FLOOD PROTECTION TEAM
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PROJECT AUTHORIZATIONS & INVESTMENTS TO REDUCE FLOOD RISK IN SACRAMENTO REGION

Requested Action:
Congressional authorization and increased federal investment for projects essential to reducing flood risk for the urbanized population centers and rural agricultural areas vital to the Sacramento region and nation’s economy. Ten specific projects have been vetted for their importance to the region.

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 to more than one million people living in the floodplain and millions of others who would be affected by a major flood event. A regional backlog of authorized projects receiving insufficient annual appropriations already exists and is only expected to grow. Increased federal investment in flood risk reduction infrastructure is needed to reduce life safety risk, protect tens of billions of dollars of existing infrastructure, sustain the region’s rich agricultural productivity, and support economic growth. The Sacramento region has been a national leader in leveraging state bond funds, local parcel assessments and taxes, and other innovative funding sources and is seeking partnership with and investment from the federal government.

California’s Central Valley has a long history of flooding and relies on an elaborate network of reservoirs, levees, and bypasses to store or convey flood flows and reduce the risk of loss of life and damage. While local farmers and communities constructed some of the Valley’s earliest levees, Congressional authorization of the Sacramento River Flood Control Project and the San Joaquin River Flood Control Project resulted in the U.S. Army Corps of Engineers (USACE) strengthening and expanding that original system, saving thousands of lives and preventing billions of dollars of damage. In performing this work, USACE sought an active non-federal sponsor, and the State of California responded by authorizing the State Reclamation Board to fill that role. The Reclamation Board (renamed as the Central Valley Flood Protection Board), in turn, sought local sponsors who could maintain each component of the 1600 mile levee system. This organizational structure,
including federal, state, and local agencies continues today with each level of government playing an essential role.

While the typical approach to flood risk reduction relies primarily upon USACE to lead project development and implementation, the State of California and local communities 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 rebuild and repair California’s most vulnerable flood control structures to protect homes and prevent loss of life from flood-related disasters and to protect California’s drinking water supply system by rebuilding delta levees that are vulnerable to earthquakes and storms. Up to $3.0 billion of the bond was specifically allocated for the evaluation, repair, improvement, or expansion of the levees, weirs, bypasses, and facilities comprising the State Plan of Flood Control. This system of flood protection infrastructure is composed of federally-authorized project levees and related facilities for which the State has provided assurances of cooperation to the federal government.

Much of the framework for investing Proposition 1E funds comes from the Central Valley Flood Protection Act (Act) passed by the California Legislature in 2008. This landmark legislation obligated the State and local governments to approach flood management in a much more holistic way. Importantly, the Act required that urban communities achieve a 200-year level of protection by 2025 or no new discretionary development entitlements may be granted. The Act also required the preparation and adoption of a Central Valley Flood Protection Plan (Plan). Adopted in 2012, this Plan included a strategy for reducing the flood risk in the Central Valley by focusing on (i) urban areas obtaining at least 200-year protection through structural improvements, (ii) significant upgrades to system-wide facilities (such as bypasses) to add additional robustness and redundancies to the system, (iii) investment in small community systems (structural improvements or non-structural improvements, such as home elevation) to achieve at least 100-year protection, (iv) spot repairs and operation and maintenance improvements for the rural areas of the Valley, and (v) investment to update emergency response and recovery plans. The Act requires an update to the Plan every five years. A Draft Plan update is scheduled for public review in 2016 and adoption in 2017.

Together, these two laws provide a clear set of flood risk reduction goals (Senate Bill 5) and a down payment on the investment (Proposition 1E) necessary to achieve them. This has resulted in the State and local agencies partnering for the immediate implementation of levee improvements to protect high risk urban areas. To date, over $1 billion in State and local funds have been invested in Early Implementation Projects (EIP) focused on urban levee improvements in Sacramento, West Sacramento, Yuba City, Plumas Lakes, and Wheatland. Each of these projects reduces flood risk to existing urban areas, and most of these projects serve as advanced construction for on-going or
recently completed planning studies underway by the USACE. This advanced construction has earned a significant sum of non-federal sponsor credit to leverage against future federal appropriations for future federally-led flood risk reduction projects.

