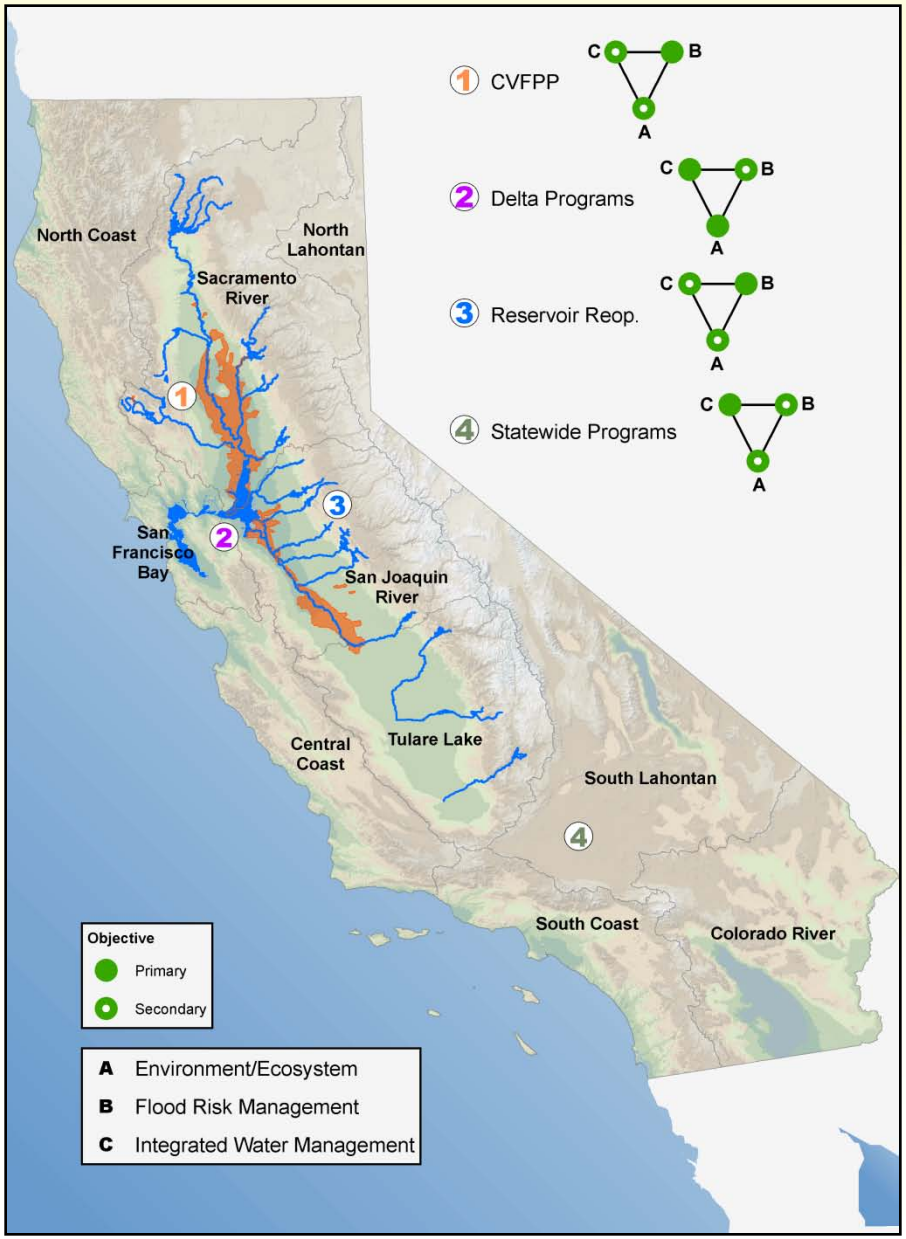
Improve integrated flood management in the State through a system-wide approach, while carrying out regional projects and enhancing core flood management programs, with the following strategic goals.

