

CENTRAL VALLEY FLOOD PROTECTION BOARD MEETING

Friday, July 26, 2013

BOARD SPONSORED PROJECTS AND STUDY AGREEMENTS

**CENTRAL VALLEY INTEGRATED FLOOD
MANAGEMENT STUDY**

Feasibility Cost Sharing Agreement Amendment Number 1

Board Package

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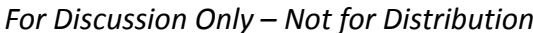
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**Meeting of the Central Valley Flood Protection Board
July 26, 2013**

Staff Report

**Amendment No. 1
to the**

Agreement among the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study

1.0 ITEM

Consider approval of Resolution No. 2013-17 to:

- 1 Approve Amendment No. 1 to the Feasibility Cost Share Agreement (FCSA) between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study (CVIFMS); and
- 2 Delegate to the Central Valley Flood Protection Board President the authority to execute the Amendment in substantially the form attached hereto.

2.0 SPONSORS

Federal: U.S. Army Corps of Engineers, Sacramento District (USACE)
State: The Central Valley Flood Protection Board (Board)
Local: State of California Department of Water Resources (DWR)

3.0 LOCATION

The study is being conducted in the Central Valley of California in the watershed boundary of the Sacramento River. For planning and analysis, and consistent with legislative direction of the non-federal sponsors, two geographical planning areas are important for the CVIFMS development and Central Valley Flood Protection Plan (CVFPP) coordination, as follows:

State Plan of Flood Control Planning Area (SPFC) - The SPFC area is defined by the lands receiving protection from facilities of the SPFC.

System-Wide Planning Area- This area includes the lands that are subject to flooding under the current facilities and operation of the Sacramento-San Joaquin River Flood Management System (Water Code Section 9611). The SPFC Planning Area is completely contained within the System-Wide Planning Area.

4.0 PROJECT DESCRIPTION:

This CVIFMS effort is intended to produce a Watershed Plan rather than a Feasibility Report and to be a companion effort to the State of California's CVFPP, which is the State's plan for long-term sustainable flood management in the Central Valley. The CVFPP focuses on reducing flood risk for areas protected by the facilities of the State Plan of Flood Control (SPFC), which primarily includes Federal/State project levees in the Sacramento and San Joaquin River watersheds. Both USACE and the State of California (State) share the common goal of developing consistent and mutually complementary Federal and State strategy in the Sacramento and San Joaquin River basins which recognizes the importance of a system-wide approach and facilitate implementation and associated cost sharing to effectively improve flood management in the Central Valley. It is important to note while the authorization covered both river basins, the initial CVIFMS effort is only focused on the Sacramento River Basin.

The primary goals of the CVIFMS is to identify flood risk management problems within the SPFC planning area, to analyze potential solutions to those problems, and to recommend a plan to be implemented that satisfies the USACE National Economic Development (NED) plan and represents the FloodSAFE vision. The CVIFMS will focus on:

- 1) Reduce risks to life safety in the Sacramento River Basin focusing on improved system flexibility under a variety of climate change and development patterns.
- 2) Reduce the consequences and damages associated with flood risk in the SPFC planning area, with an emphasis on improving system resiliency and increasing the integrity of the flood system.
- 3) In conjunction with flood risk management, increase area, quality, connectivity, and diversity of significant native aquatic and related habitats in the Sacramento River ecosystem.
- 4) In conjunction with flood risk management, increase natural hydrologic, dynamic and geomorphic processes in the Sacramento River.

In accordance with State requirements, the State's intent will be to provide at least a 200-year level of protection for urban areas and to develop a sustainable flood management system for the future.

USACE uses the Feasibility Study process to formulate and present the results of investigations for congressional authorization of a flood control project(s). The CVIFMS as a watershed study will be conducted during the early stages of the State's Basin-Wide Feasibility Studies (BWFS). This will enable USACE to align its ongoing investigations in the Central Valley and determine what additional studies may be required to determine Federal interest and support Congressional authorization of a recommended plan to complement the State's CVFPP implementation.

5.0 PROJECT ANALYSIS

5.1 PROJECT BACKGROUND

In response to the devastating floods of 1997 in the Sacramento and San Joaquin River Basins, the State Legislature and Congress approved and appropriated funding to initiate a comprehensive flood management study with emphasis on flood damage reduction and associated environmental restoration. The Sacramento and San Joaquin River Basins Comprehensive Study (Comprehensive Study) was initiated in February 1996 with the signing of an initial FCSA between the USACE and Reclamation Board (now Central Valley Flood Protection Board). The cost of the study was equally shared between the State and USACE. An Interim Report on the Comprehensive Study was completed December 2002. The February 1996 FCSA expired on February 2009. The Central Valley Integrated Flood Management Study (CVIFMS) is being carried out under the same authority of the Comprehensive Study.

The destruction and loss of life resulting from Hurricane Katrina in 2005 raised public awareness of catastrophic floods throughout the nation. In response, California voters passed two bond acts in 2006 to provide funding for flood management improvements, and in 2007, the California legislature passed five interrelated bills aimed at addressing flood protection and liability. Through this legislation, DWR was directed to develop and the Board to adopt a Central Valley Flood Protection Plan, and to collaborate with the USACE in preparing the CVFPP.

The CVFPP will develop a sustainable and integrated flood management plan for areas protected by facilities of the State/federal Flood System, primarily defined as the SPFC which includes features and facilities within the Central Valley for which the Board has given assurances to the USACE. The CVIFMS is the federal complement to the CVFPP and is focused on shared opportunities to reduce flood risk in an integrated water resource and flood management context.

On August 28, 2009, the Board and DWR entered into a Memorandum of Understanding to jointly work with the USACE as the non-federal partner under CVIFMS. This was followed by the USACE, DWR, and the Board entering into a three-way Feasibility Cost Share Agreement for CVIFMS on July 21, 2010. The total study cost associated with this initial agreement was \$1,720,000, cost-shared equally with the State to provided funding for the development of a Project Management Plan (PMP) that would outline the longer-term funding estimates, scopes of work and timelines for completion of the CVIFMS, with future funding for a five-year feasibility study to be provided in a subsequent amendment of the FCSA. On October 28, 2011 an amendment to the FCSA supported by a comprehensive PMP and increased study cost to \$43M was brought before the Board and approved, however, this amendment was never executed by the USACE due to new Planning Modernization guidance which limits feasibility studies to a \$3M budget. The USACE has since held two planning Charettes, and with cooperation from DWR and Board staff has re-scoped the study and prepared a new FCSA amendment to reflect the reduced budget and scope.

5.2 PREVIOUS BOARD ACTIONS

Date:	Action:
August 28, 2009	Approved Resolution No. 09-26, approving the Feasibility Cost Sharing Agreement (FCSA).
July 21, 2010	Officially signed and executed FCSA (delayed due to Dept. of Finance budget restrictions)
October 28, 2011	Approved Resolution No. 11-28, amending the FCSA. This amendment was never executed by the USACE

5.3 PROJECT BENEFITS

The primary benefits of Amendment No 1 to the FCSA are:

- Allows the Watershed Study to continue and the USACE to participate in the CVFPP implementation process
- Provides a mechanism for the USACE to address policy issues faced by a system wide evaluation of the Sacramento system that would not otherwise be addressed in other USACE feasibility studies
- Provides a mechanism for the USACE to identify permitting and crediting implementation challenges
- Provides a mechanism for the USACE to make recommendations for future actions, including potential feasibility studies

5.4 STAFF ANALYSIS

Amendment No. 1 will give the Non-federal sponsors (the Board and DWR) a means to coordinate with the USACE through the development of implementation strategies for the State Systemwide Investment Approach outlined in the 2012 CVFPP.

6.0 AUTHORIZATIONS

Federal: Flood Control Act of 1962, Public Law 87-874 (Sacramento River Basin) and 1964 congressional resolution of the House Committee on Public Works (San Joaquin River Basin)

State: California Water Code Section 12580.

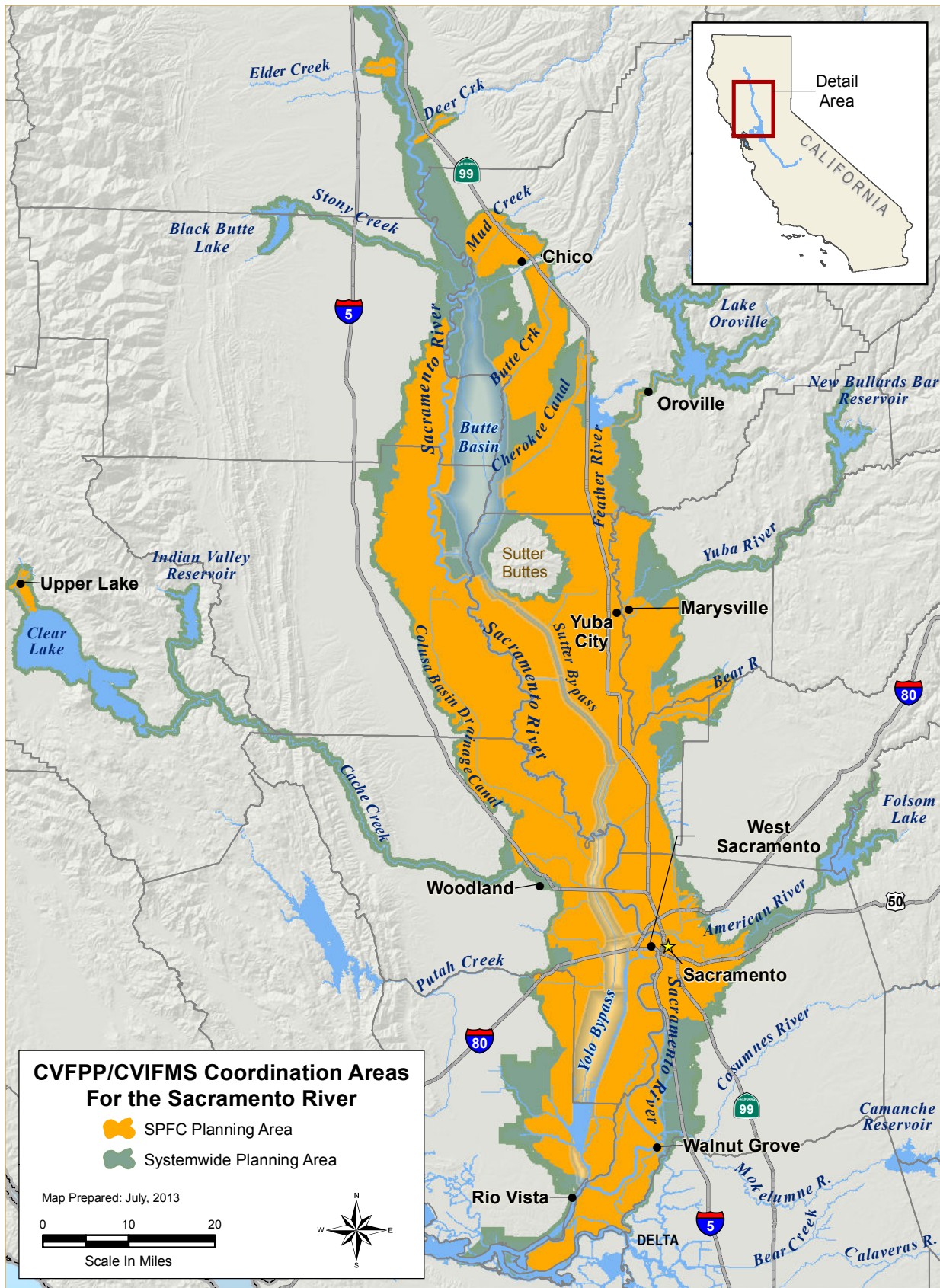
7.0 STAFF RECOMMENDATION

Staff recommends approval of Resolution No. 2013-17 to:

1. Approve Amendment No. 1 to the Feasibility Cost Share Agreement between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study; and
2. Delegate to the Central Valley Flood Protection Board President the authority to execute the Amendment in substantially the form attached hereto; and

8.0 LIST OF ATTACHMENTS

- A. Location Map – Study Area
- B. Resolution 2013-17
- C. FCSA Amendment No. 1
- D. PowerPoint Presentation
- E. Existing FCSA July 2010
- F. Project Management Plan



STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

RESOLUTION NUMBER: 2013-17
CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY (CVIFMS)
APPROVE THE FEASIBILITY COST SHARING AGREEMENT AMENDMENT 1

WHEREAS, on August 28, 2009, the Central Valley Flood Protection Board (Board) and the Department of Water Resources (DWR) entered into a *Memorandum of Understanding between The Central Valley Flood Protection Board and the Department of Water Resources Regarding Central Valley Integrated Flood Management Plan* to jointly participate with the U.S. Army Corps of Engineers (USACE) in the Central Valley Integrated Flood Management Study (CVIFMS - formerly the Sacramento and San Joaquin River Basins Comprehensive Study) as the non-federal partner under CVIFMS; and

WHEREAS, the purpose of the CVIFMS, as originally scoped, was to conduct a comprehensive investigation of flood and related ecosystem issues of the Sacramento and San Joaquin River Basins and to develop a comprehensive approach to flood management for the river basins through a three-party Feasibility Cost Share Agreement (FCSA) among the USACE, DWR, and the Board; and

WHEREAS, on July 21, 2010, the Board and the DWR entered into an FCSA with the USACE for the CVIFMS Programmatic Implementation Framework Document and Programmatic Feasibility Study of Sacramento River Basin under the authority pursuant to Section 209 of the Flood Control Act of 1962 (Public Law 87-874) and of the San Joaquin River Basin pursuant to May 8, 1964 resolution of the House Committee on Public Works; and

WHEREAS, it is recognized and agreed that the State's funding contribution and participation may be in the form of up to 100% "in-kind" work; and

WHEREAS, the FCSA for CVIFMS was subsequently amended in 2011, but execution was halted upon implementation of USACE Planning Modernization Initiative; and

WHEREAS, the USACE has conducted two planning charrettes, one in August 2012 and another in December 2012 with direct Board and DWR involvement to focus and refine the goals of the study and re-scope the CVIFMS to comply with the Planning Modernization Initiative; and

WHEREAS, the re-scoped CVIFMS will produce a watershed plan rather than a formal feasibility report, will focus on system-based solutions identified in the 2012 Central Valley Flood Protection Plan (CVFPP), and will be limited to the Sacramento Basin and not the San Joaquin Basin; and

WHEREAS, the CVIFMS Watershed Study will provide a vehicle for on-going participation by the USACE in the State's Basin Wide Feasibility Studies identified in the 2012 CVFPP and make recommendation for further actions including potential feasibility studies; and

WHEREAS, the USACE has completed an update to the Project Management Plan (PMP) for the CVIFMS and has requested that the FCSA be amended based on the PMP findings reached in collaboration with DWR and Board staff to show an updated total study cost of \$5,000,000 with non-federal proportionate share estimated at \$2,417,000, to conduct the watershed study.

NOW, THEREFORE, LET IT BE RESOLVED that the Central Valley Flood Protection Board:

1. Approves the Amendment Number 1 to the Agreement among the Board, DWR and the USACE for the Central Valley Integrated Flood Management Study in substantially the form attached hereto.
2. Delegates to the Board President the authority to execute the Amendment.

BY: _____ Date: _____

William H. Edgar, President
Central Valley Flood Protection Board

BY: _____ Date: _____

Jane Dolan, Secretary
Central Valley Flood Protection Board

Approved as to Legal Form and Sufficiency:

Jeremy Goldberg
Staff Attorney

AMENDMENT NUMBER 1
TO THE
AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CENTRAL VALLEY FLOOD PROTECTION BOARD
AND
THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
FOR THE
CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY

THIS AMENDMENT is entered into this _____ day of _____, 2013, by and between the Department of the Army (hereinafter the "Government"), represented by the Sacramento District Engineer and the Central Valley Flood Protection Board, represented by its President and the State of California Department of Water Resources, represented by the Division Chief of Flood Management (hereinafter "Non-Federal Sponsors").

WITNESSTH, THAT:

WHEREAS, the Government and the Non-Federal Sponsor entered into a Feasibility Cost Share Agreement (hereinafter referred to as the "Agreement") on July 21, 2010, for completion of the Study;

WHEREAS, the Government and the Non-Federal Sponsor desire to amend the Agreement to increase the scope and cost of the Study; and

WHEREAS, the Government and Non-Federal Sponsors have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost sharing and financing of the Study in accordance with the terms of this Amendment;

NOW, THEREFORE, the Government and the Non-Federal Sponsor agree to amend the Agreement as follows:

1. ARTICLE IV – METHOD OF PAYMENT is amended by replacing Paragraph A.1. with the following paragraph:

“1. As of the effective date of this Agreement, *total study costs* are projected to be \$5,000,000; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement is projected to be \$0; the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement are projected to be \$2,417,000; the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement is projected to be

\$2,417,000; the Non-Federal Sponsor's contribution of funds required by Article II.C.1.b. of this Agreement is projected to be \$0; and the non-Federal proportionate share is projected to be 48.34 percent. These amounts and percentage are estimates subject to adjustment by the Government, after consultation with the Non-Federal Sponsors, and are not to be construed as the total financial responsibilities of the Government and the Non-Federal Sponsors."

IN WITNESS WHEREOF, the parties hereto have executed this amendment to the Agreement, which shall become effective upon the date it is signed by the authorized representative of the Government.

DEPARTMENT OF THE ARMY

CENTRAL VALLEY FLOOD
PROTECTION BOARD

BY: _____
Michael J. Farrell, P.E.
Colonel, U.S. Army
District Commander

BY: _____
William H. Edgar
President
Central Valley Flood
Protection Board

DATE: _____

DATE: _____

CALIFORNIA STATE DEPARTMENT
OF WATER RESOURCES

BY: _____
Keith Swanson
Chief, Division of Flood Management
Department of Water Management

CERTIFICATE OF AUTHORITY

I, _____, do hereby certify that I am the principal legal advisor for this project, acting on behalf of the State of California, that the State of California Department of Water Resources is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the State of California Department of Water Resources, and the Central Valley Flood Protection Board in connection with the Central Valley Integrated Flood Management Study, California, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement, as required by Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended (42 U.S.C. 1962d-5b), and that the persons who have executed this Agreement on behalf of the State of California Department of Water Resources have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this
_____ day of _____ 2013.

Jeremy D. Goldberg
Legal Counsel
State of California, Department of Water Resources

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Keith Swanson
Chief, Division of Flood Management
State of California Department of Water Resources

DATE:_____

CERTIFICATE OF AUTHORITY

I, _____, do hereby certify that I am the principal legal officer of the Central Valley Flood Protection Board ("Board") for this project, that the Board is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army, the State of California and the Board in connection with the Central Valley Integrated Flood Management Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement, as required by Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended (42 U.S.C. 1962d-5b), and that the persons who have executed this Agreement on behalf of the State of California, through the Board have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this _____ day of _____ 2013.

Deborah Smith
Deputy Attorney General
Attorney for the Central Valley Flood Protection Board

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

BY: _____

William H. Edgar, President
Central Valley Flood Protection Board

DATE: _____

AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CENTRAL VALLEY FLOOD PROTECTION BOARD
AND
THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
FOR THE
CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY

THIS AGREEMENT is entered into this 21st day of July, 2010 by and between the Department of the Army (hereinafter the "Government"), represented by the Sacramento District Engineer and the Central Valley Flood Protection Board, represented by its President and the State of California Department of Water Resources, represented by the Division Chief of Flood Management (hereinafter the "Non-Federal Sponsors"),.

WITNESSETH, THAT:

WHEREAS, the Corps of Engineers is authorized to conduct a feasibility study of Sacramento River Basin pursuant to Section 209 of the Flood Control Act of 1962 (Public Law 87-874) and of the San Joaquin River Basin pursuant to May 8, 1964 resolution of the House Committee on Public Works;

WHEREAS, prior to proceeding with such feasibility study, the U.S. Army Corps of Engineers conducted a reconnaissance study and determined that further planning in the nature of a feasibility study should proceed;

WHEREAS, the Government and the Non-federal sponsors desire to enter into an agreement (hereinafter the "Agreement") to conduct such feasibility study (hereinafter the "Study" as defined in Article I.A. of this Agreement);

WHEREAS, Section 105(a) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2215(a)), specifies the cost-sharing requirements applicable to the Study;

WHEREAS, the Non-Federal Sponsors desire to provide in-kind contributions (hereinafter the "*non-Federal in-kind contributions*" as defined in Article I.K. of this Agreement) that are necessary to prepare the feasibility report and to receive credit for such contributions toward the amount of their required contribution for the Study;

WHEREAS, the Non-Federal Sponsors may provide up to 100 percent of their required contribution for the Study as *non-Federal in-kind contributions*;

WHEREAS, the Government and Non-Federal Sponsors have the full authority and

capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and financing of the *Study* in accordance with the terms of this Agreement; and

WHEREAS, the Government and the Non-Federal Sponsors, in connection with this Agreement, desire to foster a partnering strategy and a working relationship between the Government and the Non-Federal Sponsors through a mutually developed formal strategy of commitment and communication embodied herein, which creates an environment where trust and teamwork prevent disputes, foster a cooperative bond between the Government and the Non-Federal Sponsors, and facilitate the successful *Study*.

NOW, THEREFORE, the Government and the Non-Federal Sponsors agree as follows:

ARTICLE I – DEFINITIONS

A. The term “*Study*” shall mean the activities and tasks required to identify and evaluate alternatives and the preparation of a decision document that, when appropriate, recommends a coordinated and implementable solution for an integrated watershed flood management plan to include water supply, ecosystem restoration, water quality and related activities for the Sacramento-San Joaquin River Basins including the Delta, Central Valley of California, as generally described in Sacramento and San Joaquin River Basins, California, Comprehensive Study, Interim Report, approved by Sacramento District on December 20, 2002. The term includes the *non-Federal in-kind contributions* described in paragraph K. of this Article.