Flood protection for the region is not just about historical urban population centers; it is equally about rural agricultural areas. Agriculture represents a necessary and vital component of our nation’s and California's economy:

- California is the No. 1 state in cash farm receipts, with its $34.8 billion in revenue representing 12.3 percent of the U.S. total, including more than 400 commodities from 25.4 million acres devoted to agriculture (2009 values).
- The state produces nearly half of U.S.-grown fruits, nuts and vegetables, many of which are solely grown in California.
- Nine of the nation’s top 10 producing counties are in California, and seven of those nine are in California’s Central Valley. The sales from these nine counties accounted for 6.6 percent of the nation’s total sales value.

A significant portion of productive agricultural lands in California’s Central Valley are protected by levees that do not meet USACE’s current engineering standards.

**Ongoing Federal Projects and Studies:**
In order to keep pace with the State’s effort to modernize the flood system in the Central Valley, additional federal authorization and investment is needed for the following USACE projects (listed alphabetically):

**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

USACE, in partnership with the State of California and SAFCA, is conducting a comprehensive evaluation of the remaining unstudied components of the levee system necessary to achieve at least a 200-year level of protection for the City of Sacramento. The study focuses on identification and characterization of 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 study contemplates 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.
This study recommendation was approved by the Civil Works Review Board in December 2015 and
the Final GRR was issued in January 2016. The Chief’s Report will be transmitted to Congress in
April 2016.

**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

USACE, in partnership with the State of California (State) and SAFCA, completed a Post-
Authorization Change Report (PACR) for the Natomas Basin under the American River Watershed,
Common Features authority. This PACR recommended the improvements necessary 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. USACE issued a Chief’s Report in 2010; and, the project was
authorized by Congress in the WRRDA of 2014.

The partners executed a new cost-sharing agreement in 2014. As a result, a significant design effort
is currently underway with some levee reaches complete and awaiting construction funds. The
receipt of construction funds would allow for the implementation of levee improvements critical to
the continued reduction of flood risk in the Natomas Basin. 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 the 200-year flood, 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 has been
designated as a Mega-Project by USACE. Additional funds will be applied toward advancing
construction of the project toward completion scheduled for 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.

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 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 that 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. As the Folsom Dam Joint Federal Project (JFP) advances, design efforts are increasing to allow this project to be implemented as soon as the JFP is complete.

Lower Cache Creek Project:
Non-Federal Sponsor: Central Valley Flood Protection Board and City of Woodland
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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), which was discontinued in 2003. The goal of the study is to identify for implementation a locally supported flood-risk reduction project with the goal of providing 200-year 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.

The feasibility cost-sharing agreement was amended in April 2013 to bring the study into alignment with USACE’s Planning Modernization initiative. The City of Woodland is also concurrently exploring opportunities with the Department of Water Resources to pursue the construction of some levee improvements in advance of Congressional authorization of the LCCFS.

Sacramento River Flood Control Project, General Reevaluation Report:

Non-Federal Sponsor: Department of Water Resources and Central Valley Flood Protection Board
The Sacramento River Flood Control Project is a collection of levees, overflow weirs, pumping plants and bypass channels that reduce the risk of flooding to communities and agricultural lands in the Sacramento Valley and Sacramento-San Joaquin Delta. This project is comprised of over 980 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, is in need of a comprehensive assessment to identify flood risk reduction and ecosystem restoration opportunities.

USACE is currently undertaking a General Reevaluation of the Sacramento River Flood Control Project (SRFCP) to identify opportunities to restore the function and processes of the Sacramento River's aquatic ecosystem and to improve the project's flood risk reduction performance. The General Reevaluation will assess a combination of one or more ecosystem restoration and flood risk management measures. Changes or modifications to the SRFCP may include the addition of ecosystem restoration as a project purpose and updates or revisions to the operation and maintenance manuals in affected areas. The potential for system-scale flood risk reduction in this region includes a critical opportunity to build upon the recommended plans from both the American River Watershed, Common Features General Reevaluation Report (GRR) and the West Sacramento GRR.

