

House Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
Complete Statement by Mike Inamine
Sutter Butte Flood Control Agency
January 18, 2018

Good morning Chairman Graves, Ranking Member Napolitano and members of the Committee. My name is Mike Inamine, Executive Director of the Sutter Butte Flood Control Agency (SBFCA). Thank you for the opportunity to update this Committee on our efforts to manage flood risk on the Feather River just below Oroville Dam in northern California. Before beginning my testimony, I wish to acknowledge Congressmen LaMalfa and Garamendi; they are true partners who have supported our region's efforts from day one and throughout this remarkable past year. I would also like to thank the Chairman for his personal interest in the US Army Corps of Engineers' (Corps) project delivery process. As I will share in my testimony, SBFCA has benefitted from recent changes implemented by the Corps and a 21st century financing approach to deliver just-in-time flood protection that will hopefully support a new start construction designation in the forthcoming Corps work plan for fiscal year 2018 (FY18).

Background

I won't revisit the agency background provided during my previous appearance before this committee, but some brief context may be useful.

The Sutter-Butte Basin (Figure 1) covers 300 square miles along the west bank of the Feather River immediately downstream of Lake Oroville, the site of the spillway failure in February 2017. The basin is home to 95,000 residents and encompasses \$7 billion of damageable assets. The region has endured numerous floods, including the 1955 levee failure on the Feather River, which resulted in the deaths of at least 38 people. Numerous projects and programs have been implemented in the basin over the years to reduce flood risk, including the 36-mile, SBFCA-led Feather River West Levee Project (FRWLP) that began construction in 2013 and is now largely complete. All recent work has been funded by the State of California and a local assessment. Moreover, all work is consistent with Corps criteria and regulations, leaving just five miles of levee repairs to complete the federally authorized project. In other words, nearly 90 percent of the federal project originally authorized in 2014 has been completed at non-federal expense. If the project is given a new start designation in the 2018 work plan, the entire project can be completed within two federal fiscal years.

Expedited Section 408 Permission

When I appeared before this Committee last March, we were still regrouping in the aftermath of the near-failure of the spillways at Oroville Dam, the single most important flood control structure on the Feather River. For those of you who haven't spent much time in Northern California, it's important to note that the Feather River is the discharge channel of Oroville Spillway. My testimony at that time focused on a project-wide 408 permission that allowed

SBFCA to begin immediate repairs on the levee, again at 100 percent non-federal expense. The permission took almost two years to secure and our frustrations with the process are well documented in my earlier testimony. However, those efforts were immediately repaid, as all levees repaired by SBFCA performed well during this challenging year. Not surprisingly, the unimproved levees awaiting federal assistance--and in one case, federal permission--sustained significant damage and nearly failed.

Despite record rainfall, the Feather River water levels in 2017 were rather modest, yet damage to unimproved levees along the Feather River was significant. Typically a distressed levee undergoes two types of actions during and following a flood event. "Flood fights" consist of rapid and temporary construction that allows a distressed or failing levee to withstand the current flood event, and does not conform to an engineering standard. On the other hand, "Levee repairs," including those performed on an emergency basis, are permanent and meet current engineering standards. Levee repairs quite often require Section 408 permission as administered by the Corps. During the 2017 flood event, SBFCA and the State of California spent approximately \$5 million on flood fights and another \$28 million on levee repairs. I would like to highlight two locations that required flood fights and subsequent levee repairs.

The first location provides protection for 20,000 residents, as well as the major evacuation route that was used during the evacuation of 188,000 people during the Oroville Dam incident. A flood fight took place over five miles of unimproved levee, including the rapid placement of rock berms to avoid levee failure. Unsurprisingly, this site included the remaining authorized federal project that now awaits a construction new start and federal appropriations. Notably, the most deficient one-mile reach of levee was slated to be repaired by SBFCA prior to the 2017 flood season, but was delayed due to Section 408 procedures. SBFCA has since completed this critical levee repair. This year we experienced the very real public safety and financial risk associated with these types of delays in project delivery.