B. The term “*total study costs*” shall mean the sum of all costs incurred by the Non-Federal Sponsors and the Government in accordance with the terms of this Agreement directly related to performance of the *Study*. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: the Government’s costs of plan formulation and evaluation, including applicable economic, engineering, real estate, and environmental analyses; the Government’s costs of preparation of the decision document for the *Study*; the costs of the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement; the Government’s costs of independent technical review and other review processes required by the Government; the Government’s costs of external peer review, if required; the Government’s supervision and administration costs; the Non-Federal Sponsors’ and the Government’s costs of participation in the Study Coordination Team in accordance with Article III of this Agreement; the Government’s costs of contract dispute settlements or awards; and the Non-Federal Sponsors’ and the Government’s costs of audit in accordance with Article VI.B. and Article VI.C. of this Agreement. The term does not include any costs of dispute resolution under Article V of this Agreement; any costs incurred as part of reconnaissance studies; any costs incurred as part of feasibility studies under any other agreement; the Non-Federal Sponsors’ costs of negotiating this Agreement; or any costs of negotiating a design agreement for a project or separable element thereof.

C. The term “*study costs to be shared during the period of study*” shall mean the difference between *total study costs* and *excess study costs*.

D. The term "*excess study costs*" shall mean the difference between the most recent estimate of *total study costs* and the amount of *total study costs* specified in Article IV.A.1. of this Agreement, excluding any increase in *total study costs* that resulted from a change in Federal law or a change in the scope of the *Study* requested by the Non-Federal Sponsors or any increase in *total study costs* that otherwise was agreed upon in writing by the parties.

E. The term "*period of study*" shall mean the time from the effective date of this Agreement to the date that:

1. the Assistant Secretary of the Army (Civil Works) submits the feasibility report to the Office of Management and Budget (OMB) for review for consistency with policies and programs of the Administration, if the project or project modification that is the subject of this *Study* will require further Congressional authorization to implement the recommended plan; or

2. the decision document for the study is duly approved by the Government, if the project or project modification that is the subject of this *Study* will not require further Congressional authorization to implement the recommended plan; or

3. the date that this Agreement is terminated in accordance with Article IX of this Agreement.

F. The term "*financial obligations to be shared during the period of study*" shall mean the financial obligations of the Government and the costs for the *non-Federal in-kind contributions*, as determined by the Government, that result or would result in costs that are or would be included in *study costs to be shared during the period of study*.

G. The term "*non-Federal proportionate share*" shall mean the ratio of the sum of the costs included in *study costs to be shared during the period of study* for the *non-Federal in-kind contributions*, as determined by the Government, and the Non-Federal Sponsors' total contribution of funds required by Article II.C.1.b. of this Agreement to *financial obligations to be shared during the period of study*, as projected by the Government.

H. The term "*Federal program funds*" shall mean funds provided by a Federal agency, other than the Department of the Army, plus any non-Federal contribution required as a matching share therefor.

I. The term "*fiscal year*" shall mean one year beginning on October 1 and ending on September 30.

J. The term "*PMP*" shall mean the project management plan, and any modifications thereto, developed by the Government, and agreed to by the Non-Federal Sponsors, that specifies the scope, cost, and schedule for *Study* activities and guides the performance of the *Study* through the *period of study*.

K. The term "*non-Federal in-kind contributions*" shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the Non-Federal Sponsors after the effective date of this Agreement in accordance with the *PMP* and that are necessary for performance of the *Study*.

ARTICLE II - OBLIGATIONS OF THE GOVERNMENT AND THE NON-FEDERAL SPONSORS

A. The Government, subject to receiving funds appropriated by the Congress of the United States (hereinafter the "Congress") and using those funds and funds provided by the Non-Federal Sponsors, expeditiously shall conduct the *Study*, applying those procedures usually applied to Federal projects, in accordance with Federal laws, regulations, and policies. The Non-Federal Sponsors expeditiously shall perform or provide the *non-Federal in-kind contributions* in accordance with applicable Federal laws, regulations, and policies.

1. The Government shall not issue the solicitation for the first contract for the *Study* or commence the *Study* using the Government's own forces until the Non-Federal Sponsors has confirmed in writing its willingness to proceed with the *Study*.

2. To the extent possible, the Government and the Non-Federal Sponsors shall conduct the *Study* in accordance with the *PMP*.

3. The Government shall afford the Non-Federal Sponsors the opportunity to review and comment on all products that are developed by contract or by Government personnel during the *period of study*. The Government shall consider in good faith the comments of the Non-Federal Sponsors, but the final approval of all *Study* products shall be exclusively within the control of the Government.

4. The Government shall afford the Non-Federal Sponsors the opportunity to review and comment on the solicitations for all Government contracts, including relevant scopes of work, prior to the Government's issuance of such solicitations. To the extent possible, the Government shall afford the Non-Federal Sponsors the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Non-Federal Sponsors with notification of a contract modification is not possible prior to execution of the contract modification, the Government shall provide such notification in writing at the earliest date possible. To the extent possible, the Government also shall afford the Non-Federal Sponsors the opportunity to review and comment on all contract claims prior to resolution thereof. The Government shall consider in good faith the comments of the Non-Federal Sponsors, but the contents of solicitations, award of contracts or commencement of work on the *Study* using the Government's own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *Study*, except for the *non-Federal in-kind contributions*, shall be exclusively within the control of the Government.

5. At the time the U.S. Army Engineer, Sacramento District (hereinafter the "District Engineer") furnishes the contractor with the Government's Written Notice of Acceptance of Completed Work for each contract awarded by the Government for the *Study*, the District Engineer shall furnish a copy thereof to the Non-Federal Sponsors.

6. The Non-Federal Sponsors shall afford the Government the opportunity to review and comment on the solicitations for all contracts for the *non-Federal in-kind contributions*, including relevant scopes of work, prior to the Non-Federal Sponsors' issuance of such solicitations. To the extent possible, the Non-Federal Sponsors shall afford the Government the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Government with notification of a contract modification is not possible prior to execution of the contract modification, the Non-Federal Sponsors shall provide such notification in writing at the earliest date possible. To the extent possible, the Non-Federal Sponsors also shall afford the Government the opportunity to review and comment on all contract claims prior to resolution thereof. The Non-Federal Sponsors shall consider in good faith the comments of the Government but the contents of solicitations, award of contracts or commencement of work on the *Study* using the Non-Federal Sponsors' own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *non-Federal in-kind contributions* shall be exclusively within the control of the Non-Federal Sponsors.

7. At the time the Non-Federal Sponsors furnishes a contractor with a notice of acceptance of completed work for each contract awarded by the Non-Federal Sponsors for the *non-Federal in-kind contributions*, the Non-Federal Sponsors shall furnish a copy thereof to the Government.

8. Notwithstanding paragraph A.4. and paragraph A.6., if the award of any contract for work on the *Study*, or continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, would result in *excess study costs*, the Government and the Non-Federal Sponsors agree to defer award of that contract, award of all remaining contracts for work on the *Study*, and continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces until such time as the Government and the Non-Federal Sponsors agree in writing to proceed with further contract awards for the *Study* or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, but in no event shall the award of contracts or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces be deferred for more than six months. If the Government and the Non-Federal Sponsors agree to not proceed or fail to reach agreement on proceeding with further contract awards for the *Study*, or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, the parties shall terminate this Agreement and proceed in accordance with Article IX.D. of this Agreement.

9. As of the effective date of this Agreement, \$860,000 of Federal funds is currently projected to be available for the *Study*. The Government makes no commitment to request Congress to provide additional Federal funds for the *Study*. Further, the Government's

financial participation in the *Study* is limited to the Federal funds that the Government makes available to the *Study*.

B. The Government shall allocate *total study costs* between *study costs to be shared during the period of study* and *excess study costs*.

C. The Non-Federal Sponsors shall contribute 50 percent of *study costs to be shared during the period of study* in accordance with the provisions of this paragraph.

1. The Non-Federal Sponsors shall provide a contribution of funds as determined below:

a. If the Government projects at any time that the collective value of the Non-Federal Sponsors' contributions under Article III and Article VI of this Agreement will be less than the Non-Federal Sponsors' required share of 50 percent of *study costs to be shared during the period of study*, the Government shall determine the amount of funds that would be necessary to meet the Non-Federal Sponsors' required share prior to any consideration of the credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article.

b. The Non-Federal Sponsors shall provide funds in the amount determined by this paragraph in accordance with Article IV.B. of this Agreement. To determine the contribution of funds the Non-Federal Sponsors shall provide, the Government shall reduce the amount determined in accordance with paragraph C.1.a. of this Article by the amount of credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article.

2. The Government, subject to the availability of funds and as limited by paragraph G. of this Article, shall refund or reimburse to the Non-Federal Sponsors any contributions in excess of 50 percent of *study costs to be shared during the period of study* if the Government determines at any time that the collective value of the following contributions has exceeded 50 percent of *study costs to be shared during the period of study*: (a) the value of the Non-Federal Sponsors' contributions under paragraph C.1.b. of this Article; (b) the amount of credit to be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article; and (c) the value of the Non-Federal Sponsors' contributions under Article III and Article VI of this Agreement.

D. The Non-Federal Sponsors shall contribute 50 percent of *excess study costs* in accordance with the provisions of this paragraph.

1. The Government shall determine the amount of funds that would be necessary to meet the Non-Federal Sponsors' required share prior to any consideration of the credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article.

2. The Non-Federal Sponsors shall provide funds in the amount determined by

this paragraph in accordance with Article IV.C.3. of this Agreement. To determine the contribution of funds the Non-Federal Sponsors shall provide, the Government shall reduce the amount determined in accordance with paragraph D.1. of this Article by the amount of credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article .

E. The Government shall determine and include in *total study costs* any costs incurred by the Non-Federal Sponsors for *non-Federal in-kind contributions*, subject to the conditions and limitations of this paragraph. The Non-Federal Sponsors in a timely manner shall provide the Government with such documents as are sufficient to enable the Government to determine the amount of costs to be included in *total study costs* for *non-Federal in-kind contributions*.

1. Acceptance by the Government of *non-Federal in-kind contributions* shall be subject to a review by the Government to verify that all economic, engineering, real estate, and environmental analyses or other items performed or provided as *non-Federal in-kind contributions* are accomplished in a satisfactory manner and in accordance with applicable Federal laws, regulations, and policies, and to verify that all analyses, services, materials, supplies, and other in-kind services provided as *non-Federal in-kind contributions* are necessary for the *Study*.

2. The Non-Federal Sponsors' costs for *non-Federal in-kind contributions* that may be eligible for inclusion in *total study costs* pursuant to this Agreement shall be subject to an audit in accordance with Article VI.C. of this Agreement to determine the reasonableness, allocability, and allowability of such costs.

3. The Non-Federal Sponsors' costs for *non-Federal in-kind contributions* that may be eligible for inclusion in *total study costs* pursuant to this Agreement are not subject to interest charges, nor are they subject to adjustment to reflect changes in price levels between the time the *non-Federal in-kind contributions* are provided and the time the costs are included in *total study costs*.

4. The Government shall not include in *total study costs* any costs for *non-Federal in-kind contributions* paid by the Non-Federal Sponsors using *Federal program funds* unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is expressly authorized by Federal law.

5. The Government shall not include in *total study costs* any costs for *non-Federal in-kind contributions* in excess of the Government's estimate of the costs of the *non-Federal in-kind contributions* if the services, materials, supplies, and other in-kind services had been provided by the Government.

F. The Government, in accordance with this paragraph, shall afford credit toward the amount of funds determined in accordance with paragraph C.1.a. and paragraph D.1. of this Article for the costs of the *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article. The credit for *non-Federal in-kind contributions* first shall be

afforded toward the amount of funds determined in accordance with paragraph C.1.a. of this Article. If the amount of credit afforded exceeds the amount of funds determined in accordance with paragraph C.1.a. of this Article, the remaining portion of credit to be afforded shall be afforded toward the amount of funds determined in accordance with paragraph D.1. of this Article. However, the maximum amount of credit that can be afforded for the *non-Federal in-kind contributions* shall not exceed the least of the following amounts as determined by the Government: the amount of funds determined in accordance with paragraph C.1.a. and paragraph D.1. of this Article; the costs of the *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article; or 50 percent of *total study costs*.

G. Notwithstanding any other provision of this Agreement, the Non-Federal Sponsors shall not be entitled to reimbursement of any costs of *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article and included in *total study costs* that exceed the amount of credit afforded for the *non-Federal in-kind contributions* determined in accordance with paragraph F. of this Article and the Non-Federal Sponsors shall be responsible for 100 percent of all costs of *non-Federal in-kind contributions* included in *total study costs* that exceed the amount of credit afforded.

H. Upon conclusion of the *period of study*, the Government shall conduct an accounting, in accordance with Article IV.C. of this Agreement, and furnish the results to the Non-Federal Sponsors.

I. The Non-Federal Sponsors shall not use *Federal program funds* to meet any of its obligations for the *Study* under this Agreement unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is expressly authorized by Federal law.

J. This Agreement shall not be construed as obligating either party to implement a project. Whether the Government supports a project authorization, if authorization is required, and budgets for implementation of the project depends upon, among other things, the outcome of the *Study* and whether the proposed solution is consistent with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and with the budget priorities of the Administration.

ARTICLE III - STUDY COORDINATION TEAM

A. To provide for consistent and effective communication, the Non-Federal Sponsors and the Government, not later than 30 calendar days after the effective date of this Agreement, shall appoint named senior representatives to a Study Coordination Team. Thereafter, the Study Coordination Team shall meet regularly until the end of the *period of study*. The Government's Project Manager and a counterpart named by the Non-Federal Sponsors shall co-chair the Study Coordination Team.

B. The Government's Project Manager and the Non-Federal Sponsors' counterpart shall

keep the Study Coordination Team informed of the progress of the *Study* and of significant pending issues and actions, and shall seek the views of the Study Coordination Team on matters that the Study Coordination Team generally oversees.

C. Until the end of the *period of study*, the Study Coordination Team shall generally oversee the *Study*, including matters related to: plan formulation and evaluation, including applicable economic, engineering, real estate, and environmental analyses; scheduling of reports and work products; independent technical review and other review processes required by the Government; external peer review, if required; completion of all necessary environmental coordination and documentation; contract awards and modifications; contract costs; the Government's cost projections; the performance of and scheduling for the *non-Federal in-kind contributions*; determination of anticipated future requirements for real property and relocation requirements and performance of operation, maintenance, repair, rehabilitation, and replacement of the proposed project including anticipated requirements for permits; and other matters related to the *Study*. This oversight of the *Study* shall be consistent with the *PMP*.

D. The Study Coordination Team may make recommendations to the District Engineer on matters related to the *Study* that the Study Coordination Team generally oversees, including suggestions to avoid potential sources of dispute. The Government in good faith shall consider the recommendations of the Study Coordination Team. The Government, having the legal authority and responsibility for performance of the *Study* except for the *non-Federal in-kind contributions*, has the discretion to accept or reject, in whole or in part, the Study Coordination Team's recommendations. On matters related to the *non-Federal in-kind contributions*, that the Study Coordination Team generally oversees, the Study Coordination Team may make recommendations to the Non-Federal Sponsors including suggestions to avoid potential sources of dispute. The Non-Federal Sponsors in good faith shall consider the recommendations of the Study Coordination Team. The Non-Federal Sponsors, having the legal authority and responsibility for the *non-Federal in-kind contributions*, has the discretion to accept or reject, in whole or in part, the Study Coordination Team's recommendations except as otherwise required by the provisions of this Agreement, including compliance with applicable Federal, State, or local laws or regulations.

E. The Non-Federal Sponsors' costs of participation in the Study Coordination Team shall be included in *total study costs* and shared in accordance with the provisions of this Agreement, subject to an audit in accordance with Article VI.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs. The Government's costs of participation in the Study Coordination Team shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

ARTICLE IV - METHOD OF PAYMENT

A. In accordance with the provisions of this paragraph, the Government shall maintain current records and provide to the Non-Federal Sponsors current projections of costs, financial obligations, the contributions provided by the parties, the costs included in *total study costs* for

the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement, and the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement.

1. As of the effective date of this Agreement, *total study costs* are projected to be \$1,720,000; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement is projected to be \$860,000; the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement are projected to be \$860,000; the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement is projected to be \$860,000; the Non-Federal Sponsors' contribution of funds required by Article II.C.1.b. of this Agreement is projected to be \$0; and the *non-Federal proportionate share* is projected to be 50 percent. These amounts and percentage are estimates subject to adjustment by the Government, after consultation with the Non-Federal Sponsors, and are not to be construed as the total financial responsibilities of the Government and the Non-Federal Sponsors.

2. By December 2010 and by each quarterly anniversary thereof until the conclusion of the *period of study* and resolution of all relevant claims and appeals, the Government shall provide the Non-Federal Sponsors with a report setting forth all contributions provided to date and the current projections of the following: *total study costs*; *study costs to be shared during the period of study*; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement; the Non-Federal Sponsors' contribution of funds required by Article II.C.1.b. of this Agreement; *excess study costs*; the amount of funds determined in accordance with Article II.D.1. of this Agreement; the Non-Federal Sponsors' contribution of funds required by Article II.D.2. of this Agreement; the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement; the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement; and the *non-Federal proportionate share*.

B. The Non-Federal Sponsors shall provide the contribution of funds required by Article II.C.1.b. of this Agreement in accordance with the provisions of this paragraph.

1. Not less than 60 calendar days prior to the scheduled date for issuance of the solicitation for the first contract for work on the *Study* or commencement of work on the *Study* using the Government's own forces, the Government shall notify the Non-Federal Sponsors in writing of such scheduled date and the funds the Government determines to be required from the Non-Federal Sponsors to meet: (a) the *non-Federal proportionate share of financial obligations to be shared during the period of study* incurred prior to the commencement of the *period of study*; (b) the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* to be incurred for such contract; and (c) the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* using the Government's own forces through the first quarter. Not later than such scheduled date, the Non-Federal Sponsors shall provide the Government with the full amount of such required funds by delivering a check payable to "FAO, USAED, Sacramento District" to the District Engineer, or verifying to the satisfaction of the Government that the Non-Federal Sponsors has deposited such

required funds in an escrow or other account acceptable to the Government, with interest accruing to the Non-Federal Sponsors, or by presenting the Government with an irrevocable letter of credit acceptable to the Government for such required funds, or by providing an Electronic Funds Transfer of such required funds in accordance with procedures established by the Government.

2. Thereafter, until the work on the *Study* is complete, the Government shall notify the Non-Federal Sponsors in writing of the funds the Government determines to be required from the Non-Federal Sponsors, and the Non-Federal Sponsors shall provide such funds in accordance with the provisions of this paragraph.

a. The Government shall notify the Non-Federal Sponsors in writing, no later than 60 calendar days prior to the scheduled date for issuance of the solicitation for each remaining contract for work on the *Study*, of the funds the Government determines to be required from the Non-Federal Sponsors to meet the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* to be incurred for such contract. No later than such scheduled date, the Non-Federal Sponsors shall make the full amount of such required funds available to the Government through any of the payment mechanisms specified in paragraph B.1. of this Article.

b. The Government shall notify the Non-Federal Sponsors in writing, no later than 60 calendar days prior to the beginning of each quarter in which the Government projects that it will make *financial obligations to be shared during the period of study* using the Government's own forces, of the funds the Government determines to be required from the Non-Federal Sponsors to meet the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* using the Government's own forces for that *fiscal year*. No later than 30 calendar days prior to the beginning of that quarter, the Non-Federal Sponsors shall make the full amount of such required funds for that quarter available to the Government through any of the payment mechanisms specified in paragraph B.1. of this Article.

3. The Government shall draw from the funds provided by the Non-Federal Sponsors such sums as the Government deems necessary, when considered with any credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement, to cover: (a) the *non-Federal proportionate share of financial obligations to be shared during the period of study* incurred prior to the commencement of the *period of study*; and (b) the *non-Federal proportionate share of financial obligations to be shared during the period of study* as *financial obligations to be shared during the period of study* are incurred. If at any time the Government determines that additional funds will be needed from the Non-Federal Sponsors to cover the Non-Federal Sponsors' share of such financial obligations for the current contract or to cover the Non-Federal Sponsors' share of such financial obligations for work performed using the Government's own forces in the current quarter, the Government shall notify the Non-Federal Sponsors in writing of the additional funds required and provide an explanation of why additional funds are required. Within 60 calendar days from receipt of such notice, the Non-Federal Sponsors shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in

paragraph B.1. of this Article.

C. Upon conclusion of the *period of study* and resolution of all relevant claims and appeals, the Government shall conduct a final accounting and furnish the Non-Federal Sponsors with written notice of the results of such final accounting. If outstanding relevant claims and appeals prevent a final accounting from being conducted in a timely manner, the Government shall conduct an interim accounting and furnish the Non-Federal Sponsors with written notice of the results of such interim accounting. Once all outstanding relevant claims and appeals are resolved, the Government shall amend the interim accounting to complete the final accounting and furnish the Non-Federal Sponsors with written notice of the results of such final accounting. The interim or final accounting, as applicable, shall determine *total study costs*, *study costs to be shared during the period of study*, and *excess study costs*. In addition, the interim or final accounting, as applicable, shall determine each party's required share thereof, and each party's total contributions thereto as of the date of such accounting.

1. Should the interim or final accounting, as applicable, show that the Non-Federal Sponsors' total required share of *study costs to be shared during the period of study* exceeds the Non-Federal Sponsors' total contributions provided thereto, the Non-Federal Sponsors, no later than 90 calendar days after receipt of written notice from the Government, shall make a payment to the Government in an amount equal to the difference by delivering a check payable to "FAO, USAED, Sacramento District" to the District Engineer or by providing an Electronic Funds Transfer in accordance with procedures established by the Government.

2. Should the interim or final accounting, as applicable, show that the total contributions provided by the Non-Federal Sponsors for *study costs to be shared during the period of study* exceed the Non-Federal Sponsors' total required share thereof, the Government, subject to the availability of funds and as limited by Article II.G. of this Agreement, shall refund or reimburse the excess amount to the Non-Federal Sponsors within 90 calendar days of the date of completion of such accounting. In the event the Non-Federal Sponsors is due a refund or reimbursement and funds are not available to refund or reimburse the excess amount to the Non-Federal Sponsors, the Government shall seek such appropriations as are necessary to make the refund or reimbursement.