The study started in June of 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 2018.

**Sutter Basin Flood Risk Reduction Project:**

**Non-Federal Sponsor:** Sutter Butte Flood Control Agency, Central Valley Flood Protection Board, and Department of Water Resources

**Contact:** Mike Inamine, 530-740-2448, m.inamine@sutterbutteflood.org

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. The Sutter Basin is home to extensive agricultural operations as well as the Cities of Yuba City (70,000), Live Oak (9,000), Gridley (7,500), and Biggs (2,500).

The USACE began a feasibility study for the basin in 2000. After languishing for more than a decade, the study was selected in 2011 as a national pilot project under the USACE Planning Modernization initiative, culminating in a Chief’s Report that was completed within three years. The
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The study recommends $1.2 billion in improvements to the nearly 50 miles of levee protecting the City. This recommendation was approved by the Civil Works Review Board in December 2015 and the Final GRR was issued in January 2016. The Chief’s Report will be transmitted to Congress in April 2016.

Yuba River Basin Flood Damage Reduction Project:
Non-Federal Sponsors: Yuba County Water Agency, Marysville Levee Commission, Central Valley Flood Protection Board, and Department of Water Resources
Contact: Curt Aikens, 530-741-6278 or Ric Reinhardt, 916-456-4400, reinhardt@mbkengineers.com

The Yuba River Basin flood damage reduction project is an unprecedented initiative to provide a 200-year level of protection for communities in Yuba County. To accelerate this federally authorized project, the state and local interests (Yuba County, Yuba County Water Agency, and
Three Rivers Levee Improvement Authority), began an advanced construction program in the southern portion of the county. 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.

The scheduled repairs by the USACE on the 7.5-mile long Marysville Ring Levee, which surrounds and protects the historic City of Maryville, is the final construction element of the entire project. Construction is now complete on the first of four scheduled construction project phases (Phase 1). With additional federal funding, the USACE will continue their design, planning and construction to the ring levee. On February 12, 2014, the Assistant Secretary for the Army reaffirmed the federal commitment to the project, including a credit of up to $43 million for the non-federal sponsor cost-share for the ring levee. The President’s FY 16 budget included $7.3 million for the USACE to continue strengthening this levee.

**Yuba River Ecosystem Restoration Feasibility Study:**

**Non-Federal Sponsor:** Yuba County Water Agency  
**Contact:** Curt Aikens, 530-741-6278 or Ric Reinhardt, 916-456-4400, reinhardt@mbkengineers.com

The Yuba River Ecosystem Restoration Study (YRERES) was one of only four ecosystem restoration studies initiated by the USACE in 2014. An initial evaluation completed in September 2014 concluded that there were 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 was signed in June 2015. Federal funding was provided in Fiscal Year (FY) 2015 ($300,000) and FY 2016 ($700,000). The YRERES is scheduled to be completed with the signing of a Chief’s Report in June 2018.

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 system, eliminating much of the natural riparian vegetation corridor. Further, in the late 1800’s and early 1900’s, development of the Yuba River watershed for hydropower and water supply was in progress. Most of the dams and diversions that were used primarily for gold mining were being replaced as developmental emphasis in the watershed shifted from gold mining to flood control, water supply, and hydropower generation. Debris dams were also in place or being added at several locations in the middle to lower elevations of the watershed. The presence, operation, and maintenance of dams can hinder or preclude fish passage to upstream areas which historically provided holding, spawning, incubation, and rearing habitats.
The Yuba County Water Agency, and conservation groups, support the YRERFS as an invaluable step in the development of a contemporary, science-based assessment of the Yuba River ecosystem, including listed fish species and the two Corps debris retention dams (Daguerre and Englebright), and the evaluation of options to improve Central Valley fisheries habitat.