



FLOOD PROTECTION TEAM

Team Leaders: Eric Nagy, Larsen Wurzel & Associates, eric@larsenwurzel.com
Scott Shapiro, Downey-Brand LLP, sshapiro@downeybrand.com
Ric Reinhardt, MBK Engineers, reinhardt@mbkengineers.com
Chris Elliott, ICF International, chris.elliott@icfi.com

Issue Contacts: As noted below for each project

INFRASTRUCTURE INVESTMENTS TO REDUCE FLOOD RISK IN CALIFORNIA'S CAPITAL REGION

Requested Actions:

Accelerated investment for construction of on-going flood risk reduction projects as well as appropriations for three recently authorized flood projects as described in this document.

Background:

These actions are necessary for the continued reduction of flood risk in the Sacramento region. Ongoing projects in the planning, design, and construction phases are critical to significantly reduce life safety risk for more than one million people living in the floodplain, protect tens of billions of dollars of existing infrastructure, sustain the region's rich agricultural productivity, and support economic growth. A regional backlog of authorized projects receiving insufficient annual appropriations already exists and is growing.

California's Central Valley has a long history of flooding and relies on an elaborate flood risk reduction system to store and convey flood flows. While local farmers and communities constructed some of the Valley's earliest levees, Congressional authorization of the Sacramento River Flood Control Project (SRFCP) led to the U.S. Army Corps of Engineers (USACE) and State of California strengthening and expanding that original system. The SRFCP has saved thousands of lives and prevented billions of dollars of damage to property. The Central Valley Flood Protection Board (CVFPB) serves as the non-Federal sponsor for the SRFCP. It relies on local maintaining agencies to care for the system and share in the cost of Federally-authorized improvements.

While the typical approach to flood risk reduction relies primarily upon USACE to lead project development and implementation, the State of California and local agencies in the Central Valley have assumed a greater role since passage of the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E). Proposition 1E authorized \$4.1 billion in general obligation bonds to improve California's most vulnerable flood infrastructure to protect homes and prevent loss of life. Up to \$3.0 billion of the bond was specifically allocated for the evaluation, repair, improvement, or expansion of the federally authorized levee system.

The availability of these funds has resulted in the State and local agencies partnering for the immediate implementation of levee improvements to protect high risk areas. To date, over \$2 billion in State and local funds has been invested in projects primarily focused on urban levee improvements in Sacramento, West Sacramento, Yuba City, Plumas Lake, and Wheatland. Most of these projects also serve as advanced construction for on-going or recently completed USACE planning studies.

Ongoing Federal Projects and Studies:

In order to further reduce flood risk in the Central Valley, additional federal investment is needed for the USACE Project listed in the following table. A detailed description of each project follows the table.

PROJECT	PHASE	AUTHORIZED FOR CONSTRUCTION	SHORT-TERM GOALS
American River – Common Features: General Reevaluation Report	D	YES	Execute PED Agreement and initiate design activities in FY17. Construction funding in FY19.
American River – Common Features: Natomas Levee Improvement Project	C	YES	Accelerate on-going design and construction activities.
Folsom Dam Modifications: Joint Federal Project (JFP)	C	YES	Complete construction activities in 2017.
Folsom Dam Raise	C	YES	Execute PPA in FY18. Award first construction contract in FY18.
Lower Cache Creek Project	F	NO	Return study to ACTIVE status. Receive FY17 appropriations to resume study.
Sacramento River Flood Control Project: General Reevaluation Report	F	NO	Release Public Draft GRR in FY18. Sign Chief’s Report in FY19.
Sutter Basin Flood Risk Reduction Project	D	YES	Accelerate on-going design activities. Construction funding in FY18.
West Sacramento Project: General Reevaluation Report	D	YES	Execute PED Agreement and initiate design activities in FY17 Construction funding in FY19
Yuba River Basin Flood Damage Reduction Project	C	YES	Accelerate on-going design and construction activities
Yuba River Ecosystem Restoration Feasibility Study	F	NO	Release Public Draft Feasibility Study released in FY18. Sign Chief’s Report in FY19.