The second location is directly adjacent to downtown Yuba City and provides flood protection to 75,000 residents. This three-mile stretch of failing levee also required a flood fight during the 2017 flood season, followed by extensive repairs to provide reliable performance for the next flood season. 408 permission for this three-mile-long levee repair would normally take years to acquire. To their great credit, the Corps granted permission in about five weeks, facilitating the completion of a \$28 million levee repair just in time for the current flood season. Again, 100 percent of this cost was at non-federal expense. This expedited 408 approval was made possible by regulatory reform underway under the leadership of Corps Civil Works Director James Dalton. Following are some important takeaways from this project that have broader implications:

- 1) Oroville Dam: Without the national attention paid to Oroville Dam and the declared emergency, Corps 408 permission would not have been granted in time to finish the project before the subsequent flood season.
- 2) Engineering and Construction: SBFCA already had a deep team of experienced design consultants and construction resources in place and working on the FRWLP, thus the

design and construction spun up rapidly. This is rarely the case for levee emergencies, particularly in rural and/or economically disadvantaged areas of the Central Valley.

- 3) Funding and Financing: SBFCA financed the repair with bond proceeds intended for other work, and the State of California promptly committed to reimburse SBFCA.
- 4) Federal Permission: In contrast to Section 404 (Clean Water Act), Section 408 lacks emergency procedures. To access the more practicable 404 process, SBFCA was put in the awkward position of mapping just enough fill areas to create an impact on Waters of the US, while avoiding undue mitigation costs. This permission system doesn't function for emergency projects – only those who “game the system” will construct the necessary repairs.

Routine Section 408 Permission

Local agencies can often execute projects that were formerly the domain of Corps Civil Works faster, cheaper and sometimes even better if only due to the high motivation of those directly protected by these projects. Delivering the large or mega-projects is clearly best left to the Corps, but 408 projects that fulfill or complement most Civil Works projects should not only be accommodated but promoted by the federal government. We were pleased and grateful for the opportunity to comment on the Director of Civil Works', Memorandum for Major Subordinate Commands and District, Subject: *Further Advancing Project Delivery Efficiency and Effectiveness of USACE Civil Works* dated June 21, 2017, as documented in our comments with our fellow California Central Valley flood agencies in the letter dated October 17, 2017. We believe these recommendations not only support the Corps' primary mission for risk reduction but also leverage the efficiencies of local agencies by delivering more project for less money.

21st Century Corps Partnerships

Despite successfully navigating a difficult 408 process and constructing the vast majority of the federally authorized project, SBFCA now struggles to secure federal funding to finish the final five miles. California flood agencies like SBFCA are models for 21st century financing partnerships within the Corps process by bringing higher percentages of non-federal money to the table and delivering timely, Corps-compliant projects. However, SBFCA's efforts are not prioritized by the federal government as the project moves from the study to the budgeting phases of implementation.

As the non-federal sponsor, SBFCA has spent \$310 million to improve 36-miles of levee out of the total 41-miles of federal project authorized in 2014. What remains out of the \$689 million federally authorized project is just five miles of work at a total estimated cost of \$77 million. The federal cost share of the remaining project is \$49 million, which essentially leverages \$640 million of federal construction by non-federal sponsors—a fantastic deal by any measure. Furthermore, this calculation does not account for the early delivery of project benefits by SBFCA: since project benefits were realized years or perhaps even a decade before federal implementation, the benefit-cost ratio is significantly increased for the project. Our approach has been well received within the Administration and we are hopeful that our request for

funding to complete the federal project will be prioritized in a highly competitive environment. We are close to completing this authorized federal project, but we have exhausted our resources and simply cannot complete it without federal appropriations.

Thoughts on the Oroville Dam Incident

The Oroville spillway incident was a wake-up call for civil engineers around the world. Once again, we are reminded that infrastructure falls apart without ongoing, thoughtful investment. Just because a structure performed well for 50 years (or for levees, 150 years) is no assurance it will perform well tomorrow.