3. Should the final accounting show that the Non-Federal Sponsors' total required share of *excess study costs* exceeds the Non-Federal Sponsors' total contributions provided thereto the Non-Federal Sponsors, within the applicable time frame described below, shall make a payment to the Government in an amount equal to the difference by delivering a check payable to "FAO, USAED, Sacramento District" to the District Engineer or by providing an Electronic Funds Transfer in accordance with procedures established by the Government.

a. If the project or project modification that is the subject of this *Study* will require further Congressional authorization to implement the recommended plan and:

i. the project or project modification is authorized for construction

- then the payment shall be made no later than the date on which a Project Cooperation Agreement is entered into for the project or project modification; or

ii. the project or project modification is not authorized for construction within 5 years after the date of the final Report of the Chief of Engineers concerning the project or project modification - then the payment shall be made no later than 5 years after the date of the final Report of the Chief of Engineers; or

iii. the *Study* is terminated and the project or project modification is not authorized for construction - then the payment shall be made no later than 2 years after such termination date.

b. If the project or project modification that is the subject of this *Study* will not require further Congressional authorization to implement the recommended plan, then the payment shall be made:

i. no later than the date on which a Project Cooperation Agreement is entered into for the project or project modification; or

ii. no later than 5 years after the date the decision document is duly approved by the Government; or

iii. no later than 2 years after the date of the termination of the *Study*, whichever is earliest.

ARTICLE V - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. Each party shall pay an equal share of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VI - MAINTENANCE OF RECORDS AND AUDIT

A. Not later than 60 calendar days after the effective date of this Agreement, the Government and the Non-Federal Sponsors shall develop procedures for keeping books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and

Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the Non-Federal Sponsors shall maintain such books, records, documents, or other evidence in accordance with these procedures and for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence were required. To the extent permitted under applicable Federal laws and regulations, the Government and the Non-Federal Sponsors shall each allow the other to inspect such books, records, documents, or other evidence.

B. In accordance with 32 C.F.R. Section 33.26, the Non-Federal Sponsors is responsible for complying with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507), as implemented by OMB Circular No. A-133 and Department of Defense Directive 7600.10. Upon request of the Non-Federal Sponsors and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the Non-Federal Sponsors and independent auditors any information necessary to enable an audit of the Non-Federal Sponsors' activities under this Agreement. The costs of any non-Federal audits performed in accordance with this paragraph shall be allocated in accordance with the provisions of OMB Circulars A-87 and A-133, and such costs as are allocated to the Study shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

C. In accordance with 31 U.S.C. 7503, the Government may conduct audits in addition to any audit that the Non-Federal Sponsors is required to conduct under the Single Audit Act Amendments of 1996. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits performed in accordance with this paragraph shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

ARTICLE VII - FEDERAL AND STATE LAWS

In the exercise of their respective rights and obligations under this Agreement, the Non-Federal Sponsors and the Government shall comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto and Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE VIII - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the Non-Federal Sponsors each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other.

B. In the exercise of its rights and obligations under this Agreement, neither party shall

provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights the other party may have to seek relief or redress against that contractor either pursuant to any cause of action that the other party may have or for violation of any law.

ARTICLE IX - TERMINATION OR SUSPENSION

A. Prior to conclusion of the *period of study*, upon 30 calendar days written notice to the other party, either party may elect without penalty to terminate this Agreement or to suspend future performance under this Agreement. In the event that either party elects to suspend future performance under this Agreement pursuant to this paragraph, such suspension shall remain in effect until either the Government or the Non-Federal Sponsors elects to terminate this Agreement.

B. If at any time the Non-Federal Sponsors fails to fulfill its obligations under this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate this Agreement or suspend future performance under this Agreement unless he determines that continuation of performance of the *Study* is in the interest of the United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the *Study*.

C. In the event the Government projects that the amount of Federal funds the Government will make available to the *Study* through the then-current *fiscal year*, or the amount of Federal funds the Government will make available for the *Study* through the upcoming *fiscal year*, is not sufficient to meet the Federal share of *total study costs* that the Government projects to be incurred through the then-current or upcoming *fiscal year*, as applicable, the Government shall notify the Non-Federal Sponsors in writing of such insufficiency of funds and of the date the Government projects that the Federal funds that will have been made available to the *Study* will be exhausted. Upon the exhaustion of Federal funds made available by the Government to the *Study*, future performance under this Agreement shall be suspended. Such suspension shall remain in effect until such time that the Government notifies the Non-Federal Sponsors in writing that sufficient Federal funds are available to meet the Federal share of *total study costs* the Government projects to be incurred through the then-current or upcoming *fiscal year*, or the Government or the Non-Federal Sponsors elects to terminate this Agreement.

D. In the event that one or more of the Non-Federal Sponsors elects to terminate its responsibilities under this Agreement, and the remaining Non-Federal Sponsors elects to continue to participate in the *Study*, the Government shall negotiate in good faith with the remaining Non-Federal Sponsors to effect a timely and productive conclusion to that portion of the *Study* pertaining to the area of statutory authority applicable for the remaining Non-Federal Sponsors. The Government shall prepare a revised *PMP* and revised estimate of *total study costs* to complete that portion of the *Study* of interest to the remaining Non-Federal Sponsors. If the remaining Non-Federal Sponsors elects to complete the *Study*, this Agreement shall be amended to reflect the negotiated revisions to the scope of the *Study* defined in Article I.A. of this Agreement and the estimate of *total study costs* in Article IV.A.1. of this Agreement. Amendments to this Agreement made pursuant to this paragraph shall reflect credits for the contribution of funds and *non-Federal in-kind contributions* provided previously by all of the

Study sponsors and shall reflect task reductions made as a result of withdrawal of any *Study* sponsor.

E. In the event that this Agreement is terminated pursuant to this Article, the parties shall conclude their activities relating to the *Study* and conduct an accounting in accordance with Article IV.C. of this Agreement. To provide for this eventuality, the Government may reserve a percentage of total Federal funds made available for the *Study* and an equal percentage of the total funds contributed by the Non-Federal Sponsors in accordance with Article II.C.1.b. of this Agreement as a contingency to pay costs of termination, including any costs of resolution of contract claims and contract modifications. Upon termination of this Agreement, all data and information generated as part of the *Study* shall be made available to the parties to the Agreement.

F. Any termination of this Agreement or suspension of future performance under this Agreement in accordance with this Article shall not relieve the parties of liability for any obligation previously incurred. Any delinquent payment owed by the Non-Federal Sponsors shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13 week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3 month period if the period of delinquency exceeds 3 months.

ARTICLE X - NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or sent by telegram or mailed by first-class, registered, or certified mail, as follows:

If to the Non-Federal Sponsors:
Central Valley Flood Protection Board
Attn: Executive Officer
3310 El Camino Avenue
Room 160
Sacramento, CA 95821

Department of Water Resource
Attn: Chief, Division of Flood Management
P.O. Box 942836
Sacramento, CA 94236

Sacramento, CA 95

If to the Government:
US Army Corps of Engineers, Sacramento District
Attn: CESPK-PM-C

1325 J Street
Sacramento, CA 95814

B. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

ARTICLE XI - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XII - THIRD PARTY RIGHTS, BENEFITS, OR LIABILITIES

Nothing in this Agreement is intended, nor may be construed, to create any rights, confer any benefits, or relieve any liability, of any kind whatsoever in any third person not party to this Agreement.

ARTICLE XIII - OBLIGATIONS OF FUTURE APPROPRIATIONS

A. Nothing herein shall constitute, nor be deemed to constitute, an obligation of future appropriations by the Legislature of the State of California.

B. The Non-Federal Sponsors intends to fulfill their obligations under this Agreement. The Non-Federal Sponsors shall include in their budget request or otherwise propose appropriations of funds in amounts sufficient to fulfill these obligations for that year, and shall use all reasonable and lawful means to secure those appropriations. The Non-Federal Sponsors reasonably believes that funds in amounts sufficient to fulfill these obligations lawfully can and will be appropriated and made available for this purpose. In the event funds are not appropriated in amounts sufficient to fulfill these obligations, the Non-Federal Sponsors shall use their best efforts to satisfy any requirements for payments or contributions of funds under this Agreement from any other source of funds legally available for this purpose. Further, if the Non-Federal Sponsors are unable to fulfill these obligations, the Government may exercise any legal rights it has to protect the Government's interests related to this Agreement.


IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the.

DEPARTMENT OF THE ARMY

CENTRAL VALLEY FLOOD

PROTECTION BOARD


BY: 
Thomas C. Chapman
Colonel, U.S. Army
District Engineer

BY: 
Benjamin F. Carter, President
Central Valley Flood Protection Board

DATE: 21 Jul 10

DATE: 6/25/10

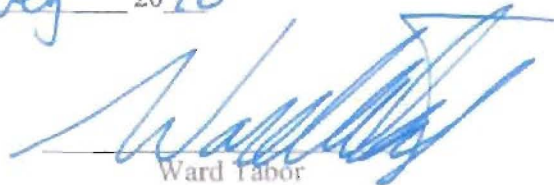
CALIFORNIA STATE DEPARTMENT
OF WATER RESOURCES

BY: 
Gary Barden
Chief, Division of Flood Management
Department of Water Management

CERTIFICATE OF AUTHORITY

I, Ward Tabor, do hereby certify that I am the Assistant Chief Counsel for the State of California Department of Water Resources, that the State of California Department of Water Resources is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the State of California Department of Water Resources in connection with the feasibility study for the Central Valley Integrated Flood Management Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the State of California Department of Water Resources have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this
8th day of July 20 10



Ward Tabor
Counsel for
The State of California
Department of Water Resources

CERTIFICATION REGARDING LOBBYING

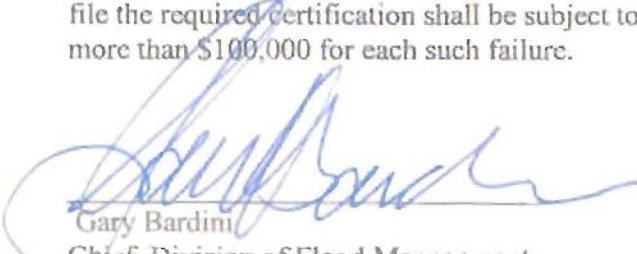
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-L.L.L., "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

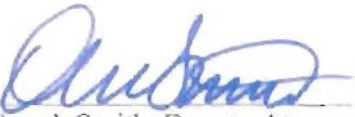

Gary Bardim
Chief, Division of Flood Management
State of California Department of Water Resources

DATE: 7/15/10

CERTIFICATE OF AUTHORITY

I, Deborah M. Smith the undersigned, do hereby certify that I am the principal legal officer of the Central Valley Flood Protection Board, a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the Central Valley Flood Protection Board in connection with the feasibility study for the Central Valley Integrated Flood Management Study and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement, and that the persons who have executed this Agreement on behalf of the Central Valley Flood Protection Board have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this
8th day of July 2010.

By 
Deborah Smith, Deputy Attorney General
Attorney for the Central Valley
Flood Protection Board

CERTIFICATION REGARDING LOBBYING

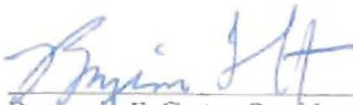
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.


Benjamin F. Carter, President
Central Valley Flood Protection Board

DATE: 6/25/10

**NON-FEDERAL SPONSOR'S
SELF-CERTIFICATION OF FINANCIAL CAPABILITY
FOR AGREEMENTS**

I, Eric Koch, do hereby certify that I am the Chief of the FloodSAFE Program Management Office for the State of California, Department of Water Resources (a "Non-Federal Sponsor"); that I am aware of the financial obligations of the Non-Federal Sponsor for the Central Valley Integrated Flood Management Study; and that the Non-Federal Sponsor has the financial capability to satisfy the Non-Federal Sponsor's obligations under the Agreement between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study.

IN WITNESS WHEREOF, I have made and executed this certification this 7th
day of June, 2010.

BY: Eric KochTITLE: Chief, FloodSAFE Program Management OfficeDATE: 6/7/2010

**NON-FEDERAL SPONSOR'S
SELF-CERTIFICATION OF FINANCIAL CAPABILITY
FOR AGREEMENTS**

I, Jay Punia, do hereby certify that I am the Executive Officer of the Central Valley Flood Protection Board (a "Non-Federal Sponsor"); that I am aware of the financial obligations of the Non-Federal Sponsor for the Central Valley Integrated Flood Management Study; and that the Non-Federal Sponsor has the financial capability to satisfy the Non-Federal Sponsor's obligations under the Agreement between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study.

IN WITNESS WHEREOF, I have made and executed this certification this 7th
day of June, 2010.

BY: Jay S. Punia

TITLE: Executive Officer CVFPB

DATE: 6/7/2010

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

MAY 10 2010

CESPK-PM-C

MEMORANDUM FOR Commander, South Pacific Division

SUBJECT: Standard Feasibility Cost Share Agreement (FCSA) for the Central Valley Integrated Flood Management Study, California (Project Number/Work Item 154612).

This is to notify you that the District intends to execute the standard FCSA for the Central Valley Integrated Flood Management Study, California. The non-Federal partners, the Flood Protection Board of the State of California and the State Department of Water Resources, have reviewed the standard FCSA and are satisfied that it meets their needs. Please find enclosed:

- Standard Feasibility Cost Share Agreement (Enclosure A);
- Feasibility Cost Share Agreement Checklist (Enclosure B);
- Federal/non-Federal funds allocation table (Enclosure C);
- Certification of Legal Review (Enclosure D);
- Letter of intent from the Non-Federal sponsor (Enclosure E).

For your information I have also attached the draft Project Management Plan. This PMP is currently being routed through the District offices for final signatures both PPMD and Planning have signed off on the PMP.

Please provide approval to send this agreement to the non-Federal sponsor to execute the agreement and to delegate the authority to sign the agreement to the District Engineer.

If you have any question or comments please contact the Project Manager, Tom Karvonen at 916-557-7630.

Encls


Kris Mullins, P.M.P.
Deputy for Project Management

Non-Fed and Fed Allocation Table for
The Central Valley Intergraded Flood Management Study

Year	Total Project Cost (TPC)	Schedule Expenditures	% TPC	Non-Fed Cash or work-in-kind	Fed Cash
2009			0.00%		
2010		\$1,600,000	93.0%	\$800,000	\$800,000
2011		\$120,000	7.0%	\$60,000	\$60,000
Total	\$1,720,000	\$1,720,000	100.00%	\$860,000	\$860,000

CERTIFICATION OF LEGAL REVIEW
OF THE
AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CENTRAL VALLEY FLOOD PROTECTION BOARD
AND
THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
FOR THE
CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY

The Agreement Between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study has been fully reviewed by the Office of Counsel, Sacramento District, and is approved as legally sufficient.


Susan Azyndar
Assistant District Counsel

Date 10/1/11

Central Valley Integrated Flood Management Study

**Briefing to the
Central Valley Flood Protection Board on
Status of the FCSA**

July 12, 2013

PUBLIC SAFETY

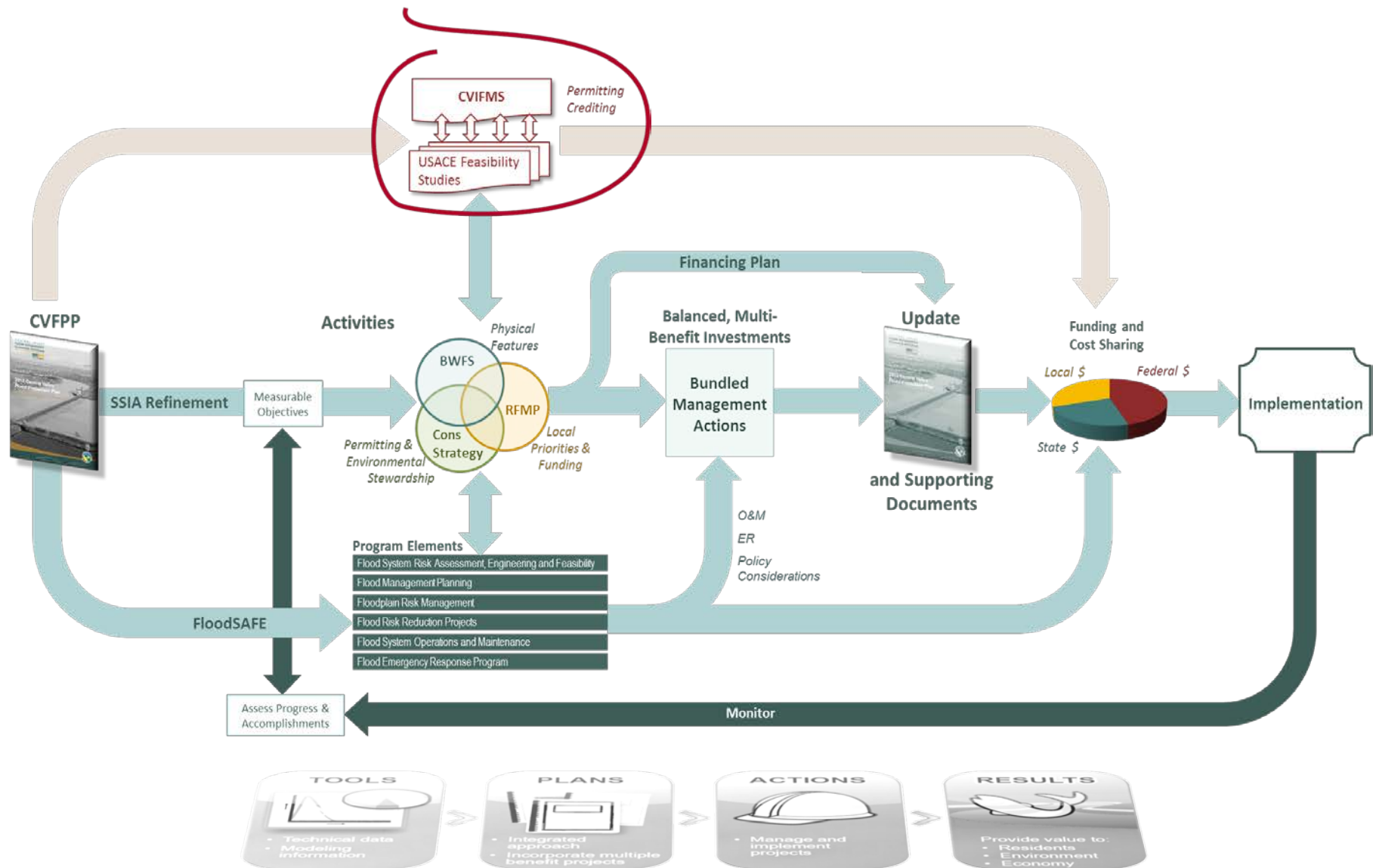
ENVIRONMENTAL STEWARDSHIP

ECONOMIC STABILITY

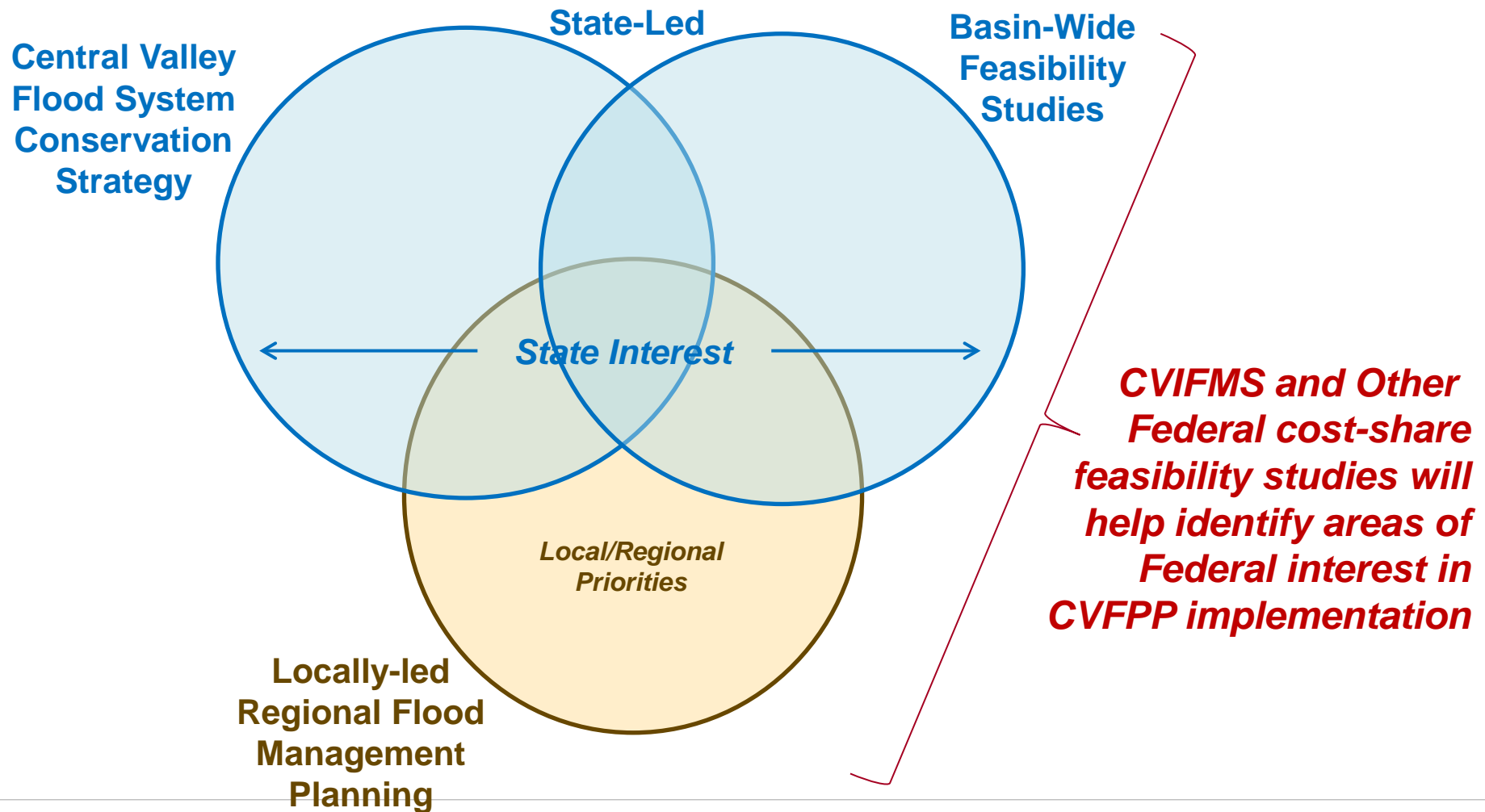
Today's Briefing

- Why the CVIFMS is important
- Background and History
- Plan Moving Forward
- Next Steps