- Reduce the chance of flooding
- Reduce the consequence of flooding
- Sustain economic growth
- Protect and enhance ecosystem
- Promote sustainability


1 CVFPP
C B A
2 Delta Programs
C B A
3 Reservoir Reop.
C B A
4 Statewide Programs
C B A
North Coast
North Lahontan
Sacramento River
San Francisco Bay
San Joaquin River
Central Coast
Tulare Lake
South Lahontan
South Coast
Colorado River
Objective
Primary
Secondary
A Environment/Ecosystem
B Flood Risk Management
C Integrated Water Management

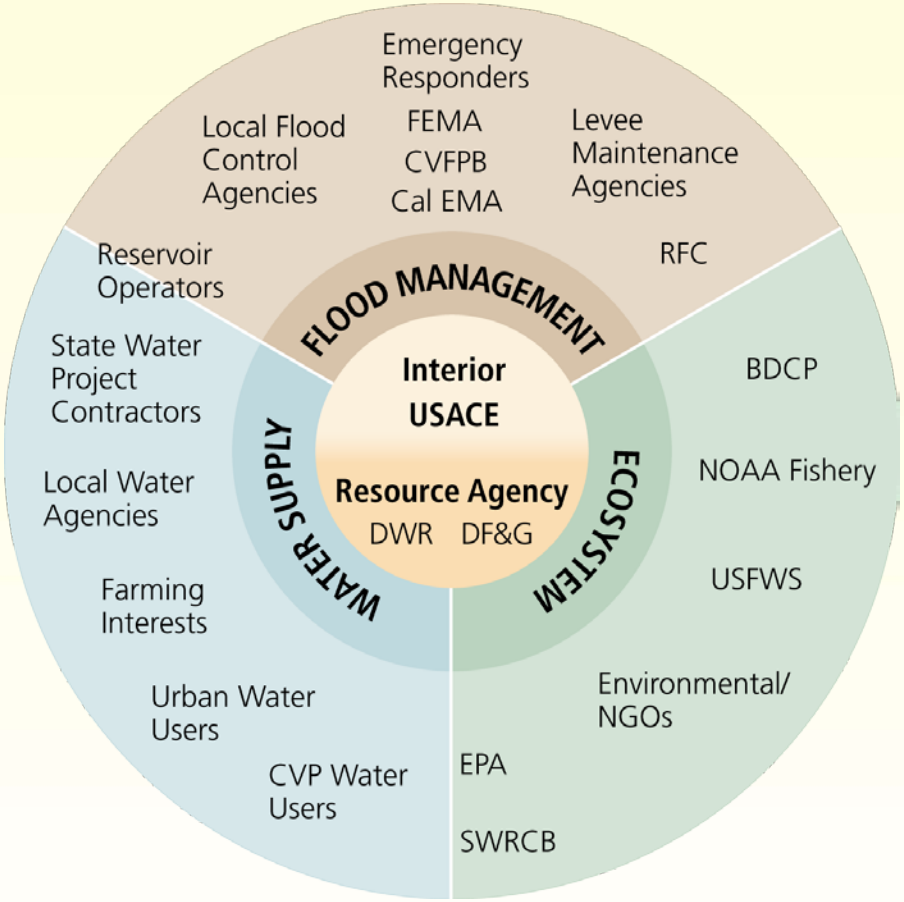
Federal, State, and Local Roles

USACE: Fed partner, traditional designer/constructor of State-Federal facilities; modifications need federal approval

CVFPB: Lead non-federal sponsor with the USACE for flood protection projects in the Sacramento-San Joaquin Valley; approves annual budget for Delta Levee Subventions Program

DWR: Manages emergency response Statewide through Standardized Emergency Management System; administers Delta Special Projects Program and Delta Levee Subventions Program for local levee maintenance