Historically, all major levee failures in our region have occurred before the water reached the top of the levee. Thus, while Oroville captured everyone's attention due to extensive media coverage and the catastrophic consequences of spillway failure, a rigorous risk assessment may well disclose that the biggest potential threat facing our community would be the sudden, unanticipated failure of the Yuba City levee in the middle of the night. This is due to the fact that dams and downstream levees are an integrated system, yet are built to wildly different standards. This disparity needs to be addressed for all public safety infrastructure before we spend limited public monies.

And finally, "stuff happens." Regardless of our preparations and planning, unexpected events will always occur. The importance of building resilience—the capacity to absorb the unexpected—into all of our major public safety structures was highlighted during this event, not only at the Oroville spillway, but throughout our imperfect and aging levee system. Whether for climate change, a spillway gate failure, changes in engineering practice, or a whole host of unknown unknowns, resiliency can and should be built into public safety infrastructure.

Path Forward

There are a number of measures that would greatly improve project delivery of important risk reduction projects, whether performed by local, State, federal or even private entities:

- 1) Don't rely on emergencies to get work done.
- 2) Public safety has already benefitted from the recent direction of Corps Civil Works Director James Dalton to delegate 408 authorities to Division and District offices. We applaud his appreciation for real-world difficulties faced by local agencies and hope to see these changes expanded and formally codified.
- 3) Prioritize Corps resources based on risk reduction delivered by a project. Currently, Corps Civil Works projects are prioritized over 408 projects, despite the fact that many California projects are large and strategic, delivering more public benefits and/or realizing those benefits faster than competing Civil Works projects.
- 4) Investment decisions would benefit from risk assessments of the entire flood control system that includes dams, levees, appurtenant structures and floodplains. At the

same time, we fully appreciate that years-long risk modeling could result in further delay of urgently needed risk reduction.

- 5) We look forward to implementation of the WRRDA 2014 pilot project that explores local agency construction of traditional Civil Works projects as well as other proposals to facilitate local or even private construction of these same projects.

Thank you for holding this hearing and your continued attention to these important issues.