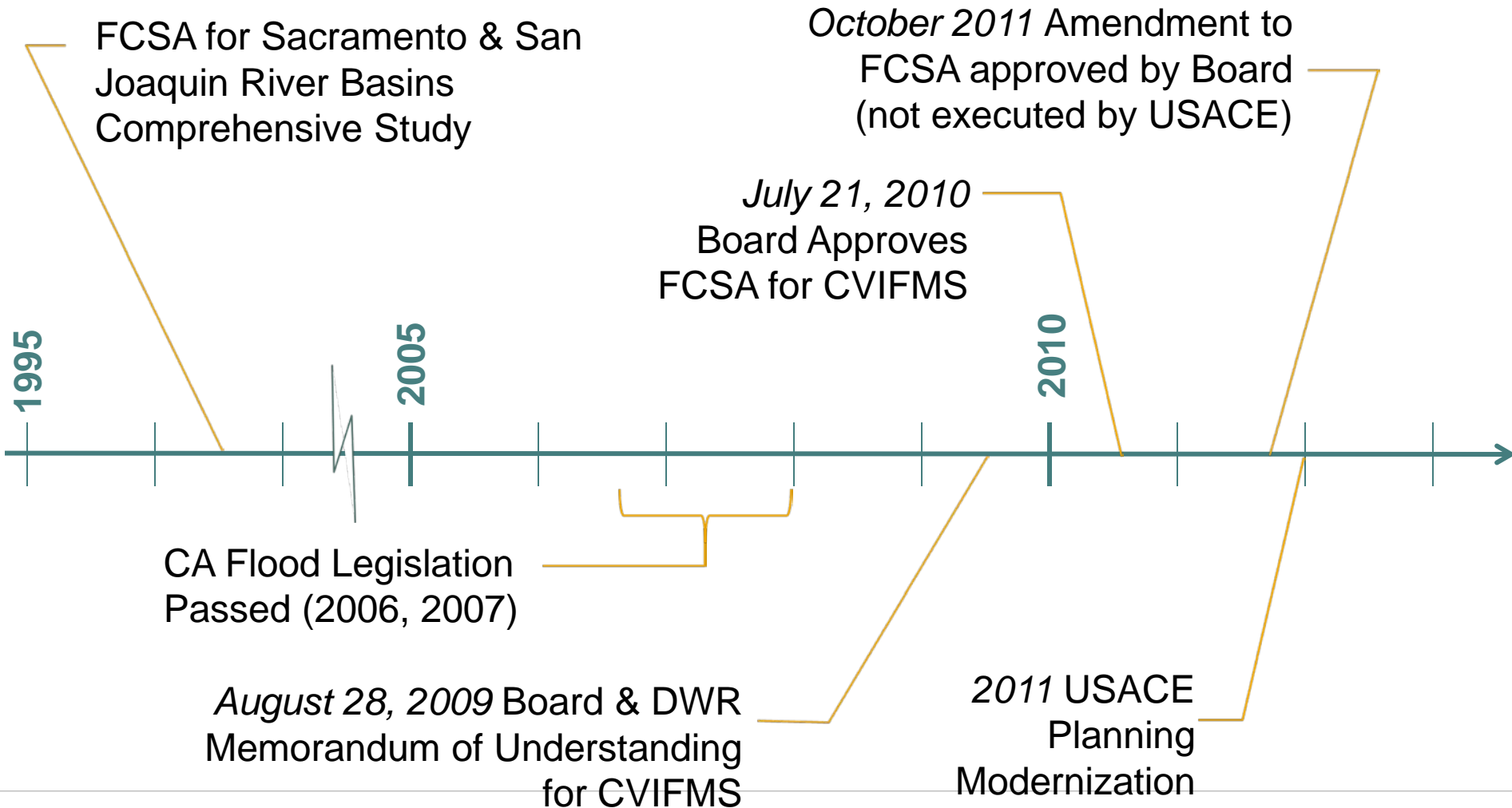
One Process, Many Activities



Relationship to CVFPP Planning Efforts



Timeline



2010 FCSA

- Sponsors
 - Federal: U.S. Army Corps of Engineers, Sacramento District
 - State: The Central Valley Flood Protection Board
 - Local: Department of Water Resources
- Total cost \$1,720,000
 - Cost-shared equally with State
 - Up to 100% through in-kind services
- Federal authority provided under the Flood Control Act of 1962 (Public Law 87-874) and May 8, 1964 resolution of the House Committee on Public Works

2010 FCSA (cont)

- Called for development of a Project Management Plan for CVIFMS
 - Scope a more detailed, five-year feasibility study
- Future funding for the feasibility study was to be provided through a subsequent FCSA or amendment
- USACE completed a draft PMP for CVIFMS in 2011
 - Amendment to FCSA was prepared consistent with the PMP, and signed by the Board in October 2011
 - USACE did not execute the amendment due to Subsequent USACE Planning Modernization guidance

USACE Planning Modernization

- Guidance released in early 2012
- Streamlines Federal feasibility studies for greater efficiency and timeliness
 - 3 years
 - \$3 million
 - Increased vertical alignment within USACE
- Provides opportunities for greater collaboration with local sponsors, including use of locally-generated data
- All Federal feasibility studies underwent scope review and prioritization following release of the guidance

Late 2012 CVIFMS Re-Scoping Efforts

- One watershed study concurrent with State's BWFS
 - Federal interest in cross-regional, system improvements identified in the CVFPP
 - Institutional and governance concerns associated with long-term implementation of the CVFPP
 - Establish need for follow-on feasibility studies
- Consistent with USACE Planning Modernization and the 5-year update schedule for the CVFPP
- Revised PMP prepared in June 2013
 - Significant collaboration among study partners

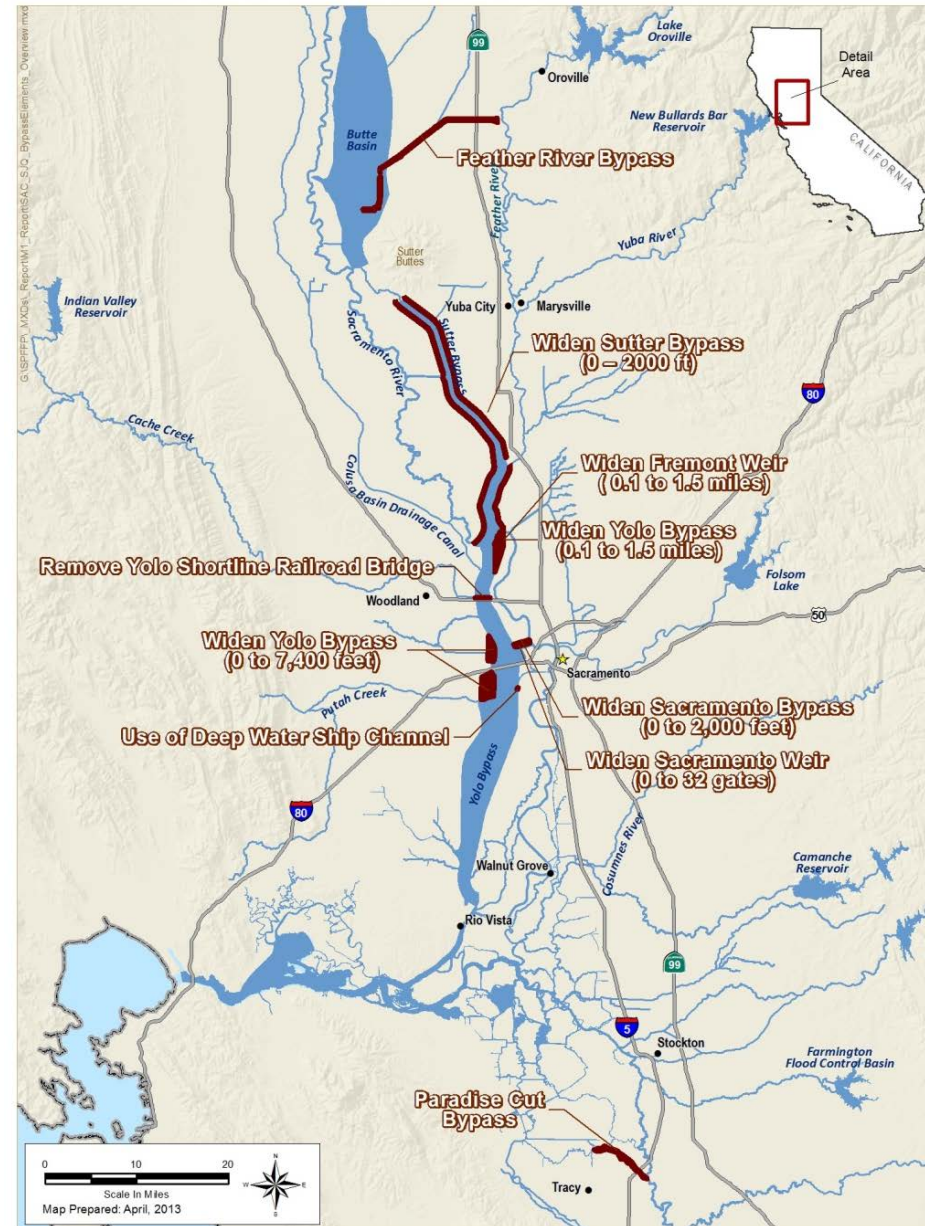


Benefits of CVIFMS Watershed Plan

- Focus on system-based water resources problems
- Assess technical work already completed by the State for its suitability in assessing Federal interest
- Participate in State's BWFS and Central Valley Flood System Conservation Strategy
- Evaluate resource conditions related to flood risks and ecosystem conditions
- Identify implementation challenges in policy, permitting, and crediting
- Make recommendations for future actions, including potential feasibility studies

Focus on System Improvements

- Potential Federal interest in CVFPP System Improvements in Sacramento River Basin
- Consideration of system improvements in San Joaquin River Basin via Lower San Joaquin Feasibility Study



Major Activities In CVIFMS PMP

- Task 1: Technical data and tools gap analysis
- Task 2: Without-project condition(s)
- Task 3: Participation in, review and summarizing of CVFPP implementation planning efforts (BWFS, regional planning, Conservation Strategy)
- Task 4: Federal interest in CVFPP implementation
- Task 5: Policy and guidance recommendations (crediting, permitting, governance)
- Task 6: Watershed Plan preparation
- Task 7: Coordination and support

CVIFMS Schedule

Task Description	Schedule (Days after FCSA Amendment Execution)
1. Gap Analysis	90 days
2. Forecast Without Project Conditions	120 days
3. Participate, Review, Summarize	180 days
4. Assessment of Federal Interest	350 days
5. Policy and Guidance Recommendations	350 days
* Decision Point Meeting	365 days
6a. DRAFT Watershed Plan	450 days
6b. FINAL Watershed Plan	540 days
7. Coordination and Support	540 days

Amendment 1 to FCSA

- **Total Watershed Study cost:** **\$5,000,000**
 - Non-federal in-kind contributions \$2,417,000
 - Credit to the non-Federal in-kind \$2,417,000
 - Non-federal proportionate share about 48%

Next Steps

- Briefing on CVIFMS July 12th
- Motion to Approve Amendment 1 July 26th
- USACE Approval of Amendment 1 August 2013
- CVIFMS Implementation 2013 -2016

Contact Information

DWR: Christopher Williams, Project Manager
(916) 574-2375

christopher.williams@water.ca.gov

CVFPB: Bob Scarborough, Project Manager
(916) 574-1422

robert.scarborough@water.ca.gov

USACE: Glen Reed, Project Manager – Civil Works
(916) 557-7630

Anthony.G.Reed@usace.army.mil

Questions or Comments?

PUBLIC SAFETY

ENVIRONMENTAL STEWARDSHIP

ECONOMIC STABILITY

CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY California

Project Management Plan

Amendment #3



**US Army Corps
of Engineers®**
Sacramento District



In partnership with:

**State of California
Department of Water
Resources**



and **The Central Valley
Flood Protection Board**

June 2013

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CONCURRENCE PAGE

Sacramento District

US Army Corps of Engineers (USACE){tc \l1 "CONCURRENCE PAGE}

As members of the Sacramento District Project Review Board, we the undersigned concur with the project management plan (PMP) dated June 2013 for the Central Valley Integrated Flood Management Study (CVIFMS). We understand that the PMP is a living management document that will be updated throughout the course of the study.

US Army Corps of Engineers

<u>Name</u>	<u>Title</u>	<u>Signature</u>	<u>Date</u>
Kristine Mullins	Chief, Programs & Project Management	_____	_____
E. Scott Clark	Acting Chief, Planning Division	_____	_____
Rick Poeppelman	Chief, Engineering Division	_____	_____
Sharon Caine	Chief, Real Estate Division	_____	_____
Mike Mahoney	Chief, Construction-Operations Division	_____	_____

Kim Ford

Chief, Contracting Division

Al Faustino

Chief, Office of Counsel

CONCURRENCE PAGE

State of California

<u>Name</u>	<u>Title</u>	<u>Signature</u>	<u>Date</u>
Jay Punia	Executive Officer, CVFPB	_____	_____
Keith Swanson	Chief, Division of Flood Management	_____	_____
Jeremy Arrich	Chief, Central Valley Flood Planning Office	_____	_____
Michael Musto	Project Manager, CVFPB	_____	_____
Christopher Williams	Project Manager, DWR	_____	_____

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TOC

CHAPTER 1 - PURPOSE AND SCOPE

The Central Valley Integrated Flood Management Study (CVIFMS) is conducted under the authority for the Sacramento and San Joaquin River Basins, California Comprehensive Study (Comp Study). Congress authorized the Comp Study in Section 209 of the Flood Control Act of 1962 (Public Law 87-874). Both USACE and the State of California (State) share the common goal of developing consistent and mutually complementary Federal and State strategy in the Sacramento and San Joaquin River basins which recognizes the importance of a system-wide approach and facilitate implementation and associated cost sharing to effectively improve flood management in the Central Valley. It is important to note while the authorization covered both river basins, the CVIFMS is only focused on the Sacramento River Basin.

This CVIFMS effort is intended to be a companion effort to the State of California's Central Valley Flood Protection Plan (CVFPP), which is the State's plan for long-term sustainable flood management in the Central Valley. The CVFPP focuses on reducing flood risk for areas protected by the facilities of the State Plan of Flood Control (SPFC), which primarily includes Federal/State project levees in the Sacramento and San Joaquin River watersheds. The first CVFPP was adopted by the Central Valley Flood Protection Board in June 2012, and is to be updated every five years (years ending in 2 and 7). The State is now conducting planning studies and other activities to refine and progress implementation of the recommendations in the CVFPP, and preparing for the 2017 update to the CVFPP.

As a companion study, the CVIFMS was originally scoped in 2010 to determine Federal interest in the State's vision for improved flood risk management in the Central Valley, and participate in recommended actions consistent with Federal interest. A Feasibility Cost Share Agreement (FCSA) for CVIFMS was signed in August 2010 and subsequently amended in 2011, but execution was halted upon issuance of Planning Modernization guidance.

PROJECT RE-SCOPING AND NEED FOR PMP REVISION

With the advent of the Planning Modernization Initiative, CVIFMS has undergone a re-scoping effort to focus and refine the goals of the study in late 2012. The State (represented by both the Central Valley Flood Protection Board (CVFPB) and California Department of Water Resources (DWR)) has participated fully in these re-scoping efforts. One of the major re-scoping initiatives was the Charette conducted at the Sacramento District Headquarters from December 12-14, 2012. Some key decisions made at the Charette include:

- The scope of CVIFMS would be limited to the Sacramento River Basin and not the San Joaquin River Basin. The study will focus on system-based solutions (such as modifications to bypasses and weirs) identified in the CVFPP.
- The four objectives identified represent the intent of the study:
 - 1) Reduce risks to life safety in the Sacramento River Basin focusing on improved system flexibility under a variety of climate change and development patterns.

2) Reduce the consequences and damages associated with flood risk in the study area, with an emphasis on improving system resiliency and increasing the integrity of the flood system.

3) In conjunction with flood risk management, increase area, quality, connectivity, and diversity of significant native aquatic and related habitats in the Sacramento River ecosystem.

4) In conjunction with flood risk management, increase natural hydrologic, dynamic and geomorphic processes in the Sacramento River.

The group jointly recommended a staged approach for the overall feasibility study for two primary reasons:

- 1) to comply with the planning modernization initiative
- 2) to accommodate the complexity of the flood management system in the Sacramento and San Joaquin River basins, the State's 2012 CVFPP, and the legislatively mandated 5-year update cycle for the CVFPP.

The staged approach will begin with scoping the CVIFMS as a watershed study to be conducted during the early stages of the State's Basin-Wide Feasibility Studies (BWFS). This will enable USACE to align its ongoing investigations in the Central Valley and determine what additional studies may be required to determine Federal interest and support Congressional authorization of a recommended plan to complement the State's CVFPP implementation. It will also include identifying additional legislative and implementation frameworks, processes, and tools to support effective, long-term implementation of the recommended plan, as related to project permitting, system-wide crediting, and governance.

The CVIFMS will produce a Watershed Plan rather than a Feasibility Report. The CVIFMS watershed study will identify:

- system-based water resources problems
- assess technical work already completed by the State for its suitability in assessing Federal interest
- provide a vehicle for on-going participation in the State's BWFS and related Central Valley Flood System Conservation Strategy
- Evaluate resource conditions related to flood risks and ecosystem conditions to assist in the identification of without-project conditions and assessment of potential Federal interest in actions being refined through the State's planning studies
- identify implementation challenges in policy, permitting and crediting

- and make recommendations for future actions, including potential feasibility studies.

The CVIFMS should produce Federal companion documents to the CVFPP, focused on shared opportunities to reduce flood risk in an integrated water resource and flood management context.

DEFINITION OF PROJECT MANAGEMENT PLAN

This CVIFMS PMP defines the planning approach; activities to be accomplished and documents to be produced; schedule; and associated costs, roles, and responsibilities that the Federal Government and the State will be sharing.

The Planning Modernization guidance issued in February 2012 requires a study to be completed within three years with a budget of less than three million dollars. While watershed studies are not currently restricted to this guidance, the current PMP is developed under this premise. The September 2011 PMP, although approved internally, was not implemented due to the need for re-scoping under the Planning Modernization Initiative. This 2013 PMP revision provides a description of the current project study strategy resulting from the re-scoping process and anticipated efforts for completion of the study. The PMP will be revised as needed in the study period as more detailed information becomes available.

The PMP for CVIFMS has been prepared in coordination with DWR and complements the CVFPP.

The PMP presents a “living” and adaptable process and is a supplement to the Feasibility Cost Sharing Agreement (FCSA). This FCSA defines a contract between the USACE and State, and reflect a “buy in” on the part of the financial backers, as well as those who will be performing and reviewing the work. The PMP forms the basis for identifying commitments from the USACE to the State and serves as a basis for performance measurements. It also addresses the study scope and funding requirements from 2013 through 2015. These estimates may require further refinements and adaptive management as the study evolves. This refinement and adaptive management will be conducted in collaboration with the State, in particular, the CVFPP team.

INITIAL ASSUMPTIONS AND EXCEPTIONS

CVIFMS Assumptions. The initial scoping and tasks contained in this PMP are general in nature and will require additional input and specific scoping as the study progresses. The assumptions used in assessing the without-project conditions will be coordinated with the CVFPP to ensure consistency with all other relevant studies and will be documented in detail in the Watershed Plan.

Policy Exceptions and Streamlining Initiatives. The study will be conducted in an integrated water resource context in accordance with the Principles and Requirements and USACE regulations. A series of policy issue papers may be developed to address concerns expressed by the State with regard to the crediting, system-wide benefits, permitting, and other concerns that may be a barrier to implementation of the CVFPP/CVIFMS. These will be summarized and presented in the Watershed Plan.

CHAPTER 2 -STUDY BACKGROUND

STUDY AUTHORIZATION

The CVIFMS is a continuation of the Sacramento and San Joaquin River Basins, California Comprehensive Study (Comp Study). However, the CVIFMS is focused only on the Sacramento River Basin. Congress authorized the Comp Study in Section 209 of the Flood Control Act of 1962 (Public Law 87-874). The 1998 House Report 105-190 of Public Law 105-62 states:

“Sacramento River and San Joaquin River Basins Comprehensive Study, California.

In response to the devastating floods of 1997, the Committee has added funds and directs the USACE to conduct a comprehensive assessment of the entire flood control system within the existing study authorizations of the Sacramento River Watershed Management Plan (authorized by the Flood Control Act of 1962) and the San Joaquin River and Tributaries authority (authorized by 1964 Resolution of the House Committee on Public Works). These comprehensive investigations will include: (1) preparation of a comprehensive post-flood assessment for the California Central Valley (Sacramento River Basin and San Joaquin River Basin), (2) development and formulation of comprehensive plans for flood control and environmental restoration purposes, and (3) development of a hydrologic/hydraulic model of the entire system including the operation of the existing reservoirs for evaluation of the current flood control system. Not later than 18 months after the date of enactment of this Act the Secretary shall transmit an interim report describing results of the post-flood assessment and the assessment of the existing flood control system and its deficiencies.”