LMA's: Owner of local levees; maintains local and State-federal project levees



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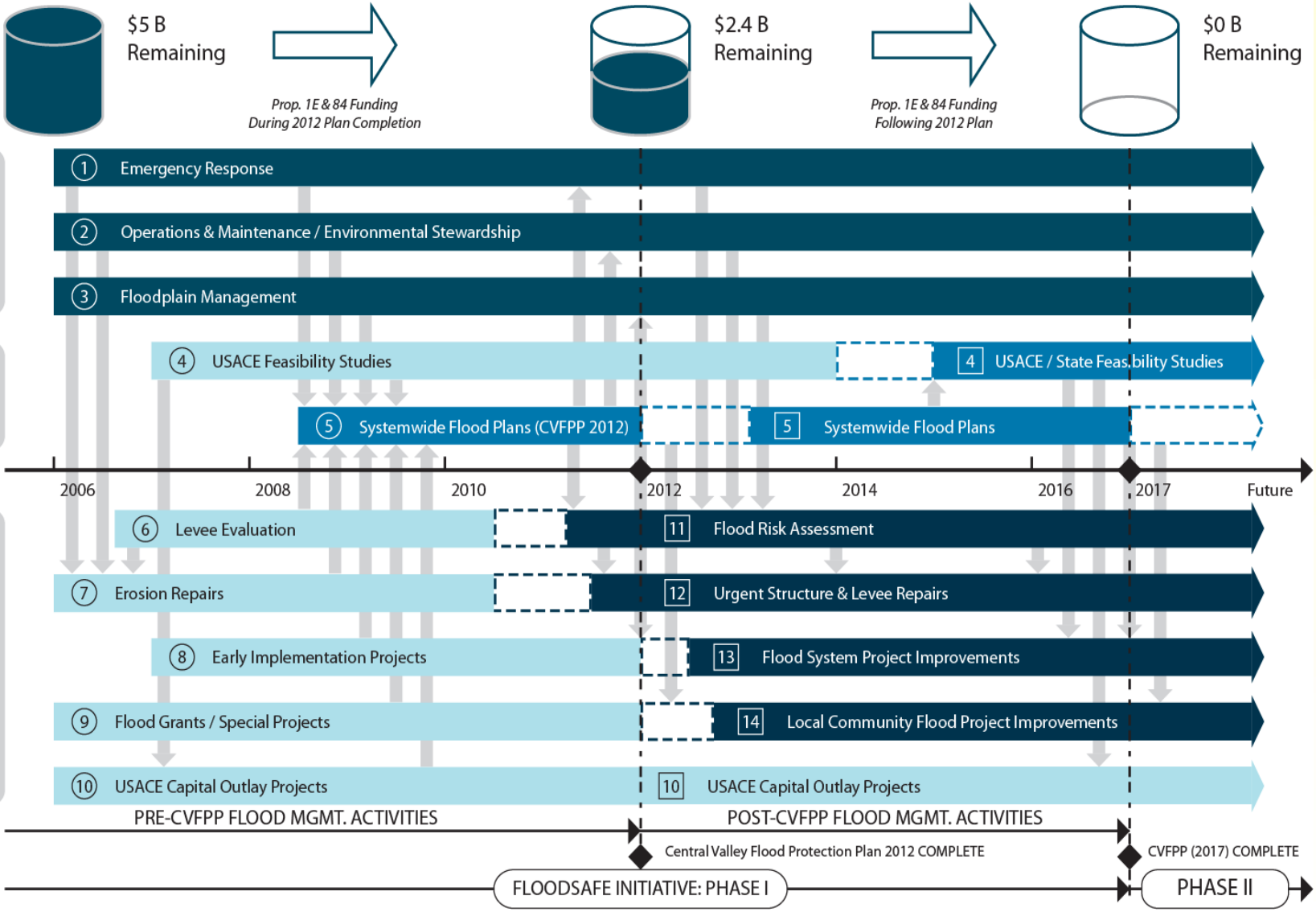
FloodSAFE Accomplishments Timeline

Recommendations from the 2012 Central Valley Flood Protection Plan (CVFPP) will change the character of pre-2012 FloodSAFE activities.

Base / Core activities will take info. from post-2012 activities & interact w/ future plans.