Project Phase: F = Feasibility; D = Design; and, C = Construction

American River Watershed (Common Features) General Re-Evaluation Report (GRR):

Non-Federal Sponsor: Sacramento Area Flood Control Agency and Central Valley Flood Protection Board

Contact: Pete Ghelfi, 916-874-7606, ghelfip@saccounty.net

In December 2016, the work identified in the American River Watershed (Common Features) General Re-Evaluation Report was authorized for Federal construction. The authorized work addresses deficiencies along the Sacramento River east levee south of the American River and the north area streams levees as well as a comprehensive assessment of erosion potential along the American and Sacramento Rivers. Beyond recommending standard levee improvements, the authorized work includes the benefit of broader improvements to the flood system including widening of the Sacramento Weir and Bypass to reduce flood stages along the Sacramento River. Funding to initiate design work on the authorized features is being sought for Federal Fiscal Year 2017 and funding for construction is being sought for Federal Fiscal Year 2019. SAFCA and the State of California will construct some of the most critical components ahead of Federal construction to advance flood-risk reduction for the citizens.

American River Watershed (Common Features), Natomas Levee Improvement Project:

Non-Federal Sponsor: Sacramento Area Flood Control Agency and Central Valley Flood Protection Board

Contact: Pete Ghelfi, 916-874-7606, ghelfip@saccounty.net

In June 2014, the work identified in the Post-Authorization Change Report (PACR) for the Natomas Basin under the American River Watershed, Common Features authority was authorized for Federal construction. The authorized work includes improvements to the 42-miles of levee surrounding the basin necessary to provide 200-year protection to the approximately 100,000 residents, more than \$6 billion in damageable property, and critical infrastructure like the Sacramento International Airport. The Corps has awarded the first construction contract and has several other reaches under design. Additional funding in Federal Fiscal Year 2017 and 2018 would allow these critical improvements to be constructed sooner, further reducing flood risk to the citizens. The State and SAFCA have already completed more than \$400-million of advanced construction toward the authorized project.

American River Watershed (Folsom Dam Modifications): Joint Federal Project (JFP):

Non-Federal Sponsor: Sacramento Area Flood Control Agency and Central Valley Flood Protection Board

Contact: Pete Ghelfi, 916-874-7606, ghelfip@saccounty.net

This project includes construction of a new gated control structure and auxiliary spillway near the south abutment to Folsom Dam. This new spillway will both provide sufficient release capacity to allow Folsom Dam to control much larger flood events, as well as to safely pass a “probable maximum flood” without overtopping the dam. Since June 2005, USACE, U.S. Bureau of Reclamation (Reclamation), the State of California (State), and SAFCA have focused on the accelerated delivery of this project through the planning, design, and now construction phases. The project was designated as a Mega-Project by USACE and will be complete in 2017.

The Joint Federal Project is divided into work packages consistent with each agency’s mission—dam safety for Reclamation and flood risk reduction for USACE. Excavation of the spillway was performed by Reclamation and the Corps is constructing the gated control structure, approach channel, concrete-lined

chute and stilling basin. The effort is a historic partnership between the agencies where the combined project meets both flood damage reduction and dam safety objectives at a substantial cost and schedule savings. The State and SAFCA are serving as non-federal cost-sharing partners for the Corps work.

American River Watershed (Folsom Dam Raise):

Non-Federal Sponsor: Sacramento Area Flood Control Agency

Contact: Pete Ghelfi, 916-874-7606, ghelfip@saccounty.net

Based on current USACE design studies, a raise of 3.5 feet to the dikes and wingdams around Folsom Lake, as well as modifying the gates on the existing spillway, may be constructed under this project authority in conjunction with the Folsom Dam Modifications project. Raising the dam will increase the ability to manage storms larger than the 200-year event and improve the robustness and reliability at managing less than 200-year storm events. The Folsom Dam Bridge, an authorized part of this project, was completed by USACE in 2009. Ecosystem restoration is also an authorized component of this project, focusing on improving salmon habitat in the Lower American River through improved temperature control for Folsom Dam releases. Construction is expected to begin in Federal Fiscal Year 2018.

Lower Cache Creek Project:

Non-Federal Sponsor: Central Valley Flood Protection Board and City of Woodland

Contact: Ric Reinhardt 916-456-4400, reinhardt@mbkengineers.com

Increased awareness and concern of flood risk in the City of Woodland has resulted in the resumption of the Lower Cache Creek Feasibility Study (LCCFS) discontinued in 2003. The goal of the study is to identify for implementation a locally supported flood-risk reduction project providing protection for the City of Woodland and adjacent critical infrastructure including Interstate 5 and two rail lines. The City of Woodland and the Central Valley Flood Protection Board both serve as non-Federal sponsors for the study.