In addition, the Water Resource Development Act of 2000 directed the Secretary of the Army to “integrate, to the maximum extent practicable, and in accordance with applicable laws, the activities of the USACE in the San Joaquin and Sacramento River Basins with the long-term goals of the CALFED Bay-Delta Program.”

GEOGRAPHIC AREA

As a result of the re-scoping effort, the study area is now limited to the Sacramento River basin, located in the north-central part of California. The Sacramento River basin covers 26,300 square miles at Rio Vista, and is approximately 240 miles long and up to 150 miles wide. The basin is bounded by the Sierra Nevada on the east, the Coast Range on the west, the Cascade and Trinity Mountains on the north, and the Sacramento-San Joaquin Delta on the south. Major tributaries to the Sacramento River include the Feather and American Rivers, which enter from the east. Numerous smaller streams flow into the Sacramento River from both sides of the valley. The cities of Sacramento, Yuba City, Marysville, Chico, Colusa, Red Bluff, and Redding are in the Sacramento River basin.

Important sub-areas that the study will focus on are, as follows:

- **State Plan of Flood Control (SPFC) Planning Area**—This area is defined by the lands receiving protection from facilities of the SPFC. The State’s flood management responsibility is limited to this area.
- **System-Wide Planning Area**—This area includes the lands that are subject to flooding under the current facilities and operation of the Sacramento-San Joaquin River Flood Management System (Water Code Section 9611). The SPFC Planning Area is completely contained within the System-Wide Planning Area.

Appendix A contains maps of these two important areas.

PROBLEMS AND OPPORTUNITIES

Major flooding throughout the Central Valley has been well documented since the early 1800s, prompting various planning efforts by local, 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 and January 1997 were the highest on record, shedding light on the susceptibility of the Central Valley and its growing communities to catastrophic flooding.

Proper identification of problems and opportunities in California’s Central Valley, in particular the Sacramento River Basin, is the foundation for the plan formulation process. In a watershed study, problems are often the focus of past extreme events, local needs, legislation that bears on local resources, local government interests, and the affected public. Therefore, it is critical the study effort identifies problems and opportunities that reflect the priorities and preferences of the Federal government, the non-Federal sponsors, and other groups participating in the study process. Work products associated with the CVFPP and other State water resource programs will provide the basis for identifying problems and opportunities that can be addressed through water and related land resource management. The problems identified in the past that will be validated for inclusion in the system-wide study are the following:

- A high risk of flooding from levee failure threatens the public safety as well as property and critical infrastructure throughout the study area.
- The piece-meal approach to flood risk management in the Sacramento River Basin has been inefficient in solving flooding problems.
- The lack of centralized flood risk management has resulted in inefficient flood management and residual flood risk.
- Existing levees have isolated the floodplains from waterways, which has eliminated significant floodplain habitats for native species, including Federally listed species and other special status species; also, conversion of high value habitats to other land uses has reduced the abundance, distribution and diversity of native species.

The team has identified the following potential opportunities to address the above problems:

- Integrating and leveraging the authorities of various agencies.
- Policy resolution through vertical coordination.
- Identifying system-wide benefits, as opposed to site specific benefits.
- Develop basin-wide strategy for project implementation.

CHAPTER 3 - MANAGEMENT OF WATERSHED STUDY

GENERAL

USACE and non-Federal sponsors (CVFPB and DWR) will be responsible for management of the watershed study. Management of the study will be conducted at three basic levels: the Project Delivery Team (PDT), Senior Management Group, and the USACE Project Review Board.

Project Delivery Team

The PDT will include representatives from the USACE and sponsors. This team will ensure appropriate scope of the studies, guide in their accomplishment, and develop and recommend potential solutions. USACE participation on the team will include representatives from Programs and Project Management, Planning, Engineering, and other technical elements as appropriate. The sponsors will participate in study management and will also provide engineering and technical support as in-kind services.

PDT meetings will be held regularly throughout the study phase. PDT members are currently being identified.

Senior Management

A group of senior leaders and sponsor participants will meet with the PDT regularly to ensure that accomplishment of tasks are carried out within schedule and budget. Participation will include representatives from the same elements as reflected in the PDT.

MANAGEMENT DOCUMENTS

During the feasibility study, USACE will prepare a series of reports and other information documents useful in the overall management of the study. These documents will be available to the sponsors and will serve as the record of study progress. The documents are described below.

Monthly Status Report

The Project Manager will update the status report monthly with assistance from PDT members. This report will also document all important dates and milestones, meetings, task completions, and expenditures for Federal and non-Federal funds as compared to budgets.

Funds Management Report

The Program Analyst will update the funds management report monthly and distribute copies to the Project Manager and the PDT. This report documents budgets and expenditures for

each task, resource, and budget type for the current Federal fiscal year. At the end of government fiscal year, a final funds management report is issued showing the total budgets, expenditures, and obligations for the fiscal year. The year-end report will be sent to the sponsors.

Schedule and Cost Change

A FCSA amendment or a Schedule and Cost Change Request (SACCR) and revised PMP would be used to change the approved study cost or major study milestones. USACE and sponsor representatives on the PDT will review and agree to changes proposed by the revised PMP before subsequent action by the appropriate level of approval in accordance with ER 5-7-1.

Scopes of Work

Scopes of work involve defining the existing and potential future problems, developing possible future projects, and negotiating with USACE technical elements and sponsors on the approaches to the watershed study.

Scopes of Services

The Scope of Services (SOS) is the basic means of assigning work tasks during the watershed study. A SOS will be issued for each task described in this PMP. Each SOS will describe the scope and schedule for the task, as well as the funds provided to complete the task. The Project Manager will distribute study funding using the SOS system.

Change Management Plan

Significant modifications to the approved CVIFMS PMP will be documented per Appendix A. In particular, any significant changes to the scope, schedule, budget, or Project Delivery Team (PDT) for the Central Valley Integrated Flood Management Study (CVIFMS) should be recorded with appropriate updates to this PMP.

Risk Management Plan

Risk management seeks to reduce risk by identifying the potential risks and placing controls on it. As the study progresses, the PDT will develop a risk management plan in the form of a risk register. See Appendix B.

CHAPTER 4 - SCOPE OF STUDY

This section will discuss general areas of technical study and investigations to be undertaken by CVIFMS based on a review of the CVFPP and known gaps in information or analysis. Where possible, use of data and models developed by the State will be used. Detailed scopes of work will be developed and incorporated in the PMP.

TASK 1. Perform technical data and evaluation tool gap analysis - In collaboration with the State, the PDT shall review existing technical data, evaluation tools, and results to determine their applicability to future Federal feasibility studies and identify any remaining data/tools needed to support Federal decision making. Addressing these gaps will provide feedback into a more detailed scope of work for future feasibility studies. Areas for consideration are:

- Hydrology and hydraulics - review models and existing data and identify data gaps for flood risk management opportunities.
- Geotechnical - Identify approximate methods for developing fragility curves with uncertainty.
- Economics - review existing structural inventories and identify where information needs to be developed.
- Environmental - review Conservation Strategy documentation and identify data gaps for evaluating restoration opportunities.

This analysis should be completed within 90 days of the approval of the FCSA Amendment.

TASK 2. Forecast without-project condition(s) - Using existing data and best professional judgment, the PDT shall forecast the conditions in the study area should no Federal water resources project be recommended from this study. This forecast should consider on-going Central Valley studies, including: American River Common Features (Natomas and Pocket); West Sacramento; Sutter Basin; Lower Cache Creek; and Sacramento River Bank Protection. In addition, the following existing projects will be considered in the without-project condition: American River Common Features WRDA 96/99 sites, West Sacramento, Yuba River Basin, Marysville Ring Levee, American River Watershed, Folsom Dam Modifications/Folsom Dam Raise, and South Sacramento County Streams. Multiple without-project scenarios should be considered to reflect CVFPP implementation that has been realized to date. Assumptions related to the without-project condition should be clearly documented, including assumptions regarding flood damages, economic conditions, future land use, urban development, habitat and other environmental conditions such as climate change, and other water related issues. This task should be completed within 120 days of the approval of the FCSA.

TASK 3. Participate, Review and Summarize CVFPP, CS and Regional Plans - To assist in the plan formulation aspect of the watershed study; the PDT shall review the CVFPP, Conservation Strategy, and any available regional plans to determine problems and opportunities

within the Sacramento River Basin watershed related to the flood protection system. The Watershed Plan will contain a discussion of problems, opportunities, objectives and constraints that is informed by this review. Under this task, an array of alternative actions will be identified for evaluation for potential Federal interest. This task should be completed with 180 days of the approval of the FCSA.

TASK 4. Assessment of Federal Interest in CVFPP implementation - An important outcome of the watershed study is to determine if there is Federal interest in aspects of the SSIA proposed by the State. To assist in identifying potential Federal interest in the CVFPP implementation, an economic evaluation will be undertaken to determine residual damages assuming that the USACE projects (Yuba River Basin – Marysville Ring Levee, Sutter Basin, West Sacramento, American River - Natomas Basin, American River - Common Features, Sacramento River Bank Protection, and South Sacramento Streams) are in place and functioning. The residual risk remaining would provide an indication of continued Federal interest in formulating flood risk management solutions beyond these projects, including those related to cross-regional, system-based improvements identified in the CVFPP (modifications to weirs and bypasses).

The watershed study should also identify ecosystem opportunities in connection with flood risk management solutions, such as set-back levees and bypass expansion currently being evaluated by the State's BWFS. These multipurpose opportunities should be identified and evaluated at a parametric level to determine if additional feasibility investigations are warranted. The watershed study should also evaluate the other goals of the CVFPP to determine the potential for Federal interest and participation.

Additionally, recommendations on additional feasibility studies compliant with USACE 3x3x3 guidance should be assessed and included in the Watershed Plan. If a feasibility study is required, a draft PMP and a draft FCSA will be included in the watershed study report.

Real estate activities associated with this task will likely include acquisition of rights-of-way (ROW) and parametric land acquisition estimates.

This task should be completed within 350 days of the approval of the FCSA. Results of these assessments would be documented in the Watershed Plan.

TASK 5. Policy and Guidance Recommendations– The watershed study will present a series of recommendations for effectively and efficiently implementing system-wide solutions to problems identified in the watershed study. Coordination with the State and regional stakeholders has indicated that the following challenges exist for implementation of projects resulting from the ongoing planning efforts in the Central Valley:

a. **Crediting** - The Watershed Plan will establish a baseline for crediting that discusses the status of existing credit applications, a forecast of future crediting requests, and an assessment of crediting needs. A white paper outlining the policy issues, with a goal of identifying a system credit applicable to any work within the system should be produced prior to the completion of the watershed study.

b. Permitting - The Watershed Plan will assess the need for a streamlined permitting process for specific activities including construction, and operation and maintenance activities. This assessment may result in a white paper recommending the pursuance of a system-wide permit.

c. Governance - The Watershed Plan will assess the need for a governance structure for project implementation within the Sacramento River Basin. The plan will make recommendations as to the scope of governance, levels of involvement, and agency participation based on the results of the assessment. A white paper may be produced on this assessment prior to the completion of the Watershed Plan.

This task should be completed within 350 days of the approval of the FCSA and will be documented in the draft and final Watershed Plan.

TASK 6. Develop Watershed Plan - The documentation of the above tasks will be compiled into a Watershed Plan. A decision point meeting will be scheduled 365 days after approval of the PMP. This meeting should determine if a Feasibility Study should be initiated.

A draft Watershed Plan should be completed 450 days after approval of the FCSA.

A final Watershed Plan should be completed within 540 days of the approval of the FCSA. Anticipated deliverables include a document outline (due within 90 days of implementation of the FCSA), an administrative draft Watershed Plan, draft Watershed Plan, and a final Watershed Plan.

TASK 7. Coordination and Support - The PDT will provide coordination and support to the local sponsors, project management, and local stakeholders. Support tasks include participation in meetings, teleconferences, workshops, and status briefings.

USACE shall also participate in the following efforts and workgroups affiliated with the 2017 update to the CVFPP being undertaken by DWR:

- A. Basin-wide Feasibility Studies (BWFS), including where necessary, joint stakeholder and public communication and engagement activities
- B. Central Valley Flood System Conservation Strategy (CS)
- C. Regional Flood Management Planning (RFMP), including participation in Board's Coordinating Committee meetings
- D. Economic Assessment Procedures for Integrated Flood Management Workgroup
- E. Urban Level of Flood Protection (ULOP) Criteria Refinement workgroup
- F. Rural Levee Repair Criteria (RLRC) workgroup

G. Climate Change workgroup

H. Other activities, as needed, contributing to 2017 Update to the CVFPP, including reviews and comments on documents (e.g., 2016 Flood Control System Status Report)

USACE participation will include, at a minimum, at least one technical representative for each workgroup. The same individual may attend multiple groups based on that individual's area of expertise or experience. It is anticipated that the Lead Planner, the Project Manager, and the Engineering Technical Lead would also participate in each workgroup, as appropriate and as needed.

CHAPTER 5 - COST ESTIMATE

Preliminary cost estimates for the CVIFMS Feasibility Study are provided in Table 1 that represent “best information available” based on the 2012 CVFPP and previous investigations. The amounts shown in Table 1 include the Federal costs associated with the support, communication, and lead roles that will be involved in completing the study. Within each Work Breakdown Structure (WBS) cost estimate, the cost breakdown for support, communication, and lead roles will vary by discipline. The cost estimate is based on a summation of lump sum costs to cover/address potential tasks.

Table 1. Preliminary CVIFMS Cost Estimates

WBS#	Description	Federal Cost	Non-Fed Cost/ In-Kind	Total Cost
JAB00	Hydrology and Hydraulics	250,000	350,000	600,000
JAC00	Geotechnical Studies	150,000	175,000	325,000
JEA00	Engineering and Design Analysis	250,000	250,000	500,000
JB000	Economic Studies	250,000	300,000	550,000
JD000	Environmental Studies (except USFWS)	245,000	205,000	450,000
JF000	HTRW Studies	60,000	0	60,000
JG000	Cultural Resources Studies	60,000	20,000	80,000
JH000	Cost Estimating	75,000	75,000	150,000
JI000	Public Outreach	100,000	100,000	200,000
JK000	Real Estate	50,000	0	50,000
JJ000	Plan Formulation and Evaluation	400,000	350,000	750,000
JL000	Final Report Documentation	60,000	20,000	80,000
JLD00	Tech Review, including Office of Counsel	50,000	55,000	105,000
JPA00	Project Management and Budget	350,000	350,000	700,000
JPB00	Supervision and Administration	100,000	100,000	200,000
JPC00	Contingencies	100,000	100,000	200,000

Estimated Total Federal and Non-Federal Costs	2,500,000	2,500,000	5,000,000
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CHAPTER 6 - STUDY MILESTONES AND SCHEDULE

CVIFMS MILESTONES

This PMP addresses the Watershed Study and preparation of the Watershed Plan. In-progress review sessions and milestone conferences will be held to engage the vertical team to obtain concurrence on the study strategy and subsequent progress of the CVIFMS Watershed Study. Potential feasibility studies identified as a result of the Watershed Plan will develop separate PMPs, as required.

At this time, watershed studies are not subject to the 3x3x3 directive and do not follow the associated milestone system. However, the study schedule was developed in consistent with the concept and includes three major milestones to track progress towards completion of this watershed study compliant with current watershed study guidance. The results of each milestone conference are documented in a decision log. The following are the milestones for CVIFMS:

- Milestone #1 - Identification of the without-project condition, assessment of data provided by local sponsors, determination of Federal interest in State's CVFPP, and Vertical Team concurrence.
- Milestone #2 - Draft Watershed Plan completed. Vertical Team concurrence.
- Milestone #3 - After public and agency review, the Final Watershed Plan is presented and Vertical Team concurs with recommendations.

STUDY SCHEDULE

This study schedule depicts major study tasks only. A more detailed study schedule will be developed in collaboration with the local sponsors/PDT and will include dates for each of the three milestones described above after the FCSPA Amendment has been executed. This estimated schedule is therefore subject to change.

Table 2. Milestone Schedule

Task Description	Schedule
1. Gap Analysis	90 days after FCSPA Amendment Execution
2. Forecast w/o proj conditions	120 days "
3. Participate, Review, Summarize	180 days "
4. Assessment of Federal Interest	350 days "
5. Policy and Guidance Recommendations	350 days "
Decision point meeting	365 days "
6a. Watershed Plan (draft)	450 days "

6b. Watershed Plan (final)	540 days “
7. Coordination and support	540 days “

APPENDIX A – CHANGE MANAGEMENT PLAN

During the course of the study, modifications to the work items may become necessary. Modifications generally cause changes to the cost and/or the completion schedule of the study work items. The party performing the work item will notify their Resource Manager and the Project Manager as soon as the need for the modification becomes apparent.

The USACE and State representatives on the PDT will review and agree to changes proposed to the approved study cost or major study milestones before subsequent action by the appropriate level of approval. Proposed changes shall be coordinated through the following USACE and State Points of Contact: USACE Project Manager, Glen Reed; Chief, Central Valley Flood Planning Office, Jeremy Arrich; California Department of Water Resources (DWR) Project Manager, Chris Williams; and Central Valley Flood Protection Board (CVFPB) Project Manager, Michael Musto.

Notifications will be in writing and will include the work item(s) requiring modification, reason for modification, and impacts on work item cost and/or schedule. If the modification does not increase the total cost of the work item by more than 15%, does not extend completion schedule by more than 90 days, and does not reassign a work item between the Sacramento District and non-Federal; approval modification will be given by both the Sacramento District's and non-Federal Project Managers. Within the limits above, modifications to the total study cost due to changes in overhead rates and effective salary rates are allowed upon written notification to the Executive Committee. The Executive Committee must approval any modification that exceeds these limits.

Once the parties concur on the recommended alternative, a reevaluation of the requirements for the Watershed Plan will be completed. If necessary, the FCSA and the PMP will be renegotiated at that time.

See Appendix B for more details regarding the Change Management Plan.

<u>DOCUMENT</u>	<u>DESCRIPTION & LOCATION WITHIN PMP OF REVISION</u>	<u>DATE APPROVED</u>	<u>APPROVED BY</u>
N/A	Original PMP	8/2010	
2012-1	PMP expanded to include full feasibility study of Central Valley in parallel with State's CVFPP	12/2012	USACE/ DWR/ CVFPB
2013-1	Re-scoped project to conform with Planning Modernization/Re-Scoping Charette and Watershed Study focus.		

APPENDIX B – RISK MANAGEMENT PLAN

Risk is the exposure to chance of failure. Risk management seeks to reduce risk by identifying the risks and placing controls on it. In the context of the study goals, a number of procedures are in place through this PMP to assist in reducing the risk of unrealistic scope, cost estimates, schedule changes and study resources. These will help to maintain schedule within cost limitations and under the project manager's span of control and authority. Non-performance of a key study tasks by a member of the PDT is of concern, but if identified early on, can be remedied by contracting for the services. Contingency funds are also budgeted. A risk also exists in that either one of the signatories to the FCSA, for various reasons, may decide to terminate the agreement. This would result in wasted Federal resources, unless another partner can be located. Controls to help reduce risk of a study termination are frequent meetings and contacts with the Sponsor, the monthly Project Review Board (PRB) meetings are held at the Sacramento District, PMs working at both the District and local levels, and vertical coordination meetings with Headquarters, USACE (HQUSACE) and South Pacific Division (SPD).

RISK ANALYSIS: The primary risk to the project is that tasks and research identified will be performed late to schedule and the Executive Committee will make a later decision on quality management systems. There will be minimal impact to the Division and Districts, and the local sponsor since each will continue to maintain their existing quality management system. The potential risks that could be associated with accomplishing the project are delayed/insufficient scope, quality, budget and schedule. Budget is the most constraining risk, so scope and schedule will need to be modified as necessary without impacting quality. Each risk will be evaluated and analyzed should it occur. The appropriate probability rating and severity rating (should the risk even occur) will be determined by the PDT. Judgment on how to eliminate or reduce risks to lessen the overall project impacts is inherent in the risk assessment process. The risk probabilities and severities will be described, and the degree of impact on the project's baseline scope, quality, budget and schedule. Decisions to accept risks must be made at a level equal to the degree of risk. Project/Program Managers and the Executive Committee must weigh the risks against the benefits of performing an activity. Action(s) required for reducing or eliminating risks will be determined and documented should they occur. The attached Risk Analysis Sheet will be used for evaluation and resolution of a risk should it occur. A blank risk analysis will part of this appendix and the PDT will populate this table as the project gets underway.

RISK MITIGATION: Team members will give notification via email or phone call to team that they will require help to meet deadlines. Team members with available time and possessing needed skill will assist to maintain and regain schedule. The Executive Committee will be kept informed.



**US Army Corps
of Engineers®**
Sacramento District

Central Valley Integrated Flood Management Study, Central Valley, CA (Multipurpose)



DATE: 3 July 2013

CONGRESSIONAL DISTRICTS: 1st District, 3rd District, 4th District, 5th District, 6th District, 7th District

1. **STUDY AREA:** The Central Valley Integrated Flood Management Study (CVIFMS) study area is the Sacramento River Basin in central and northern CA. The study area includes the in the California Counties of Modoc, Shasta, Lassen, Tehama, Plumas, Butte, Glenn, Yuba, Sierra, Lake, Napa, Colusa, Sutter, Nevada, Yolo, Placer, El Dorado, Solano, and Sacramento.
2. **SCOPE:** The study scope is to evaluate modifications to the State Project of Flood Control (Sacramento River Flood Control Project) to reduce risk of flooding and seek opportunities for ecosystem restoration within the system. The Central Valley Flood Protection Plan (CVFPP) was approved in 2012 and presents the State of California's vision for flood management in the Central Valley. The State is currently developing feasibility studies using the CVFPP as their preferred approach. CVIFMS will evaluate the CVFPP and other alternatives to identify Federal interest. On-going Federal flood management studies would be considered in place and functioning to avoid duplication of solutions.
3. **ISSUES:** A Feasibility Cost Sharing Agreement (FCSA) Amendment must be signed by the sponsors (the Central Valley Flood Protection Board (CVFPB) and California Department Water Resources (DWR) and by the Sacramento District, US Army Corps of Engineers (USACE) before work can begin on the study. The original FCSA was signed in 2010.