Improve integrated flood management in the State through a system-wide approach, while carrying out regional projects and enhancing core flood management programs

IMPROVING CORE FLOOD MGMT. PROGRAMS

	2006-2008	2008-2010	2010-2012
1 Emergency Response		**~ $120 M**	
• 240k tons of rock stockpiled for Delta	✓	✓	
• Delta emergency response plan		✓	✓
• 3 local emergency preparedness and response plans		✓	✓
• Levee & system inspection modernized	✓	✓	✓
• ~50 flood & water supply forecasting data collection sites	✓	✓	✓
• ~10 interagency emergency exercises	✓	✓	
2 Operations & Maintenance / Environmental Stewardship		**~ $70 M**	
• 3 million cu.yd. sediment removed		✓	✓
• 7 flood structures rehabilitated	✓	✓	✓
• Colusa Mitigation Project		✓	✓
• Cache Creek Mercury characterization		✓	✓
3 Floodplain Management		**~ $160 M**	
• State Building Code revised		✓	
• 9,000 mi^2 topographic / LiDAR data		✓	
• Central Valley Levee Flood Protection Zone maps created		✓	
• 300k Flood Risk Notifications mailed		✓	✓

Improve integrated flood management in the State through a system-wide approach, while carrying out regional projects and enhancing core flood management programs

SYSTEMWIDE FLOOD MGMT. PLANNING

	2006-2008	2008-2010	2010-2012
(4) USACE Feasbility Studies		**~ $16 M**	
• American River Common Features		✓	✓
• Lower San Joaquin		✓	✓
• Yuba River Basin		✓	✓
• West Sacramento		✓	✓
• Sutter Basin		✓	✓
(5) Systemwide Flood Plans		**~ $15 M**	
• Phases 1 & 2 stakeholder engagement		✓	
• Phases 3 & 4 stakeholder engagement			✓
• State Plan of Flood Control descriptive document		✓	
• Flood Control System Status Report		✓	
• Central Valley Flood Protection Plan		✓	✓
• Statewide Flood Management Plan			✓

Improve integrated flood management in the State through a system-wide approach, while carrying out regional projects and enhancing core flood management programs

PRE-CVFPP FLOOD MGMT. REGIONAL PROJECTS

	2006-2008	2008-2010	2010-2012
6 Levee Evaluation	**~ $95 M**		
• 2,100 miles of levees evaluated	✓	✓	
7 Erosion Repairs	**~ $295 M**		
• 118 critical levee sites repaired	✓	✓	
• 146 proactive levee sites repaired	✓	✓	
• 4 critical levee sites in progress		✓	
• 76 proactive levee sites in progress		✓	
8 Early Implementation Projects	**~ $630 M**		
• SAFCA projects	✓	✓	✓
• TRILA projects	✓	✓	✓
• RD 17 (Delta)		✓	✓
• LD 1 / Star Bend Setback		✓	✓
9 Flood Grants / Special Projects	**~ $300 M**		
• 6 flood & ag/habitat projects completed	✓	✓	
• 20 flood & ag/habitat projects in progress		✓	✓
• $179M reimbursements to local agencies	✓	✓	✓
• Delta Subventions & Special Projects	✓	✓	✓
10 USACE Capital Outlay Projects	**~ $570 M**		
• Folsom Dam modifications	✓	✓	✓
• American River common features	✓	✓	✓
• Marysville Ring Levee	✓	✓	
• South Sacramento streams		✓	✓