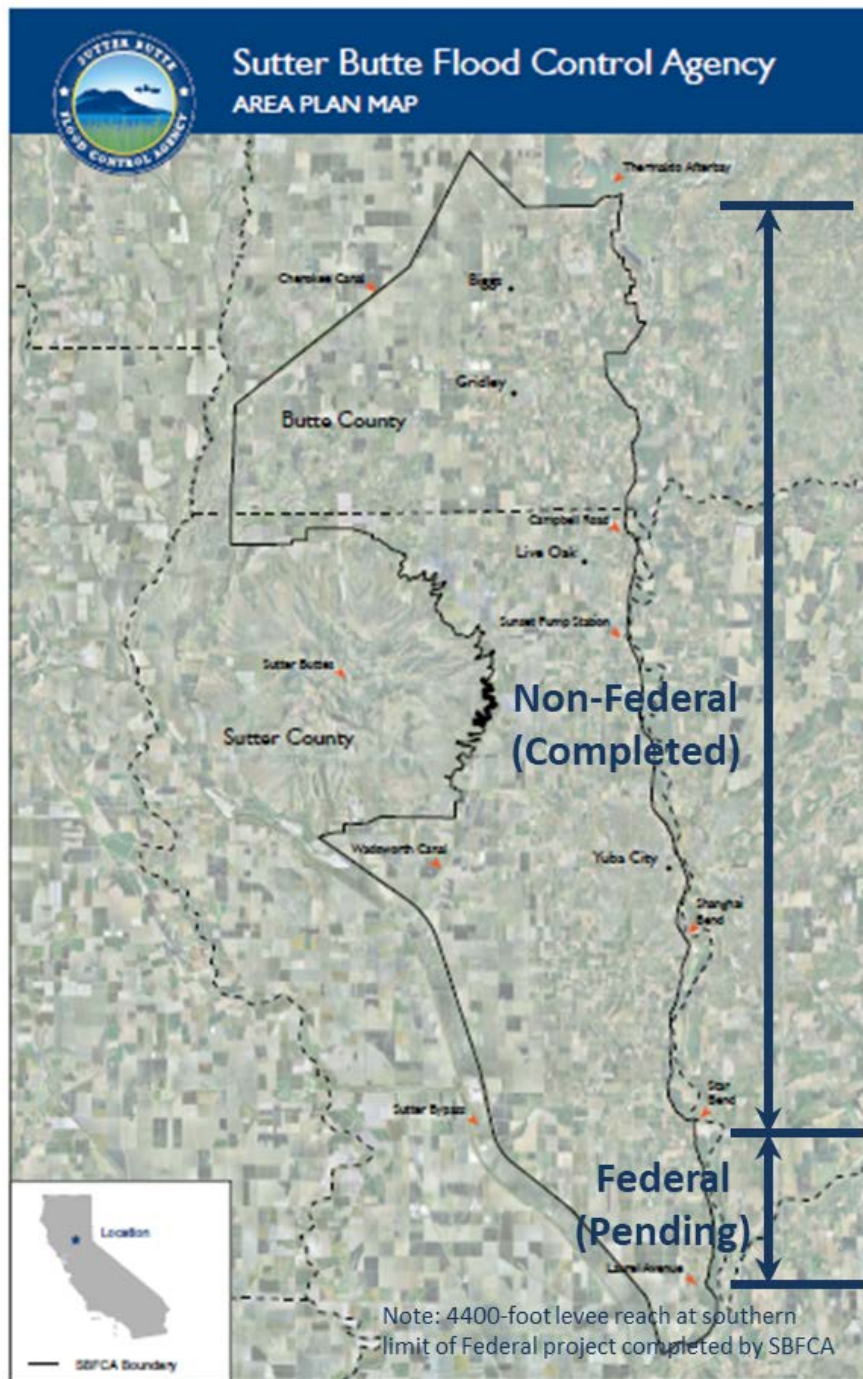


Figure 1. SBFCA Area Map showing limits of Feather River West Levee Project (Non-Federal) and Sutter Basin Flood Risk Management Project (Federal).

House Committee on Transportation and Infrastructure
Complete Statement by Mike Inamine
Sutter Butte Flood Control Agency
March 9, 2017

Good morning Chairman Graves, Ranking Member Napolitano and members of the Committee. My name is Mike Inamine, Executive Director of the Sutter Butte Flood Control Agency. Thank you for the opportunity to address the Committee on this most important and timely issue. Before beginning my testimony, I would be remiss if I did not acknowledge Congressmen LaMalfa and Garamendi, two members of this committee who have been true partners on these local efforts from the start. But for their efforts I would be presenting a very different story today.

Background

The Sutter Butte Flood Control Agency (SBFCA) was formed in 2007 for the purpose of consolidating efforts of several agencies and communities with flood management responsibilities, and implementing locally led flood protection projects. SBFCA is a California Joint Powers Authority composed of the cities of Biggs, Gridley, Live Oak, and Yuba City, the counties of Sutter and Butte, and Levee Districts 1 and 9. SBFCA leads the planning and implementation of flood control projects in this historic agricultural basin.

The Sutter-Butte Basin covers 300 square miles along the west bank of the Feather River immediately south of Lake Oroville. The basin is bordered by the Cherokee Canal to the north, the Sutter Buttes to the west, the Sutter Bypass to the southwest and the 44-mile long Feather River to the east. The basin is home to 95,000 residents and encompasses \$7 billion of damageable assets. The region has sustained numerous floods, including the 1955 levee failure on the Feather River, which resulted in the deaths of at least 38 people. Numerous projects and programs have been implemented in the basin over the years to reduce flood risk, including the SBFCA-led Feather River West Levee Project (FRWLP) that is nearing completion. The basin is divided into an urbanized area to the north and a rural area to the south that supports a vibrant agricultural economy in the deep floodplain (Figure1). The goals of the agency are to achieve 200-year level of flood protection for communities in the north and 100-year or equivalent protection in the south. Under State law, urban or urbanizing areas cannot be developed without achieving 200-year level of protection, thus eliminating opportunities for risky residential development. In addition to supporting this policy, SBFCA supports agriculture as wise use of the deep floodplain to further reduce risk and promote the rural economy.