4. **AUTHORIZATION:** Authorized by Section 209 of the Flood Control Act of 1962 (Public Law 87-874), the 1998 House Report 105-190 of Public Law 105-62, and the Water Resource Development Act of 2000.
5. **SPONSOR PERSPECTIVE:** There is strong local support by the non-Federal sponsors, CVFPB and DWR. The sponsors are working closely with the Sacramento District to get the FCSA Amendment signed and to revise the Project Management Plan (PMP).
6. **COST ESTIMATE:** The estimated cost is \$5M to complete the CVIFMS in January 2015.
7. **FY 2013 BUDGET AMOUNT:** \$300,000
8. **RECENT MILESTONES/DECISIONS:** Re-scoping Charette #2 - December 2012.
9. **SCHEDULE:**
 - Sign/Execute the FCSA Amendment - July 2013
 - Initiate the Gap Analysis – August 2013
 - Complete the Gap Analysis – 29 October 2013
 - Complete Forecast without project conditions – 28 November 2013
 - Review & Summarize Study – 27 January 2014
 - Assessment of Federal Interest – 16 July 2014
 - Policy and Guidance Recommendations – 16 July 2014
 - Decision point meeting – 31 July 2014
 - Complete Draft Watershed Plan – 24 October 2014
 - Finalize Watershed Plan – 25 January 2015
10. **STATUS:** The Project Delivery Team (PDT) is presently in the process of editing the FCSA Amendment and revising the PMP. The FCSA should be signed no later than late July or early August to enable the PDT to initiate work on the study in fiscal year (FY) 2103.
11. **RISKS:** If the FCSA Amendment is not signed in late July or early August, the PDT's ability to accomplish any significant work in FY13 will be greatly reduced and the overall schedule will be at risk.
12. **OTHER INFORMATION:** N/A

**CENTRAL VALLEY FLOOD PROTECTION BOARD**

3310 El Camino Ave.,
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-0685 FAX: (916) 574-0682

**DEPT. OF WATER RESOURCES**

1619 Ninth Street, P.O. Box 942836
Sacramento, California 94236-0001
(916) 653-7007 FAX: (916) 653-5028

May 25, 2010

Colonel Thomas Chapman
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814

Dear Colonel Chapman:

The State of California (State) is willing to act as the non-federal sponsor for the Central Valley Integrated Flood Management Study (CVIFMS). We understand that this will require entering into a new feasibility cost share agreement (FCSA) for this effort.

The State will be represented by both the Department of Water Resources and the Central Valley Flood Protection Board in the new FCSA. This is primarily because we each operate under different authorities. We have each reviewed the draft Project Management Plan and FCSA for the CVIFMS and are ready, willing, and able to execute the cost share agreement with the U.S. Army Corps (Corps) of Engineers when completed. It is our intent that all three parties will work collaboratively to accomplish both the State and federal goals outlined in the FCSA.

We appreciate this opportunity to continue our work with the Corps to further reduce the risk of flooding in the Central Valley and develop a plan for the long-term stability of flood management issues in the area.

If you have any questions regarding this subject, please contact Jay Punia at (916) 574-0609, or your staff may contact Jeremy Arrich, Chief of the DWR's Central Valley Flood Planning Office, at (916) 574-2550.

Sincerely,

Jay S. Punia
Executive Officer
Central Valley Flood Protection Board

Gary Bardini
Chief, Division of Flood Management
Department of Water Resources

**NON-FEDERAL SPONSOR'S
SELF-CERTIFICATION OF FINANCIAL CAPABILITY
FOR AGREEMENTS**

I, Keith Swanson, do hereby certify that I am the Chief of the Division of Flood Management for the State of California, Department of Water Resources (a "Non-Federal Sponsor"); that I am aware of the financial obligations of the Non-Federal Sponsor for the Central Valley Integrated Flood Management Study; and that the Non-Federal Sponsor has the financial capability to satisfy the Non-Federal Sponsor's obligations under the Amendment Number 1 to the Feasibility Cost Sharing Agreement between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study.

IN WITNESS WHEREOF, I have made and executed this certification this 25 day of June, 2013.

BY: Keith Swanson

TITLE: Chief - Division of Flood Management

DATE: 6/25/13

**NON-FEDERAL SPONSOR'S
SELF-CERTIFICATION OF FINANCIAL CAPABILITY
FOR AGREEMENTS**

I, Jay S. Punia, do hereby certify that I am the Executive Officer of the Central Valley Flood Protection Board (a "Non-Federal Sponsor"); that I am aware of the financial obligations of the Non-Federal Sponsor for the Central Valley Integrated Flood Management Study; and that the Non-Federal Sponsor has the financial capability to satisfy the Non-Federal Sponsor's obligations under the Amendment Number 1 to the Feasibility Cost Sharing Agreement between the Department of the Army and the Central Valley Flood Protection Board and the State of California Department of Water Resources for the Central Valley Integrated Flood Management Study.

IN WITNESS WHEREOF, I have made and executed this certification this 27th day of June, 2017.

BY: Jay S. Punia

TITLE: Executive Officer, CVFPB

DATE: 6/27/2013

Central Valley Integrated Flood Management Study, CA

Planning Smart - Re-scoping Charette #2

Post-charette Submittal



January 2013

MEMORANDUM FOR RECORD

SUBJECT: Central Valley Integrated Flood Management Study (CVIFMS) Re-scoping Charette

1. Purpose: The purpose of this memorandum is to document the subject activity held at the Sacramento District on December 12-14, 2012.
2. Summary: The CVIFMS study is focused on the Sacramento River Basin, containing 930,000 people in the floodplain; \$70 billion in structures at risk, over \$1.7 billion in crop value at risk, critical infrastructure including interstate highways, transcontinental railroad, airports, ports, and water conveyance structures. Flood depths can exceed 15 feet in a large part of the basin potentially resulting in significant life loss and property damage. The State of California has committed \$5.4 billion dollars in bond funds to study and identify a comprehensive flood management solution for the Central Valley of California. In addition, thousands of acres of critical habitat and the presence of over 300 threatened and endangered species makes ecosystem concerns an important part of the State's effort. CVIFMS is aligned to complement the State's efforts and identify Federal interest in a multipurpose solution to the flooding problem. A successful charette was held as the project delivery team, sponsors, and vertical team utilized critical thinking skills to execute the six-step planning process on an array of plan formulation strategies and potential management measures to assist in the movement of the study forwards towards the final array of alternatives milestone.

The charette agenda is included as **Attachment A**. Notes were contemporaneous and seek to capture the interactive nature of the discussion. After a brief update by the sponsor on status of the basin-wide feasibility studies to support the 2017 update, the project delivery team (PDT) presented a PowerPoint presentation with an overview a preliminary study strategy employing a two-pronged approach: one focusing on a feasibility study of system-based solutions in the Sacramento River Basin and the second on an integrated water management plan proposing system management tools and frameworks (**Attachment B**). The charette team then proceeded to discuss the validity of the study strategy (**Attachment C**) and proposed to work through the planning process by briefly revisiting the problem statements, planning objectives and constraints and potential metrics. Much of the discussion centered on modification to problem statements and appropriate definition of the future without-project condition. The result of the exercise was identification of four formulation strategies and the next planning decision.

a. The four formulation strategies identified were:

1. State Plan
2. Increase Storage Capacity

3. Optimize Operations (non-structural plan)
4. Add Conveyance Capacity

Additionally, single purpose formulation strategies were identified for use in the evaluation of the multipurpose plans later in the study process. Some management measures were identified for each of the strategies to assist in the formulation of alternatives. These measures have been captured in the notes for this charette and have been added to the updated report synopsis. Additional measures will be developed by the PDT prior to the next In-Progress Review (IPR).

As a result of the charette, the vertical team agreed that the study authority is adequate to continue, the feasibility cost-sharing agreement (FCSA) is adequate to proceed with the study, the problems and opportunity statements and study objectives with some refinement were adequate to proceed to the Alternatives Milestone 1. The study sponsor has expressed concern that the re-scoping of a \$43 million dollar study down to \$3 million may not be practical and has asked that the vertical team consider this situation in moving forward. The team agreed that the next Planning Decision is to decide on the focused array of alternatives and present them at the Alternative Milestone 1.

b. A decision management Plan (DMP) was outlined during the charette and a more robust version is included as **Attachment D**. Key issues highlighted to address during this decision step are:

1. Uncertainties regarding FWOP
2. Use of existing information
3. Formulation to consider the 5 R's (resiliency, reliability, robustness, redundancy, resourcefulness)
4. Define approach to address future scenarios
5. Revisit two-pronged approach

The documentation for this next decision step will be an updated Report Synopsis. The most current version, reflecting the discussion at this charette is included as **Attachment E**.

3. Decisions made:

1. The four study objectives identified represent the intent of the study
2. Maximize use of current formulation work
3. Formulation strategies are to focus on system-wide application of measures to address flood risk management and ecosystem restoration
4. Proposed study strategy to be followed and re-evaluated as study progresses

These decisions are captured in the study's Decision Log in **Attachment F**.

4. Attendees: The charette was attended by representatives from the U.S. Army Corps of Engineers Headquarter (HQ), South Pacific Division (SPD), Sacramento District (SPK), and

State of California Department of Water Resources (DWR). Following is a list of those who attended the Charette.

HQ: Bradd Schwichtenberg (CEMP-SPD), Pauline Acosta (CEMP-SPD), Tom Hughes (CE-C-OWPR), Jeanette Gallihugh (CE-C-OWPR), Scott Nicholson (CE-C-OWPR)

SPD: Clark Frentzen (CESPD-PDS-P), Cindy Tejada (CESPD-PDS-P), Leigh Skaggs (CESPD-PDS-P), Kurt Keilman (CESPD-PDS-P)

SPK: COL Leady (CESPK-DE)

CESPK-PD: Alicia Kirchner, Mark Cowan, Mike Dietl, Bob Koenigs, Nick Applegate, Jerry Fuentes, Scott Miner, Tanis Toland, Brian Luke, Gary Bedker, Arturo Ceballos,

CESPK-PM-C: Nicole Ortega, Michelle Kuhl, Tom Karvonan

CESPK-ED: Peter Blodgett, Greg Kukas, Virginia Rynk

DWR: Joe Bartlett, Jeremy Arrich, Kari Shively (contractor)

CVFPB: Mike Musto

PCX Representative: Eric Thaut

Facilitator: Hunter Merritt

SMART Planner: Brian Harper

5. Next Steps: This next step has been captured in Decision Management Plan #1 (**Attachment C**). An IPR will be scheduled in late February to confirm revised FWOP conditions and review revised project scope and risk register. The final array of alternatives (Alternatives Milestone 1) would be held in April 2013.

6 Encls

- 1 Attachment A – Charette Agenda
- 2 Attachment B – PowerPoint Presentation
- 3 Attachment C – Study Strategy Paper
- 4 Attachment D – Decision Management Plan
- 5 Attachment E – Revised Report Synopsis
- 6 Attachment F – Decision Log

Alicia E. Kirchner
Chief, Planning Division

ATTACHMENT A

Charette Agenda

**CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY
CHARETTE #2 AGENDA
SACRAMENTO DISTRICT
CONFERENCE ROOM 1424
DECEMBER 12 – 14, 2012**

Wednesday, 12 DEC – CVIFMS

1030 – Arrive and make way to 1424

1030 – 1100 – Introductions, Overview of Charette Purpose

KIRCHNER

1100 - 1130 – State of California update

BARTLETT/SHIVELY

- Update activities since August charette
- Focus on basin-wide studies and bypasses

1130– 1230 - LUNCH

1230 – 1300 – Review of Charette #1

HARPER/MERRIT

- Decisions
- Post-charette products

1300 – 1345 – Overview of RAH package(s) & discussion of study strategy

FUENTES/KARVONEN

- Two-prong approach (IWMP/Feasibility)

1345 – 1430 – Review of ongoing COE Central Valley projects

FUENTES/KARVONEN

1430 – 1445 – BREAK

1445 – 1500 – Identify Next Decision

HARPER/MERRIT

1500 – 1645 – DMP for Next Decision

HARPER/MERRIT

1645 – 1700 – Wrap Up

HARPER/MERRIT

Thursday, 13 DEC – CVIFMS

0800 – 0815 – Arrive and make way to 1424

0815 – 1000 – Discuss Evaluation Criteria/Use of State Work

HARPER/MERRIT

1000 – 1015 – BREAK

1015 – 1200 – Update Risk Register

HARPER/MERRIT

1200 – 1300 – LUNCH

1300 – 1430 – Discussion of Next Decisions

HARPER/MERRIT

1430 – 1445 – BREAK

1445 – 1700 – Develop strategy for next DMP's

HARPER/MERRIT

Friday, 14 DEC – CVIFMS

0800 – 0815 – Arrive and make way to 1424

0815 – 1000 – Wrap-up CVIFMS Discussion

ATTACHMENT B

PowerPoint Presentation

Central Valley Integrated Flood Management

Study Planning and Re-
Scoping Charette #2

12 - 14 December 2012



August Charette

- Focus on Sacramento River Basin
- Lower SJ River study would address portion of the San Joaquin River Basin
- Develop study strategy that addresses both system-wide approach and site-specific project



Sacramento River Basin



Without-Project Assumptions

- On-going studies in Sacramento River Basin are taken into consideration in planning
- Delta not directly part of study
- Assumes system cannot provide design protection
- Fish & wildlife resources will continue to decline
- Limited State and local resources will address some FRM problems
- Water supply will continue to share system



Without Project Condition

- 930,000 people within the floodplain
- \$70 billion in structures at risk
- \$1.7 billion in agricultural crop value
- Over 347 threatened and endangered species



Study Strategy

- Two-pronged approach
- Feasibility Study for system-based solution
- Integrated Water Management Plan



Central Valley Integrated Flood Management Study Strategy

Management of the System

- Policy Modifications
- Regulatory Framework
- Implementation Framework
- Decision-making Framework
- Crediting Framework

On-Going Projects

- West Sacramento GRR
 - American River - Common Features
- American River - JFP Folsom Mods and Reoperation
- Marysville Ring Levee
 - Yuba River Basin
 - Sutter Basin Pilot Study
- South Sacramento County Streams
- Sacramento River Bank Protection

System Improvements

- Assess existing system-wide features
 - Formulate measures and alternatives
- Evaluate and Compare Alternatives
- Identify TSP
- Agency Decision



System-Based Study

- Feasibility level analysis
- Use of State tools and information
- Focus on system-based solutions such as bypasses, weirs, reservoir re-operation



Ongoing Projects

- Sutter Basin
- American River Common Features
- Delta Islands
- Lower San Joaquin River
- West Sacramento
- Sacramento River Bank Protection
- Mid-Valley





Residual Damages

Economic Impact Area	Estimated Population at Risk	Economic Inventory (Number of Structures)	Value of Damageable Property	Economic Damages (October 2012 Prices)	
				Without	With*
Sacramento Bank	85,000	10,000	1,800,000,000	42,000,000	35,000,000
Sutter Basin	95,000	27,200	6,900,000,000	104,040,000	33,660,000
Yuba Basin	37,000	33,000	8,600,000,000	33,660,000	28,560,000
American River--Natomas	80,000	23,000	8,500,000,000	480,480,000	19,760,000
American River--Common Features	400,000	145,000	93,000,000,000	265,000,000	169,000,000
West Sacramento	44,000	18,500	4,500,000,000	294,320,000	31,200,000
South Sacramento Streams	100,000	27,000	6,800,000,000	29,280,000	4,880,000
TOTAL	841,000	283,700	130,100,000,000	1,248,780,000	322,060,000



Flood Risk Trends

- 930,000 are at risk from flooding in along Sacramento River with population trends increasing
- The number of flood insurance policy holders has tripled since 1982
- As population increases, critical infrastructure to support that population increases
- \$11 billion spent in last decade, \$50 billion for currently identified projects, estimated \$100+ billion for future projects



State's Near-Term Focus

- The State's objectives for both flood risk reduction and the conservation strategy have been prioritized and focused to the point that their next phase of planning (basin-wide studies) will focus on bypass modifications.



Formulation Strategy

- Consistent with Planning Modernization
- Make use of State-developed information to extent possible
- Use risk-based decision-making
- Conduct study in accordance with EC 1105-2-404, Planning Civil Works Projects Under the Environmental Operating Principles
- FRM will be primary project purpose
- HQ champion will be identified to ensure vertical alignment



Planning Objectives for Primary Purpose

- **Objective - Reduce** risks to life safety within the study area during the period of analysis, focusing on areas with the greatest potential life safety impacts (population at risk; deepest inundation potential).
- **Possible Metrics** - population at risk, average warning/evacuation time, loss of life potential
- **Objective** – Reduce the consequences and annual damages associated with flood risk in the study area, with an emphasis on improving resiliency and safety of key infrastructure and increasing the integrity of water system.
- **Possible Metrics:** dollars of damage, annual damages, strategic infrastructure, system integrity, system benefits



Potential Measures for System-based Feasibility Study

- *Sutter Bypass Expansion* - widening of the bypass for approximately 15 miles. Modifications to the Colusa and Tisdale Weirs and Butte Basin overflow areas would be considered as part of this expansion.
- *Yolo Bypass Expansion* - widening of the bypass for 42 miles. Modification to the Fremont Weir, setback levees, and revising operations of Cache Creek Settling Basin would be considered as part of this expansion.
- *Sacramento Bypass Expansion* - widen the bypass for about 2 miles. Modification of the Sacramento Weir, automating the weir and reoperation would be considered as part of this expansion.
- *New Bypass from Feather River to Butte Basin* - Construction of a new bypass for approximately 16 miles.
- *New Bypass in South Delta* - Construction of a new bypass for approximately 8 miles near Paradise Cut.
- Reservoir Re-operation
- Transitory Floodplain Storage



Ecosystem Restoration

- Look specifically at opportunities created by system-based FRM measures
- Consistent with State's Conservation Strategy
- Both terrestrial and aquatic habitats



Planning Objective for ER

- **Objective** - Increase area, connectivity, and diversity of native aquatic and related habitats in the Sacramento River Basin.
- **Possible Metrics:** acres improved, acres of connectivity, indicator species, reduced non-native species, acres of FAF, improved quality, frequency of activated floodplain, number of fish using habitat.



Integrated Water Management Plan

- Focused on management of system
- Provide context for all COE projects in Sacramento River Basin
- Recommendations for multiple agencies to implement



IWMP Facets

- Regulatory Framework
 - ▶ Basin-wide permits
- Decision-making Framework
 - ▶ Basin-wide criteria
- Implementation Framework
 - ▶ Governance Structure
- Crediting Framework
 - ▶ Existing Authorities
 - ▶ Legislation



Questions?



ATTACHMENT C

CVIFMS Study Strategy Paper

Central Valley Integrated Flood Management Study Strategy Document

November 28, 2012

This paper is to assist in the development of a strategy for the Central Valley Integration Flood Management Study (CVIFMS). As an output of a planning charrette in August 2012, SPK was tasked with developing this strategy along the following points:

1. Define overarching goals and strategy to attain them.
2. Define purposes of project (FRM, Ecosystem, Multi-benefit)
3. Develop a model for setting implementation priority for projects
4. Develop a decision-making framework

Overarching Goals and Strategy

The CVIFMS's overarching goals are to establish an integrated water management strategy in concert with the State of California that addresses water resources needs within the Central Valley and identify Federal interest in solutions to water resources problems. The study strategy would be consistent with the Planning Modernization initiative which encourages studies to be completed within three years and for under three million dollars. To accomplish this, the study will focus on the Sacramento River Basin, leaving the San Joaquin Basin portion of the Central Valley to the Lower San Joaquin Feasibility Study and other potential future studies, allowing for the State to work out and implement its Restoration Plan and reconciling that plan with the flood management system. The CVIFMS would be a multi-objective study to propose a series of strategies to manage the Sacramento River Basin portion of the State Flood Control System and to identify and assess the potential Federal interest in system-based improvements for flood risk management.

Background

The Sacramento River Basin occupies the northern portion of the Central Valley; it covers approximately 26,300 square miles above Rio Vista, and is approximately 240 miles long and up to 150 miles wide. The Sierra Nevada bounds the basin on the east, the Coastal Range on the west, the Cascade and Trinity Mountains on the north, and the Sacramento-San Joaquin Delta on the south. In years of heavy precipitation, flows overwhelm the natural channels of the Sacramento River and its tributaries and flow out on to the surrounding floodplain.