POST-CVFPP REGIONAL & SYSTEMWIDE ACTIVITIES

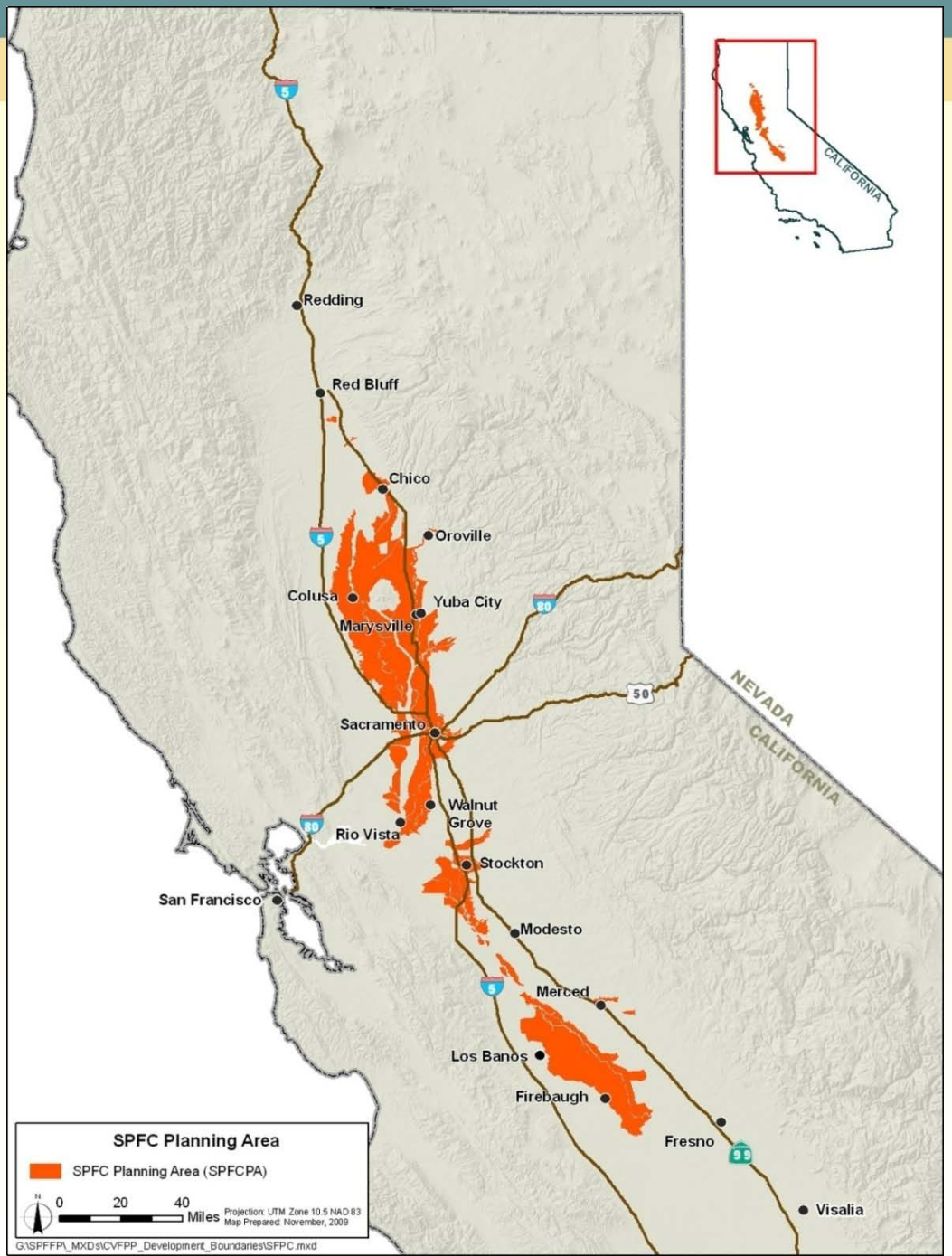
		2012-2014 2014-2016 2016-2018
10	**USACE Capital Outlay Projects**	To be discussed in CVFPP
4	**USACE Feasibility Studies**	To be discussed in CVFPP
5	**Systemwide Flood Plans**	To be discussed in CVFPP
11	**Flood Risk Assessment**	To be discussed in CVFPP
12	**Urgent Structure & Levee Repairs**	To be discussed in CVFPP
13	**Flood System Project Improvements**	To be discussed in CVFPP
14	**Local Community Flood Project Improvements**	To be discussed in CVFPP

2012 CVFPP Content

- Define flood and related problems
- Describe system, performance and risks
- Set goals and objectives
- Identify and evaluate management actions
- Identify and evaluate potential regional and system solution sets
- Define vision and next steps for improving system
- Set criteria for local compliance related to the adoption of CVFPP