A feasibility cost-sharing agreement was signed in April 2013. Federal funding was provided in Fiscal Year (FY) 2015 (\$800,000) and FY 2016 (\$570,000). The Administration has not recommended additional funding for FY 2017. In FY 2017 the USACE classified the study as inactive due in part to concerns that it could not be completed within three years consistent with the Planning Modernization objectives. The non-Federal sponsors are working with the USACE to reclassify the study to active and to request completion funding.

Sacramento River Flood Control Project, General Reevaluation Report:

Non-Federal Sponsor: Central Valley Flood Protection Board

Contact: Eric Tsai, (916) 574-1474, eric.tsai@water.ca.gov, or, Eric Nagy, 530-665-8222, eric@larsenwurz.com

The Sacramento River Flood Control Project (Project) is a collection of levees, overflow weirs, pumping plants and bypass channels that reduce the risk of flooding to cities, communities and agricultural lands in the Sacramento Valley and Sacramento-San Joaquin Delta. This Project is comprised of approximately 1,000 miles of levee protecting more than 2.3 million people within 50 communities, 1 million acres of land, and nearly \$38 billion worth of infrastructure. The Project, originally authorized in 1917, needs a comprehensive assessment to identify flood risk reduction and ecosystem restoration opportunities.

A General Reevaluation of the Project was initiated to identify opportunities to restore the Sacramento River's aquatic ecosystem while also attempting to improve the project's flood risk reduction performance. The General Reevaluation is focusing on the Project from Knights Landing downstream to Rio Vista. The potential for system-scale flood risk reduction incorporating ecosystem restoration in this region includes a critical opportunity to build upon recent recommended plans for the Cities of Marysville, Sacramento, West Sacramento, and Yuba City by modifying the Fremont Weir and Yolo Bypass.

The study started in June 2015 with the signing of a FCSA between USACE and the CVFPB. The study is scheduled to be completed and have a recommended plan for a Chief's Report by the summer of 2019.

Sutter Basin Flood Risk Reduction Project:

Non-Federal Sponsor: Sutter Butte Flood Control Agency, Central Valley Flood Protection Board

Contact: Mike Inamine, 530-740-2448, m.inamine@sutterbutteflood.org, or, Eric Nagy, 530-665-8222, eric@larsenwurzel.com

In June 2014, the plan recommended in the Sutter Basin Pilot Final Feasibility Report was authorized for Federal construction. The authorized work addresses deficiencies along approximately 44-miles of the Feather River west levee adjacent to the Cities of Yuba City (70,000), Live Oak (9,000), Gridley (7,500), and Biggs (2,500). Funding to initiate design work on the authorized features is being sought for Federal Fiscal Year 2017 and funding for construction is being sought for Federal Fiscal Year 2018.

The Sutter Butte Flood Control Agency (SBFCA), in partnership with the State of California, is aggressively implementing a portion of the authorized project to reduce flood risk to populated areas along the Feather River. This work includes approximately \$300 million of improvements to 37 miles of levee. Construction of these advanced projects began in 2013 and major construction activities will conclude in 2017.

The Sutter Basin is bounded by the Feather River on the east, Cherokee Canal to the north, and the Sutter Bypass and Sutter Buttes on the south and west. The basin is large at 190,000 acres and economically significant, encompassing 95,000 residents and \$7 billion of damageable property. In 1955, a catastrophic failure of the Feather River west levee resulted in the Central Valley's deadliest 20th century flood.

West Sacramento Project, General Reevaluation Report:

Non-Federal Sponsors: West Sacramento Area Flood Control Agency and Central Valley Flood Protection Board

Contact: Greg Fabun, 916-617-4855, gregf@cityofwestsacramento.org, or, Eric Nagy, 530-665-8222, eric@larsenwurzel.com

In December 2016, the plan recommended in the West Sacramento Project General Re-Evaluation Report was authorized for Federal construction. The authorized work addresses deficiencies along the Sacramento River west levee downstream of the Sacramento Weir as well as levee improvements along the Yolo Bypass and around the Port of West Sacramento. Funding to initiate design work on the authorized features is being sought for Federal Fiscal Year 2017 and funding for construction is being sought for Federal Fiscal Year 2019. WSAFCA and the State of California are continuing to construct some of the most critical components ahead of the new Federal construction start to advance flood-risk reduction for the citizens.