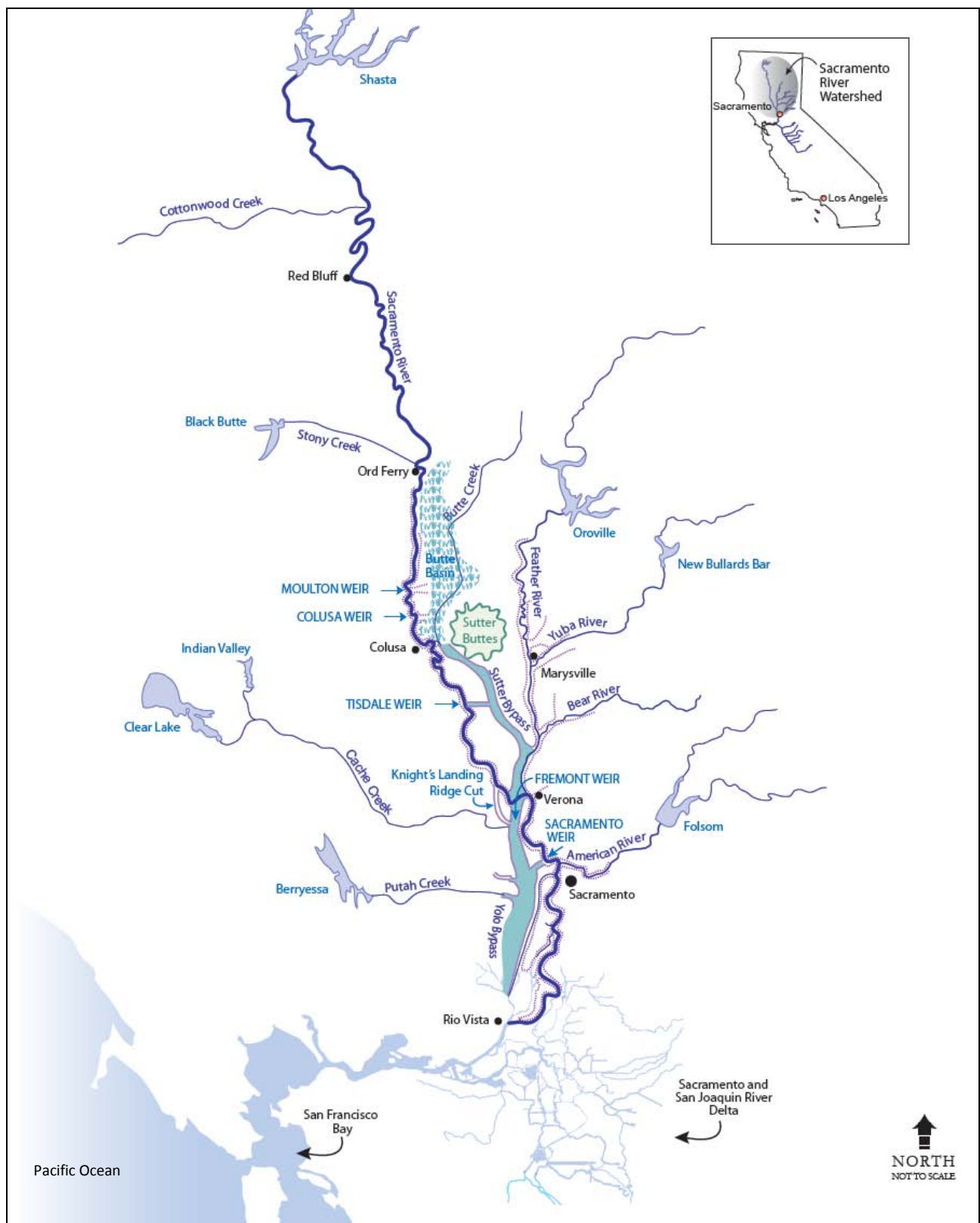


Figure 1: Sacramento River Flood Risk Management System

Federal participation in the construction of the flood risk management system began shortly after authorization in 1917 and continued for approximately 40 years. The completed system was documented in 1957 in a design memorandum, which included design water surface profiles. To this day, these are the profiles which govern the operation and maintenance requirements of the levee system. Figure 1 is a map of the Sacramento River Flood Management System.

The system is designed to keep all flows from floods up to a certain magnitude within the river, and then to divert flow into the bypass network once this event is exceeded. Throughout the system, the frequency that flow starts to divert from the Sacramento River to the bypass network varies between a 3-year to 5-year flood event.

Since completion of the major components of the Sacramento River Flood Control Project (SRFCP), additional information has been gained and circumstances have changed.

- The hydrology of the past 55 years has been more severe than all of the flood events experienced prior to that time that were used to design the system.
- We have an increased understanding of how thru and under seepage and erosion can lead to levee failure based on actual failure experiences in the basin.
- Many of the basins with levees have transformed from agricultural land uses into urban development so that the consequences of levee failure have dramatically increased.

As the Corps is developing and implementing system-minded solutions to flood management in the Central Valley, the State of California has compiled the Central Valley Flood Protection Plan (CVFPP), which will document the existing system, and assess the deficiencies of the existing system, then strive to improve flood risk management, improve operations and maintenance, promote ecosystem restoration, improve institutional support, and promote multi-benefit projects. In the CVFPP, various improvements to the overall flood management system are recommended, including the widening of several bypasses and weirs.

The recommendations contained in the Interim Report for the Sacramento and San Joaquin River Basins Comprehensive Study identified the need to implement projects on a local or regional basis but with an understanding of how the proposed changes would affect the remainder of the flood management system. Modeling efforts of the entire flood risk management system indicate that the sheer size and complexity of the system minimizes its sensitivity to change. For example, as illustrated in the draft CVFPP, the State's desired levee setbacks, bypass expansions, and upstream reservoir operations are expected to make only small changes in the water surface elevations.

Much of the levee system was originally constructed with hydraulic dredge material from the river channel (*i.e.* primarily sand and silt). Approximately 60 percent of the 1,230 miles of non-urban levees have a high potential of failure at the design water surface elevation. Over half of the 300 miles of urban levees are not constructed to current engineering standards at the design water surface elevation. Geotechnical analysis and experience have shown that through and under seepage, and stability issues can lead to levee failure and are critically important, especially in urban reaches. Accordingly, although the larger system fixes proposed by the CVFPP may provide some benefits as a result of a slightly lowered water surface elevation, the levees themselves must nonetheless be improved to reduce the inherent seepage and stability problems, allow the system to convey the flows for which it was intended, and reduce the probability of levee failure and the associated consequences.

The urban projects that are currently the focus of various feasibility/GRR studies within the Sacramento District (West Sacramento GRR, American River Common Features GRR, Sutter County Feasibility Study, and the Yuba River Basin GRR) are therefore recognized as critical infrastructure investments by the State of California, which has funded the study, design, and construction of Early Implementation Program (EIP) projects within the CVFPP. As these efforts are evaluated through the USACE Civil Works Planning Process and Section 408 approval process, the Corps closely analyzes not only the proposed project design, but also the system-wide effects of various elements implemented by the State and local interests.

The SRFCP has proven to be very resilient; in that the system is not that sensitive to changes. Even with the changes proposed by the CVFPP, including major physical changes such as bypass expansion and construction of new bypasses, the change in stage from a major flood event (~200-yr) is on the order of about a foot or less according to information in the CVFPP.

Early State's Efforts

Damages in the Central Valley resulting from flooding in February 1986 and January 1997 were the highest on record, raising public awareness of the susceptibility of the Central Valley and its growing communities to catastrophic flooding. Furthermore, the November 2003 *Paterno vs. State of California* decision (which resulted from damages caused by a 1986 failure of a Yuba County levee) found that when a public entity has accepted and operates a flood control system built by someone else, it accepts liability as if it had planned and built the system. The *Paterno* decision ultimately cost the state nearly half a billion dollars and exposed it to potential liability for the structural integrity of much of the Central Valley flood control system. The devastation from Hurricane Katrina in 2005 and images of deep urban flooding further raised awareness of the urgency of reducing flood risk.

The Central Valley Flood Protection Act of 2008 (CVFPA), passed by the California legislature as Senate Bill 5 (SB5), directs local flood risk management efforts. Because of the potentially catastrophic consequences of flooding in the Central Valley, the CVFPA recognizes that the Federal government's current 1 in 100 annual chance of exceedence standard is not sufficient to protect urban and urbanizing areas within flood-prone areas throughout the Central Valley and declares that the minimum standard for these areas is a 1 in 200 annual chance of flood risk.

The CVFPA, acknowledging the urgent need to improve the existing flood protection system, allows urban flood improvement projects (EIP) to be funded with bond funds in advance of the State's system-based plan known as the CVFPP. The EIP program is prioritized by targeting projects that result in the greatest public safety and ecosystem improvements with early financial investments. The early investment targets include high consequence systems (urban areas) most vulnerable to deep flooding. Such projects require that the Director of DWR first determine in writing that the improvements are necessary, will reduce or avoid risk to human life in urban areas, and will not impair or impede future changes to regional flood protection.

Various local interests have elected to pursue advance implementation of flood risk management measures in anticipation of future Federal projects. These local groups have partnered with the State of California and received financial support through the EIP. Since the proposed work would affect authorized Federal levees, any non-Federal modification or alteration to the Federal levees requires prior approval from the Corps as documented in 33 USC 408 (commonly referred to as Section 408). Local interests must follow the provisions of Section 408 for any levee improvements beyond maintenance activities and if the advance work is intended for establishing credit for a future Federal project.

Within the Sacramento River Flood Control Project (SRFCP), there are four main areas where Section 408 permissions have been sought (Figure 2). These areas are:

- Yuba River Basin – Reclamation District 784 (Yuba, Feather and Bear Rivers)
- Natomas (Sacramento River, Natomas Cross Canal)
- West Sacramento (Sacramento River and Bypass)
- Sutter County (Feather River)
- Knights Landing (Sacramento River)

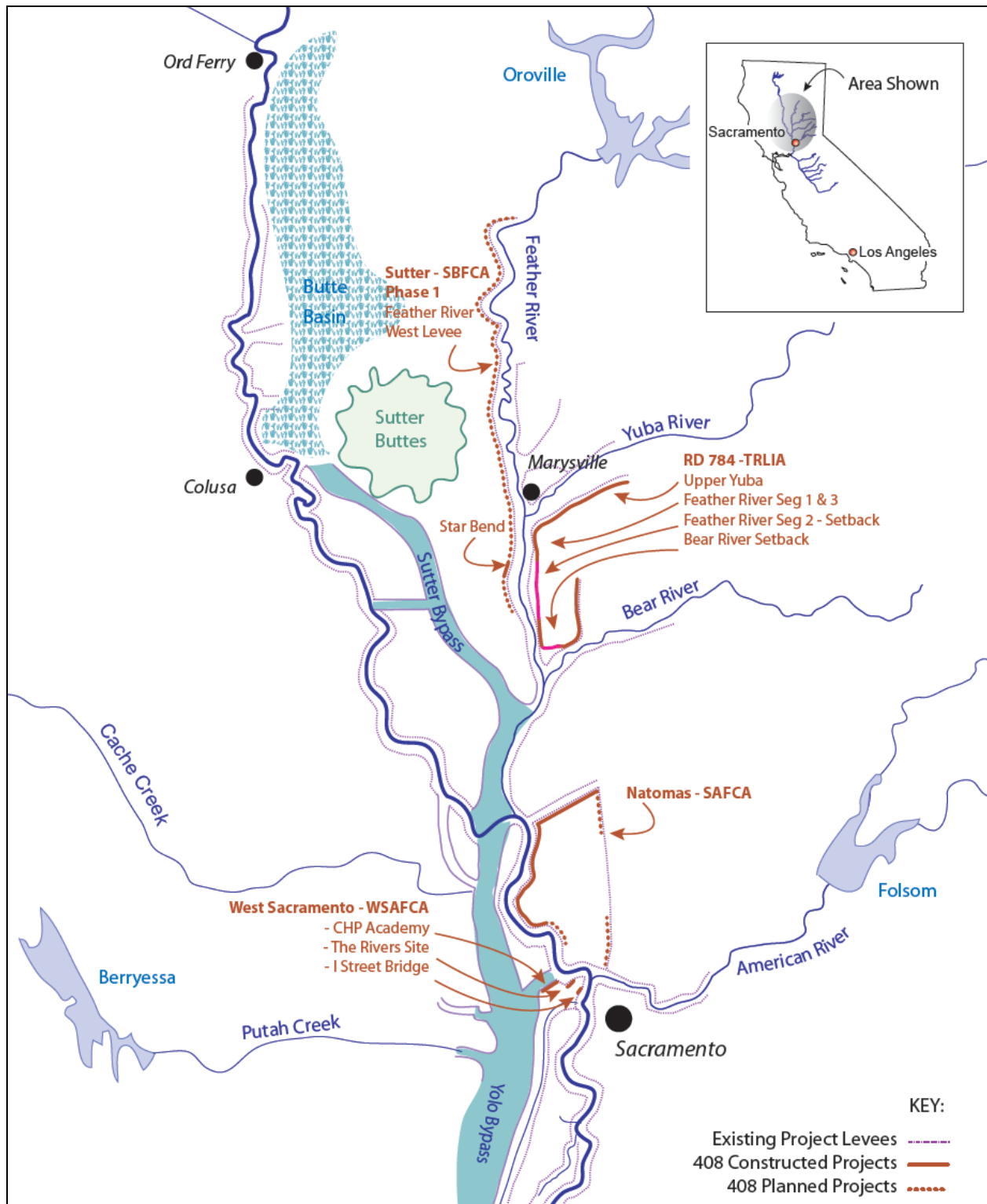


Figure 2: 408 Permissions within the Sacramento River Watershed

CVFPP

The CVFPP identifies the state's vision for modernizing the State Plan of Flood Control (SPFC) facilities to address current challenges and future trends. The physical features are organized into system and regional elements. These include: urban, small community and rural agricultural improvements – projects to achieve local and regional benefits, and system improvements that provide cross-regional benefits and improve the function and performance of the SPFC.

Key benefits of implementing the recommendations included in the CVFPP, compared with current conditions, are the following:

- 67% reduction in expected annual damages
- Construction to increase economic output by \$900 million and generate over 6,500 jobs annually
- Avoided business losses to increase long term economic output by over \$100 million
- 49% reduction in life risk
- 10,000 acres of new habitat and 25,000 acres of habitat-compatible crops
- Sustainable rural-agricultural lifestyle
- Resiliency and adaptation to future changes

The 2012 CVFPP was adopted June 2012 by the Central Valley Flood Protection Board and will be updated every 5 years; the State will now initiate two basin-wide feasibility studies (Sacramento and San Joaquin Basins). These state feasibility studies will examine the measures and alternatives considered in the 2012 CVFPP to determine their feasibility and will identify a Locally Preferred Plan for consideration by USACE.

Since the majority of the Central Valley flood risk management facilities and most of the State Plan of Flood Control (SPFC) facilities are part of the State -Federal flood management system, any modifications or additions to this system requires federal participation and approval through USACE likely through the 404 or 408 permitting process.

CVIFMS Study Strategy

The study strategy for CVIFMS is a two-pronged approach: a programmatic level discussion of improved methods of managing the Sacramento River Flood Risk Management System and a feasibility level study of system-based improvements to the system to determine Federal interest in implementation of those improvements. The study would use a watershed approach to identifying water resources problems in the Sacramento River Basin, primarily on flood risk management. Below are summary discussions of each approach.

Management of Sacramento River Flood Risk System

As previously noted, the existing flood risk system on the Sacramento River is large and complex. Despite being a joint Federal-State project, the system has not been managed from a watershed perspective by either agency. Instead, a piecemeal approach to addressing problems or deficiencies revealed by new information or better technology has led to an inefficient system. Below are summaries of several key areas that CVIFMS would propose solutions to improve the overall management of the system.

Regulatory Framework

An area of increasing concern to the State is the inefficiency of the permitting process to allow for the ongoing Operation, Maintenance, Repair, Replacement & Rehabilitation (OMRR&R) activities and new improvements associated with the system. An integrated conservation strategy is currently under development by the State that would integrate measures to mitigate potential impacts to environmental resources resulting from the construction of improvements to the flood risk system. This could provide the baseline activities that a regional or system-wide permit under the Corps Regulatory Program could be developed and implemented.

Implementation Framework

Given the basin-wide nature of potential solutions and the limits on funding, it is desirable to implement the solutions in a manner that is both efficient and effective. The goal would be to take advantage of integration with ongoing projects in the Sacramento River Basin and achieve benefits across multiple purposes with solitary actions.

A potential method of assisting in this is the formation of a governance structure to oversee such activities as permitting, project implementation, strategic decision-making and oversight over ongoing construction activities to ensure optimum integration between projects and long-term strategic planning. This governance structure would be an interagency group that could include such stakeholder groups as the Corps, U.S. Bureau of Reclamation, State Department of Water Resources, State Regional Water Quality Control Board, and others.

Governance structures such as the Debris Commission, Long Term Management Strategy for Dredged Material (LTMS) and the Louisiana Coastal Commission could serve as potential models for the establishment of such a governance structure.

Decision-Making Framework

Development of a framework for decision-making would be part of the provenance of the governance structure upon creation. CVIFMS would assist in the creation of the framework by proposing criteria for consideration.

In general the framework would:

- identify, assess, communicate and manage risks to life, health, the environment and economics associated with flooding and residual risks associated with risk mitigation plans;
- account for the major uncertainties in the planning environment that could affect the performance of plans in the future;
- identify data gaps that could influence decisions;
- provide the basis for ranking the performance of alternative plan formulations based on risk metrics correlated to planning objectives and stakeholder values; and
- establish confidence levels for planning decisions and recommendations.

Crediting Framework

With the legislative mandate placed on the State for long-term planning for the Central Valley, it is anticipated that some improvements to the flood system will take place in advance of a Federal authorization. That would mean that the State would likely seek credit for these advanced improvements through existing authorities. However, additional crediting authorities could be sought should the existing framework prove inadequate.

Feasibility Study of System-based Improvements

The primary objective of the feasibility study would be to formulate and assess a reasonable array of system-based improvement alternatives and identify Federal interest. This study would participate in the State's basin-wide feasibility studies in this manner. Based on the Planning Modernization Initiative, Corps feasibility studies are to be completed within three years for less than three million dollars in total study cost. CVIFMS has undergone a re-scoping process that has focused the study on the Sacramento River Basin. It is assumed that the feasibility study would make use of models and data generated by CVFPP to evaluate alternatives. In the CVFPP, various improvements to the overall flood management system are

recommended, including system-based improvements. The following system improvements were identified in the CVFPP:

- *Sutter Bypass Expansion* - widening of the bypass for approximately 15 miles. Modifications to the Colusa and Tisdale Weirs and Butte Basin overflow areas would be considered as part of this expansion.
- *Yolo Bypass Expansion* - widening of the bypass for 42 miles. Modification to the Fremont Weir, setback levees, and revising operations of Cache Creek Settling Basin would be considered as part of this expansion.
- *Sacramento Bypass Expansion* - widen the bypass for about 2 miles. Modification of the Sacramento Weir, automating the weir and reoperation would be considered as part of this expansion.
- *New Bypass from Feather River to Butte Basin* - Construction of a new bypass for approximately 16 miles.
- *New Bypass in South Delta* - Construction of a new bypass for approximately 8 miles near Paradise Cut.

These alternatives and others such as reservoir re-operation would be examined in the study.

The CVIFMS would integrate information and findings of the ongoing or recently completed Corps studies within the Sacramento River Basin. These studies include:

West Sacramento GRR
American River - Common Features
American River - JFP Folsom Mods and Reoperation
Marysville Ring Levee
Yuba River Basin
Sutter Basin Pilot Study
South Sacramento County Streams
Sacramento River Bank Protection - Phase II and III
Sacramento River System Evaluation, Phase III
Cache Creek Feasibility Study
Hamilton City (see figure 3).

This integration will be done with the assumption that the existing Corps studies will be implemented, and will look to find gaps in those projects and residual benefits that could be captured with system-based improvements. It is anticipated that existing policy and regulatory