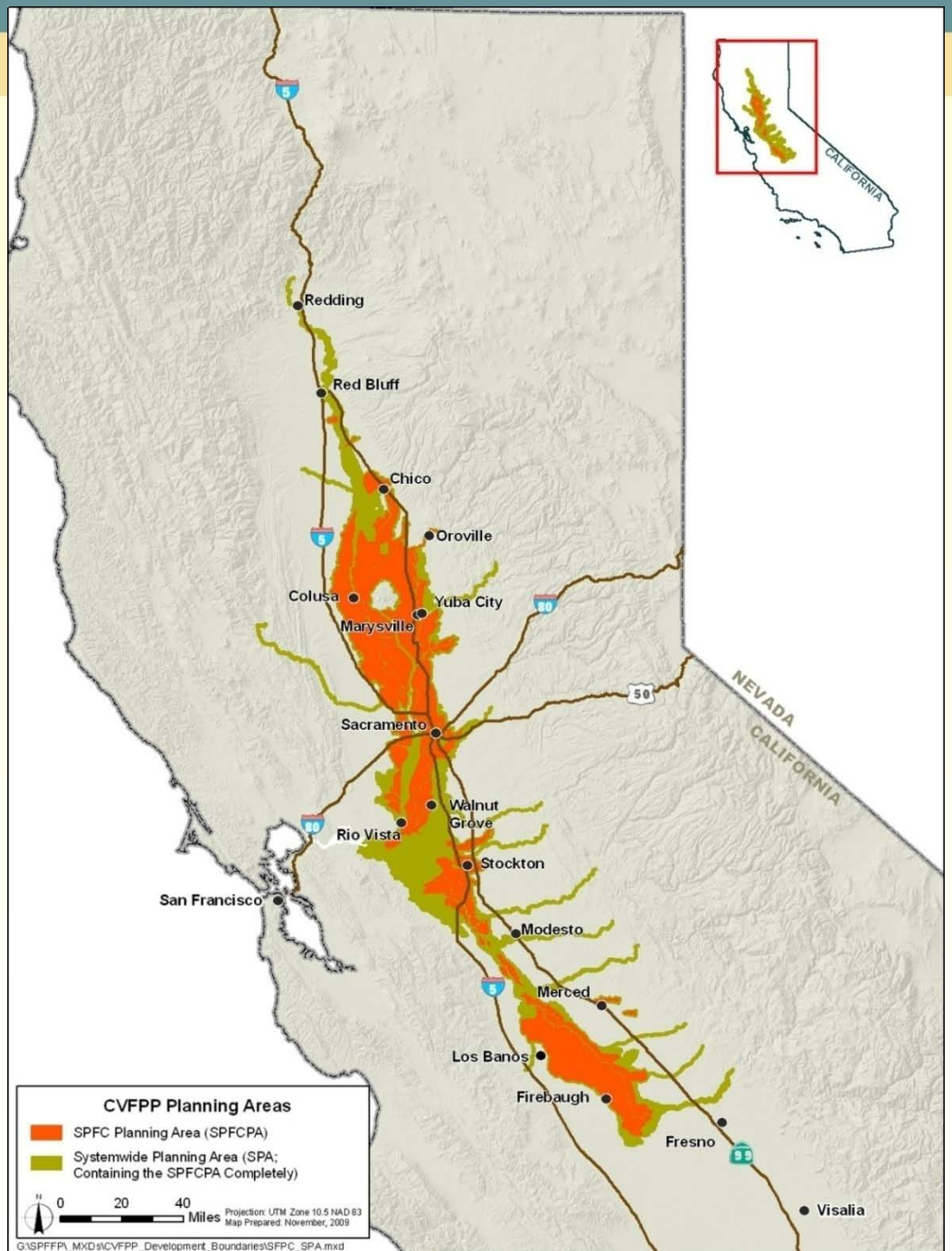
State Plan of Flood Control Planning Area