The City of West Sacramento (City) has a population of approximately 50,000 residents and nearly \$5 billion dollars of damageable property. Construction of the recommended plan results in the City achieving a 200-year level of protection.

Yuba River Basin Flood Damage Reduction Project:

Non-Federal Sponsors: Yuba County Water Agency, Marysville Levee Commission, and the Central Valley Flood Protection Board

Contact: Curt Aikens; (530) 741-5015, caikens@ycwa.com or Ric Reinhardt (916) 456-4400, reinhardt@mbkengineers.com

The Yuba River Basin flood damage reduction project is an unprecedented initiative to provide greater than a 200-year level of protection for communities in Yuba County. To advance this federally authorized project, the state and local interests (Yuba County, Yuba County Water Agency, Marysville Levee District, and the Three Rivers Levee Improvement Authority), began an advanced construction program in the southern portion of the county. Following this program, repairs are now complete on 29 miles of levees (estimated cost - \$400 million), including construction of two setback levees: the 2-mile long Bear River setback and 6-mile long Feather River setback. These setbacks, besides providing greater regional flood protection, resulted in the creation of nearly 2,200 acres of floodplain habitat along the Bear and Feather rivers.

Scheduled repairs by the Corps on the 7.5-mile long Marysville Ring Levee, which surrounds and protects the historic City of Marysville, is the final construction element of the entire project. Construction is complete on the first of four scheduled construction project phases (Phase 1). With additional federal funding, the Corps will continue their design, planning and construction to this levee. On February 12, 2014, the Assistant Secretary of the Army for Civil Works reaffirmed the federal commitment to the project, including a credit of up to \$43 million for the non-federal sponsor cost-share for the levee. The President's FY 17 budget included \$7 million for the Sacramento District for this entire project. In FY 17, the Corps is scheduled to begin repairs to Phase 4A, with an estimated completion date of July 2017. Estimated capability by the Corps for the remaining repairs of the levee are approximately \$10-\$20 million annually through FY 22. For FY 18, the Sacramento District is capable of approximately \$12 million in repairs to Phase 2A and will be capable of approximately \$18 million in repairs to Phases 2B and 2C in FY 19.

Yuba River Ecosystem Restoration Feasibility Study

Non-Federal Sponsor: Yuba County Water Agency

Contact: Curt Aikens, (530) 741-5015, caikens@ycwa.com or Ric Reinhardt, 916-456-4400, reinhardt@mbkengineers.com

The Yuba River Ecosystem Restoration Feasibility Study (YRERFS) was one of only four ecosystem restoration studies initiated by the U.S. Army Corps of Engineers (USACE) in 2014. An initial evaluation completed in September 2014 concluded there are significant National Ecosystem Restoration benefits associated with restoration of ecosystem structures, functions, and processes in the Yuba River. A Feasibility Cost Sharing Agreement between the USACE and the Yuba County Water Agency (YCWA) was signed in June 2015. Federal funding was provided in Fiscal Year (FY) 2015 (\$300,000) and FY 2016 (\$700,000). In FY 17, the Administration recommended \$590,000 for the continuation of the study. Due to the complexity of the Yuba River ecosystem, however, the Sacramento District requested additional time and funding to complete the study. A favorable decision regarding this request is expected to be announced in

March 2017. Completion of the study, with the signing of a Chief's Report, is expected in July 2019.

Extensive hydraulic mining occurred in the Yuba River watershed during the late 1880's resulting in an estimated 684 million cubic yards of gravel and debris being washed into the Yuba River, destroying much of the natural riparian vegetation corridor. Debris dams were constructed at several locations in the middle to lower elevations of the watershed. Following the gold rush, dams and reservoirs initially built to retain gold mining debris were replaced with hydropower, navigation, flood protection, and water supply facilities. The ongoing presence, operation, and maintenance of these dams can hinder or preclude fish passage to upstream areas, which historically provided holding, spawning, incubation, and rearing habitats.

YCWA, and several local conservation groups, support the YRERFS as an invaluable step in the development of a contemporary, science-based assessment of the Yuba River ecosystem, which includes three listed fish species (spring-run Chinook salmon, steelhead, green sturgeon) and the two USACE debris dams (Daguerre and Englebright). The YRERFS includes an evaluation of options to improve Yuba River fish passage and fisheries habitat.