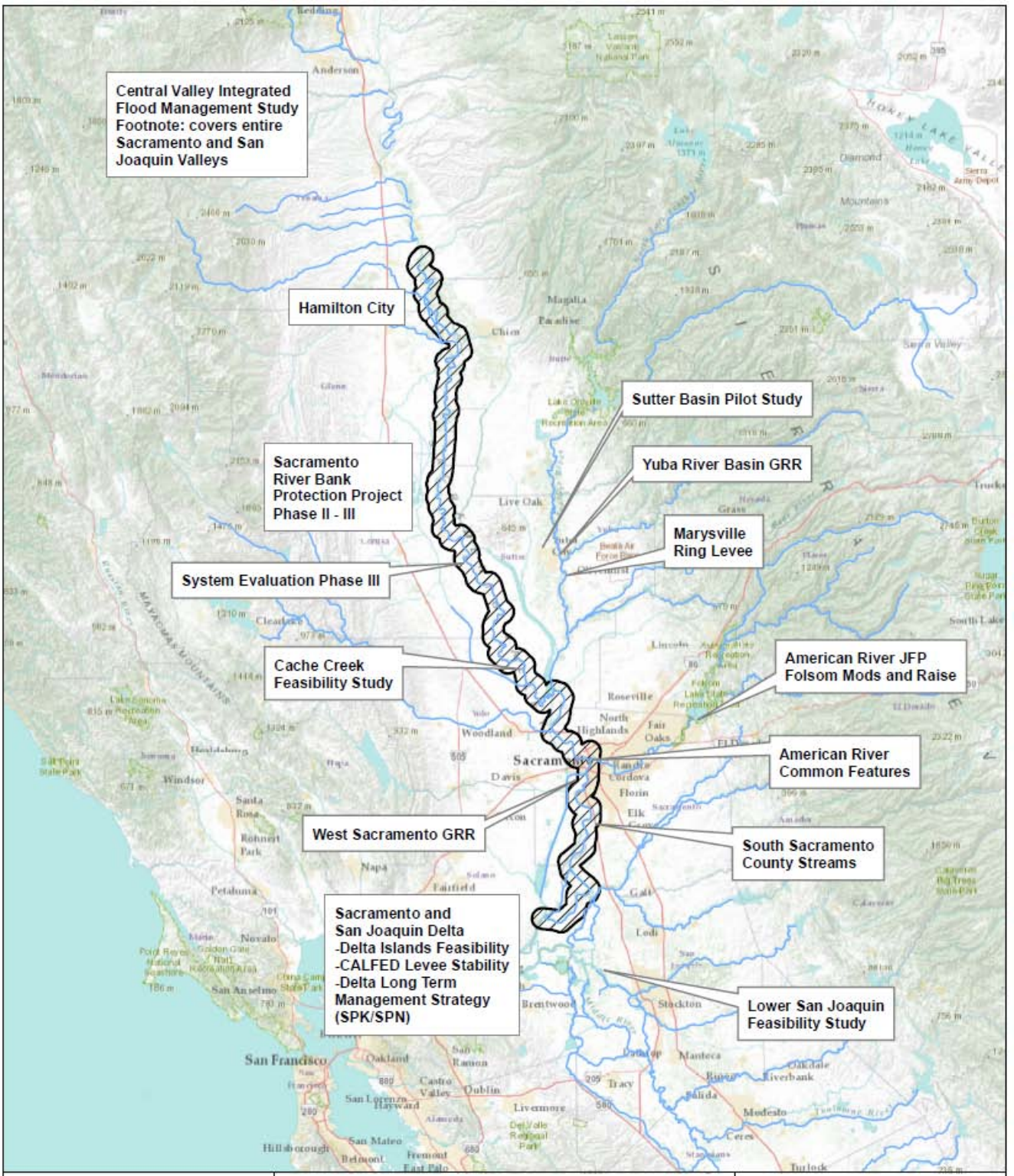


FIGURE 3: Flood Risk Management Studies and Projects in the Central Valley

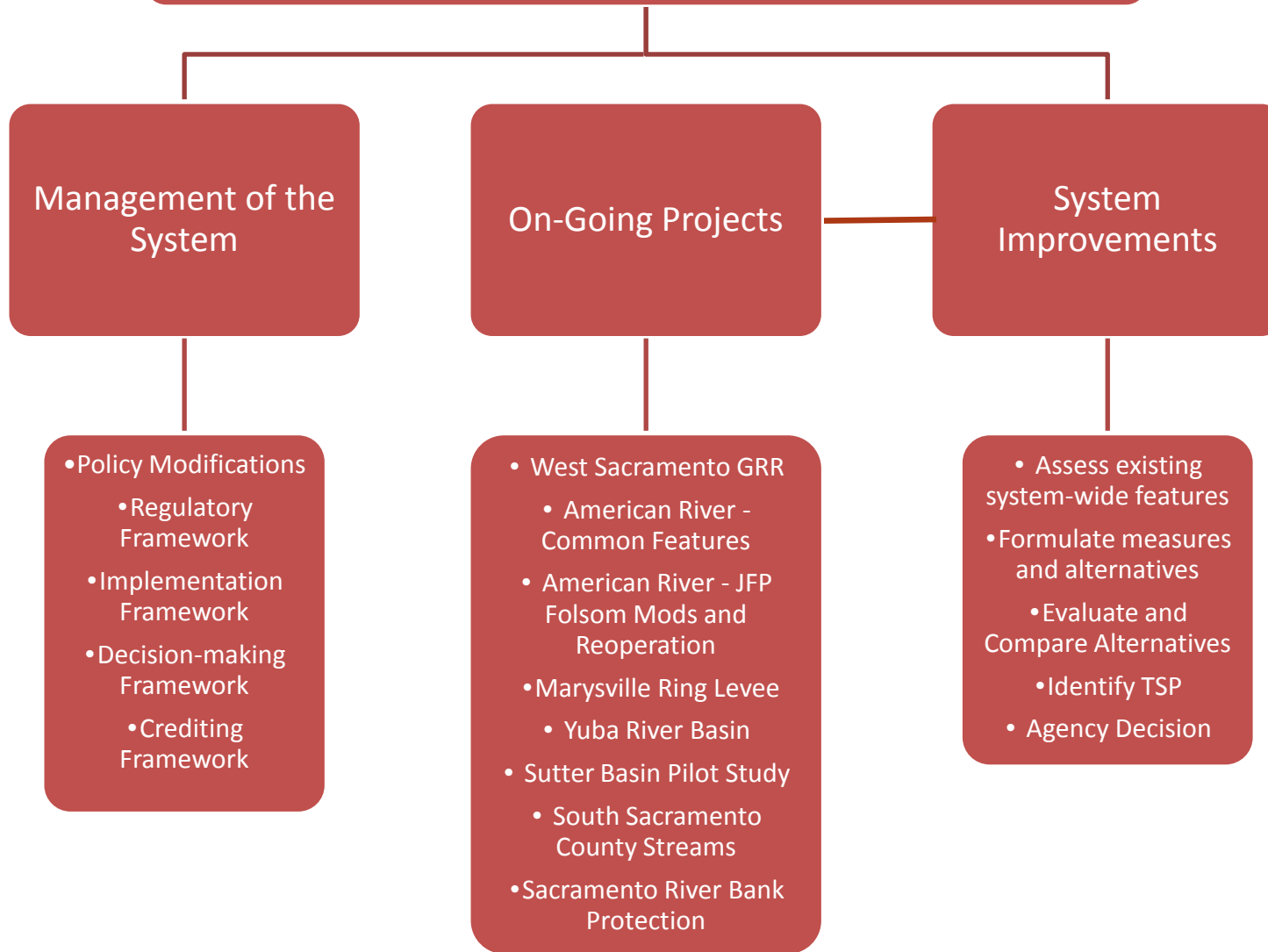
guidelines may need to be reviewed and revised to capture the Federal Interest in these System-Based approaches with an eye towards Integrated Water Resource Management and integrated policy with the Unified Program for Floodplain Management (1994).

Documents to be Produced

It is likely that two distinct documents could be ultimately produced by the CVIFMS. The first would be an integrated water management plan that focuses on improvements to the management of the Sacramento River flood risk system. This IWMP would make recommendations on improvements to policy, regulatory framework, implementation framework, decision-making framework, and crediting framework and would not result in a Chief of Engineers' report.

The second document would be a companion decision document to the State's Sacramento River Basis Feasibility Study that documents Federal interest in a proposed system-based solution to flood risk management problems on the Sacramento River. The document would be sufficient to support a recommendation by the Chief of Engineers to Congress for authorization.

Central Valley Integrated Flood Management Study Strategy



ATTACHMENT D

CVIFMS Decision Management Plan

Decision Management Plan
Central Valley Integrated Flood Management Study
13 December 2012

I. What is the next Planning Decision?

This DMP outlines the strategy to make a decision on the focused array of alternatives. The decision will be made at the Alternatives Milestone meeting.

II. Sequence of events required.

- A. Revisit and Define specifics of the FWOP (including defining characteristics for all four accounts – see IV)
- B. Refine language in Problems and Opportunities statements, Objectives, and Constraints
 - 1. Add focus to all statements including timing and location where known
 - 2. Ensure they reflect projects' FWOP assumptions
 - 3. Reference objectives of other studies
 - 4. Address demand and capacity issues, consider different future scenarios
- C. Identify management measures. Ensure complete list to reflect objectives.
- D. Formulate initial array of alternatives
 - 1. Review State alternatives (i.e. four approaches) for consideration in array
 - 2. Use formulation strategies identified during charette to formulate remaining alternatives (consider 5 Rs)
- E. Develop criteria for evaluation – maximize use of available information
- F. Screen Plans (incl. State developed plan)

III. Highlight Key Issues in this Decision step

- A. Identify FWOP uncertainties
- B. Use of existing information
- C. Formulation to consider 5Rs (VT agreement)
- D. Agreement on approach, implications of B.4.
- E. Revisit initial discussion on proposed two-pronged approach

IV. Criteria for Deciding

- Immediate Task: Team is to recommend specific metrics for these criteria.
- Criteria should define residual risk characteristics on all four accounts
- (see PDF whiteboard from webmeeting)
- F. Acres Restored
- G. Compatibility with Investments of Others and Completeness
(could be compatible with FWOP assumptions & stand alone)
- H. Cost
- I. Economic Benefits (structure damages, agriculture, etc)

- Level of detail may not need to go to dollars, acknowledge risk of choices made here at this level.

J. Resiliency of other infrastructure

K. Population at risk

IV. Decision Makers

A. Vertical Team

V. Schedule for Decision

- A. Revise Charette Outputs, sent up to VT
(Updated, Report Synopsis, DMP, Risk Register, Draft PMP, MFR)
– draft to SPD 21 DEC, final 4 JAN
- B. PDT Review Meeting, including State, re: existing data, FWOP decisions – 17JAN-28JAN
- C. Draft synopsis to SPD 25 JAN (2 week review for QA), then to HQ 8 FEB
- D. PAT team review(s) – 8 hours
- E. VT Coordination (IPR?) – end of Jan 2013
- F. Milestone Meeting - TBD

VI. Decision Summary (to be completed when decision is made)

ATTACHMENT E

CVIFMS Report Synopsis

**Report Synopsis
for
Central Valley Integrated Flood Management Study, California**



December 2012

Report Synopsis for Central Valley Integrated Flood Management Study

1.0 Stage of Planning Process

This is a new feasibility study to determine Federal interest and provide the Federal support for the State Central Valley Flood Protection Plan (CVFPP) vision of improved FRM in the Central Valley. The study is currently identifying management measures and formulating the final array of alternatives.

2.0 Study Authority

The CVIFMS is a continuation of the Sacramento and San Joaquin River Basins, California Comprehensive Study (Comp Study). Congress authorized the Comp Study in Section 209 of the Flood Control Act of 1962 (Public Law 87-874). In the 1998, House Report 105-190 of Public Law 105-62, Congress provided direction for the study:

“Sacramento River and San Joaquin River Basins Comprehensive Study, California.

In response to the devastating floods of 1997, the Committee has added funds and directs the USACE to conduct a comprehensive assessment of the entire flood control system within the existing study authorizations of the Sacramento River Watershed Management Plan (authorized by the Flood Control Act of 1962) and the San Joaquin River and Tributaries authority (authorized by 1964 Resolution of the House Committee on Public Works). These comprehensive investigations will include: (1) preparation of a comprehensive post-flood assessment for the California Central Valley (Sacramento River Basin and San Joaquin River Basin), (2) development and formulation of comprehensive plans for flood control and environmental restoration purposes, and (3) development of a hydrologic/hydraulic model of the entire system including the operation of the existing reservoirs for evaluation of the current flood control system. Not later than 18 months after the date of enactment of this Act the Secretary shall transmit an interim report describing results of the post-flood assessment and the assessment of the existing flood control system and its deficiencies.”

In addition, the Water Resource Development Act of 2000 directed the Secretary of the Army to “integrate, to the maximum extent practicable, and in accordance with applicable laws, the activities of the USACE in the San Joaquin and Sacramento River Basins with the long-term goals of the CALFED Bay-Delta Program.”

2. 1 Additional Study Guidelines

None at this time.

2. 2 Study Area

The study is being conducted in the Central Valley of California in the watershed boundaries of the Sacramento Rivers. For planning and analysis, the study area has been focused on the Sacramento River Basin. The facilities of the SPFC that are within the basin are to be evaluated for modification.

2.3 Project Area

No specific project area has been defined at this time. It is likely that this study will focus on system-based solutions which could include existing bypasses, weirs, and storage reservoirs within the Sacramento River Basin.

3.0 Non-Federal Sponsor

Department of Water Resources for the State of California and the Central Valley Flood Protection Board are the non-Federal sponsors for the study. A feasibility cost sharing agreement (FCSA) was executed in December 2011. A revision to the FCSA is currently under review as a result of the re-scoping of the project.

4.0 Problems/Opportunities

Proper identification of problems and opportunities is the foundation for the plan formulation process. In a watershed study, problems are often the focus of past extreme events, local needs, legislation that bears on local resources, local government interests, and the affected public. It is therefore critical that the study effort identifies problems and opportunities that reflect the priorities and preferences of the Federal government, the non-Federal sponsors, and other groups participating in the study process. Work products associated with the Central Valley Flood Protection Plan and other State water resource programs will provide the basis for identifying problems and opportunities that can be addressed through water and related land resource management. The problems identified in the past that will be validated for inclusion in the system-wide study are the following:

- A high risk of flooding threatens the public safety as well as property and critical infrastructure throughout the study area.



Figure 1. Study area. Sacramento River Basin outlined in green.

- The piece-meal approach to flood risk management in the Sacramento River Basin in recent years has been inefficient in solving system-wide flooding problems.
- The lack of centralized flood risk management has resulted in inconsistent flood management and unacceptable residual flood risk.
- Existing levees have isolated the floodplains from waterways, which has eliminated significant floodplain habitats for native species, including Federally listed species and other special status species; also, conversion of high value habitats to other land uses has reduced the abundance, distribution and diversity of native species.

The team has identified the following potential opportunities to address the above problems:

- Integrating and leveraging the authorities of various agencies.
- Identifying system-wide benefits, as opposed to site-specific benefits.
- Develop basin-wide strategy for project implementation
- Policy resolution through vertical coordination.

5.0 Planning Goal/Objectives

Goal - Reduce the risk to public safety from flooding in the Sacramento River Basin

- **Objective 1** - Reduce risks to life safety in the Sacramento River Basin focusing on improved system flexibility under a variety of climate change and development patterns.
- **Potential Metrics:**
 - population at risk
 - Critical infrastructure

Goal - Reduce the risk of damages to residential, agricultural, and commercial/industrial areas, and roads and other critical infrastructure due to flooding;

- **Objective 2** – Reduce the consequences and damages associated with flood risk in the study area, with an emphasis on improving system resiliency and increasing the integrity of the flood system.
- **Potential Metrics:**
 - a. dollars of damage
 - b. annual damages

- c. system resilience
- d. system integrity
- e. system benefits

Planning Objectives for Ecosystem Restoration

Goal - Restore aquatic habitat for the Sacramento River ecosystem

- **Objective** - In conjunction with flood risk management, increase area, quality, connectivity, and diversity of significant native aquatic and related habitats in the Sacramento River ecosystem.
- **Potential Metrics:**
 - acres improved
 - acres of connectivity
 - indicator species
 - reduced non-native species
 - acres of frequently activated floodplain (FAF)
 - improved quality
 - frequency of activated floodplain
 - number of fish using habitat.

Goal - Restore natural stream processes in the Sacramento River

- **Objective** - In conjunction with flood risk management, increase natural hydrologic, dynamic and geomorphic processes in the Sacramento River.
- **Potential Metrics:**
 - Miles of natural bank habitat
 - Miles with meander potential
 - Acres of increased floodplain
 - Acres of floodplain inundated by spring flows
 - Acres of floodplain with 50 percent AEP inundation
 - Access to floodplain increased
 - Reduced O&M cost

6.0 Planning Constraints

In the development of the multipurpose alternatives, the following constraint was identified to direct plan formulation efforts so that beneficial effects would be maximized and adverse effects would be minimized:

- Comply with all applicable Federal laws, regulations, and policies.
- Solutions must be compatible with the CVFPP.

7.0 Formulating Alternative Plans

*Plan formulation is the process of building alternative plans that meet planning objectives and avoid planning constraints. Alternative plans are a set of one or more **management measures** functioning together to address one or more planning objectives. A management measure is a feature or activity that can be implemented at a specific geographic site to address one or more planning objectives. A feature is a “structural” element that requires construction or assembly on-site and an activity is defined as a “nonstructural” action.*

7.1 Formulation Strategies

A total of six formulation strategies were identified for this study. In addition to the State of California’s CVFPP, additional strategies are (1) Increase Storage Capacity, (2) Optimize Operations of Existing System and, (3) Add Conveyance Capacity. Single purpose FRM and ER plans would also be formulated for use in the evaluation of the multipurpose plans. An alternative resulting from the Optimizing Operations of Existing System strategy would likely be the nonstructural alternative.

7.2 Management Measures

An initial array of management measures were identified during the December re-scoping charrette #2. The following tables display those measures by project purpose.

FRM management measures

1. Widen bypass	11. Flood Recovery Plan
2. New bypass	12. Re-operate Reservoirs
3. Levees	13. New floodplain storage
4. Setback levees	14. Purchase flowage easements
5. Modify weirs	15. Raise existing dams
6. Optimize operation of weirs	16. Forecast-based reservoir operations
7. Automate weir operation	17. Raise/strengthen existing levees
8. Remove/modify obstructions	18. Construct new dams
9. Coordinated emergency response plans	19. Re-allocate storage in reservoirs
10. Floodplain management plan	

Ecosystem Restoration management measures

1. Plant new Shaded Riverine Aquatic Habitat	9. Notch weirs
2. Plant new riparian habitat	10. Terrace floodplains
3. Create new perennial marsh habitat	11. Remove non-native species
4. Restore natural bank habitat	12. Recreate channel meanders

5. Remove barriers to channel migration 6. Lay back banks to connect with floodplain 7. Remove barriers to fish passage 8. Set back levees	13. Extend floodplains/expand floodway 14. Screen pump diversions 15. Re-contour floodway
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7.3 Screening of Measures

Screening is the ongoing process of eliminating, based on planning criteria, what is no longer important from further consideration. Criteria are derived from the specific planning study, based on the planning objectives, constraints, and the opportunities and problems of the study/project area.

List criteria used to screen your measures:

Examples:

“Impacts to adjacent 404(c) wetlands.”

“Affect on critical habitat for a threatened species.”

“Length of channel dredging.”

“Number of required residential relocations.”

7.4 Key Uncertainties

Discuss the key uncertainties that may impact decisions and selection of a tentatively selected plan.

Examples: Debris load on railroad bridge & resulting upstream water surface profile; project footprint; condition of existing levee system unknown ; climate change; subsurface conditions; sediment aggradations; WSP with combined measures; existing EAD; USACE levee vegetation policy; real estate requirements & issues

7.5 Initial Array of Alternative Plans

Keeping in mind that alternative plans will be formulated through combinations of screened management measures, list the structural and nonstructural alternatives that will be formulated based on initial data collection and professional judgment (brainstormed)

Example: “Structural Alternative – Stabilize the stream bank with stone and place root balls along bendways to provide substrate for invertebrate attachment”

Example: “Nonstructural Alternative – Raise housing units in floodway and reforest remaining flood plain to create bottomland hardwood habitat.

7.6 Evaluation Array of Alternative Plans

Using criteria from Section 7.2 screen your initial array of alternative and list in order of highest priority based on which objectives are met.

7.7 Final Array of Alternative Plans

Identify your final array of alternative plans and list in order of highest priority based on which objectives are met.

- ...
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Example: “Dredge a 45 foot deep X 500 foot wide channel from Mobile Bay to Alabama Harbor. Use the channel dredged material beneficially to create shorebird habitat on a new 200 acre bay island. Employ vessel speed limits in the new channel to minimize erosion of the created island habitat.”

8.0 Evaluation of Final Array of Alternative Plans

Independently evaluate the details of each alternative. In the evaluation step, the significant contributions or effects of an individual plan are quantified and judged. This is done for two reasons. First, the evaluation allows planners to determine whether or not the plan qualifies to advance and be compared against other plans that have independently qualified. Second, evaluation develops the specific criteria that will be used to compare those plans that do qualify and advance to the comparison step.

Evaluate each alternative individually by using the following five criteria:

- Forecast a most likely with-project condition*
- Compare the without – and with – project condition to determine net benefits*
- Assess or describe all important differences that result from the plan*
- Appraise the differences*
- Which objective(s) does the alternative meet? Does it avoid constraints?*

9.0 Comparison of Final Array of Alternative Plans / Decision Criteria

Use the results of the five evaluation criteria listed in section 8.0 to compare the alternatives against one another. You can also use formal and informal comparison methods to explain the story fully.

There are many criteria for comparing alternatives such as:

- *Costs*
- *Benefits*
- *Compare alternatives based on their contribution to Federal objectives.*
- *Planning Objectives and Constraints—compare alternatives based on the degree to which they satisfy planning objectives without violating planning constraints.*
- *Environmental factors such as impacts to habitat, species, cultural resources or communities.*
- *Compare alternatives based on completeness, effectiveness, efficiency, and acceptability.*

10.0 Selecting a Recommended Plan

How will a recommended plan be selected? Based on what? What objective(s)? Identify the NED Plan, NER Plan, Federally Supportable, or Locally Preferred Plan, etc. Note:

Recommending a plan other than the NED or NER Plan requires following the procedures in the P&G and must include ASA(CW) approval.

Example: “A recommended plan will be selected by identifying the highest output least cost plan.”

11.0 Timeline

A re-scoping charette was held in August 2012. A draft Tentatively Selected Plan will be identified in December 2013 and public release of the draft integrated report is scheduled for March 2014 with the final report completed by January 2015. The Chief of Engineers report is scheduled to be signed in July 2015.

ATTACHMENT F

CVIFMS Charette Decision Log

Central Valley Integrated Flood Management Study

Decision Log

ID	Topic	Description/Discussion	Trigger Event	Resolved	Date Resolved	Resolution/Required Action
1	Study to proceed to the feasibility phase to participate in State's basin-wide feasibility studies.	Discussion determined that watershed study was not needed to identify federal interest prior to proceeding to feasibility.	Rescoping charette	Yes	8/31/2012	Revise project J-sheet.
2	CVIFMS will not address the San Joaquin River basin-wide feasibility study.	The current Lower San Joaquin River Basin study is intended to encompass United States Army Corps of Engineers participation in the San Joaquin River Basin-Wide Feasibility Study under the Central Valley Flood Protection Plan as adopted by the Central Valley Flood Protection Board.	Rescoping charette	Yes	8/31/2012	Revise Lower San Joaquin River Basin J-sheet.
3	Study strategy paper to be prepared for IPR	Prepare the strategy paper as IPR read-ahead using SPK's white paper on Central Valley projects as a framework.	Rescoping charette	Yes	8/31/2012	Use SPK's white paper on Central Valley projects as a framework for strategy paper.
4	Conduct new charette after study strategy is approved on Sacramento River Basin-wide feasibility study.	Vertical team agreed that a new charette would need to be conducted upon commencement of feasibility study.	Rescoping charette	Yes	8/31/2012	Vertical team consensus that a new charette would be conducted after the IPR.
5.	The four objectives identified represent the intent of the study	Vertical team agreed that the four objectives, with some additional work, accurately represent the intent of the study.	Rescoping charette #2	Yes	12/13/2012	Revised study objectives will be presented in revised report synopsis.
6.	Maximize use of current	Formulation strategies and measures	Rescoping	Yes	12/13/2012	Report synopsis will

	formulation work	developed during charette to be used and evaluated.	charette #2			document formulation.
7.	Formulation strategies are to focus on system-wide application of measures to address flood risk management and ecosystem restoration	Vertical team agreed that the formulation strategies that focus on measures that produce system-wide benefits rather than site-specific benefits.	Rescoping charette #2	Yes	12/13/12	Formulation from this point on will focus only on system-based solutions that work from a system perspective.
8.	Proposed study strategy to be followed and re-evaluated as study progresses	Focus on the feasibility study and determine what problems an IWMP could solve.	Rescoping charette #2	Yes	12/13/2012	Decision will be revisited at next milestone.