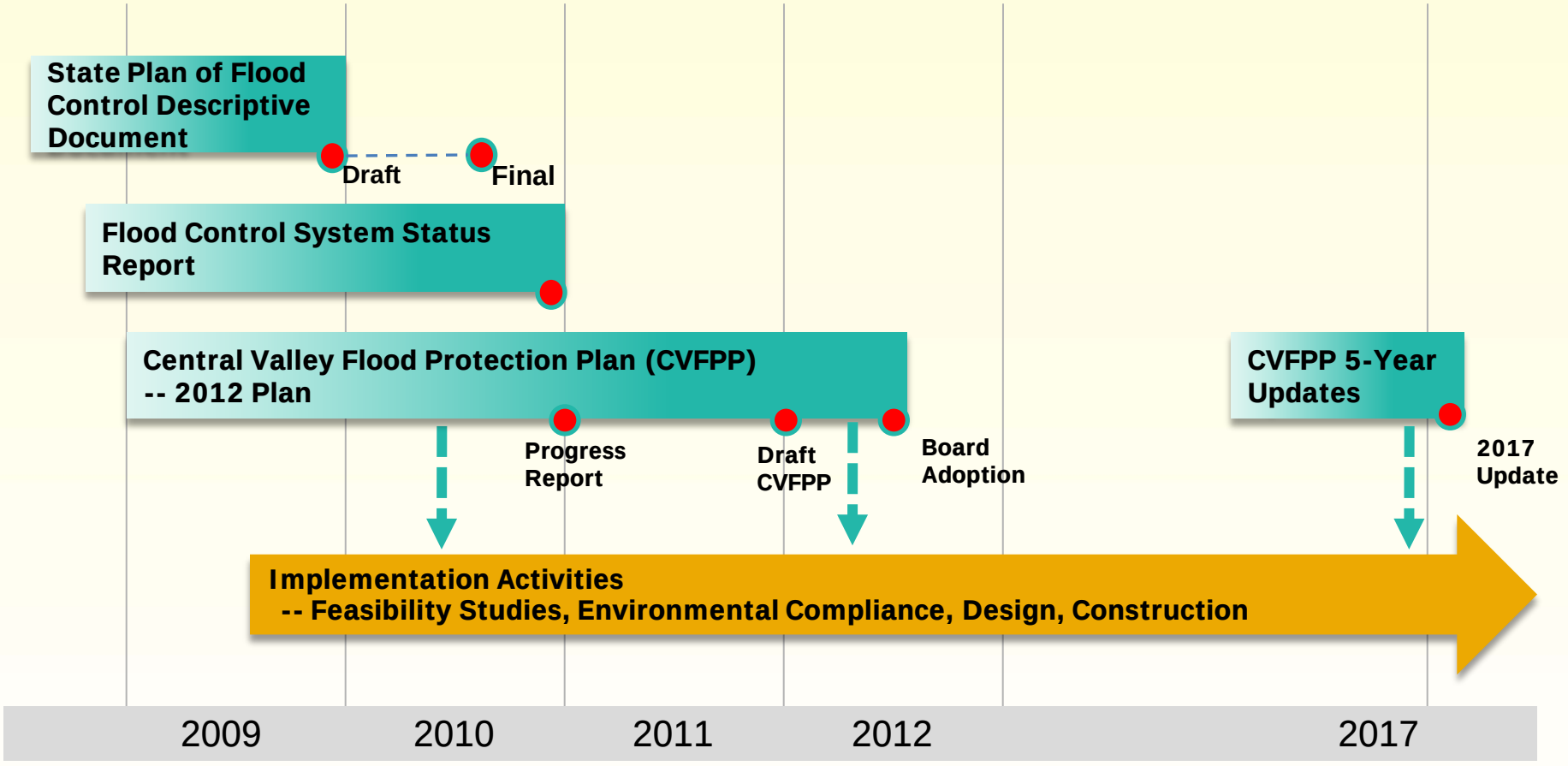
The CVFPP focuses on improving flood management for the lands currently receiving protection from the State Plan of Flood Control (SPFC).



Systemwide Planning Area

The CVFPP analysis will be conducted on a system-wide basis, and include considerations of other integrated water management functions provided in the same system.




State Plan of Flood Control Descriptive Document
Draft
Final
Flood Control System Status Report
Central Valley Flood Protection Plan (CVFPP) -- 2012 Plan
Progress Report
Draft CVFPP
Board Adoption
CVFPP 5-Year Updates
2017 Update
Implementation Activities
-- Feasibility Studies, Environmental Compliance, Design, Construction
2009
2010
2011
2012
2017
Key:
Milestone Document

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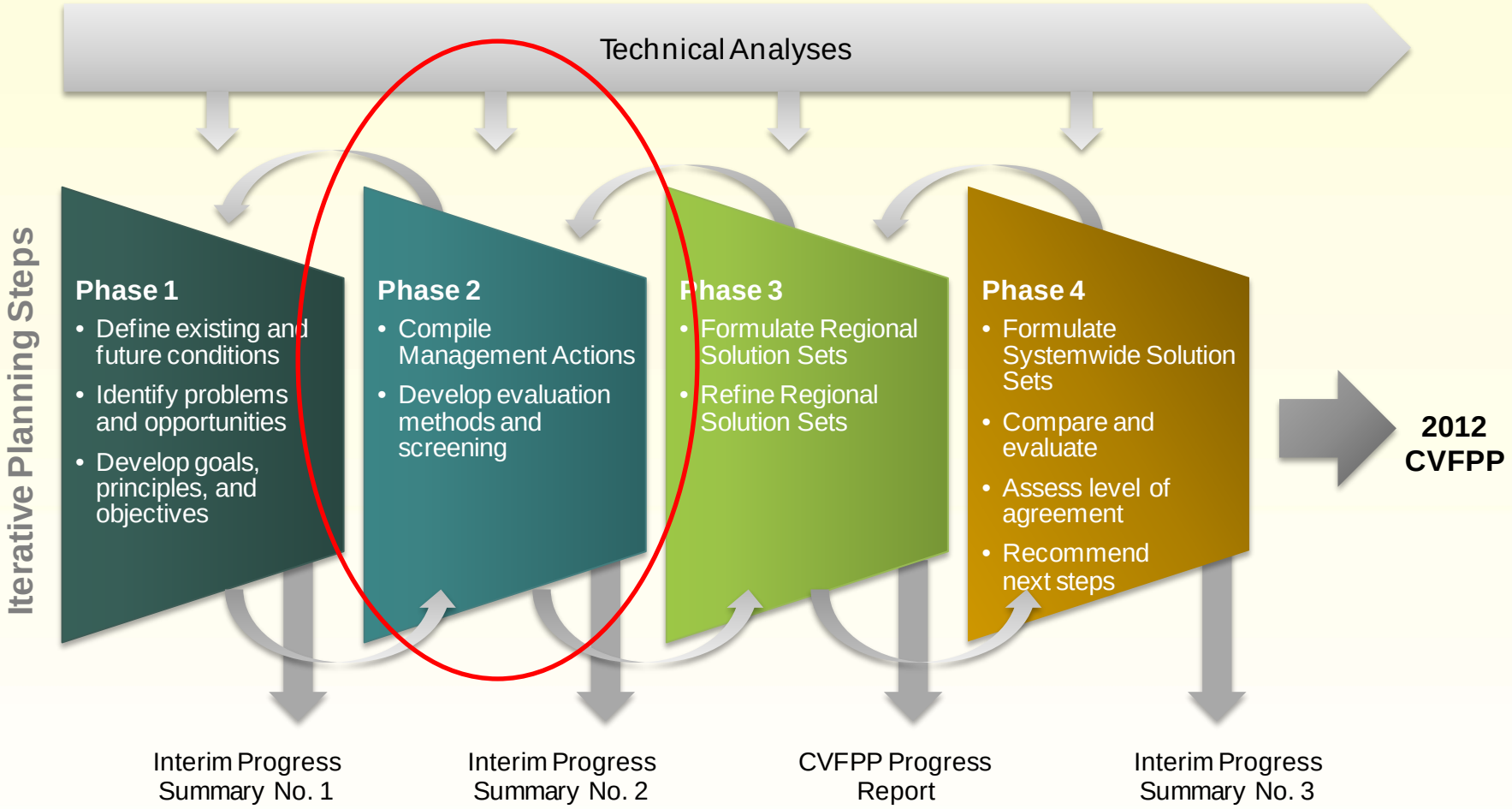
2012 CVFPP Planning Process



Statewide Flood Management Planning

- Include flood management in California Water Plan in 2009 and 2013 updates

- Prepare *Recommendations Report for Improving Integrated Flood Management throughout California*
  - Project Launch: Fall 2010
  - Preliminary Report: Jan 2012
  - Final Report: 2014