California's greatest threat from riverine flooding resides in the Central Valley, where an elaborate system of 1,600 miles of federal project levees and hundreds of miles of appurtenant non-project levees has been constructed over the past 150 years to manage flood risk. In the past decade, California has invested and committed \$4.1 billion in planning, designing and constructing flood infrastructure in the Central Valley, and has passed historic legislation linking floodplain management to traditional flood control measures. The Central Valley Flood

Protection Plan, authored by the California Department of Water Resources, is the strategic blueprint for flood management in the Valley. And as the dominant regulator and traditional funding partner for flood risk reduction projects, the US Army Corps of Engineers (Corps) plays a powerful and critical role in local flood project implementation.

USACE Civil Works

As this committee is well aware, the Corps process can take decades to move from feasibility study to authorized project to a congressionally funded and constructed project. SBFCA applauds measures that the committee has taken through various Water Resources Development Acts (WRDA) to address this lethargic process. SBFCA was pleased to have been one of the Corps' four pilot projects selected from throughout the country to advance the "3x3x3" planning process: complete the feasibility study within 3 years, within a \$3 million budget, and undergoing 3 levels of Corps review (or fit within a 3-inch thick binder, depending on who you ask). To the Corps' credit, the Sutter Basin study achieved all objectives and tactically leveraged State and SBFCA in-kind technical work. After commencing in 2011, the pilot study resulted in authorization in WRRDA 2014. All of the successful methodologies and strategies were immediately promulgated throughout the country, and have become the standard for Corps feasibility studies.

Although tremendously successful, the planning study does not in itself provide any flood risk reduction. It is that second act of Congress—appropriations—that leads to design and construction of the physical flood protection measure. And due to the competing demands of other federal priorities, the success of an effective and rapid planning process is often squandered when appropriations and new start designations for construction can take many years following authorization, diminishing the cost effectiveness and public safety benefits for both those residents to be protected by the project, and taxpayers in general.

Section 408 Project

To deliver strategic, timely and risk-prioritized projects ahead of (or potentially instead of) the traditional Corps delivery process, California and partner agencies like SBFCA share the cost of constructing levee improvement and repair projects. In California's Central Valley, the money is provided by State bonds and local assessments. The strategic policy document and technical standards are encompassed in California's Central Valley Flood Protection Plan, including the Urban Levee Design Criteria, which has gained broad acceptance throughout the engineering and planning community. Passing a local assessment is no small feat under California law. Communities comprising SBFCA are economically disadvantaged; yet in 2010, during the height of the economic downturn, property owners overwhelmingly voted to tax themselves to pay for flood control projects, a testament to local support. Strategically, the State requires local sponsors to partner with the federal government on Corps Civil Works projects to garner federal investment in the region, with the goal of receiving federal credit. In other words, the locally-led project must be consistent with a parallel federal feasibility study to the extent practical, cost effective and timely.

When non-federal sponsors implement levee improvements, the Corps wears a different hat as the primary regulator of work performed on federal project levees. Under Section 14 of the Rivers and Harbors Act of 1899 and codified in 33 USC 408 (Section 408), the Corps permits a non-federal interest to modify a federally-authorized structure such as a levee. Under the statute, the Corps must determine whether or not a non-federal action will be injurious to the public interest or will impair the usefulness of the federal project. In the case of the FRWLP, SBFCA sought federal permission to rehabilitate a federally-authorized levee with State and local funding. Under this permission, SBFCA is in the last year of constructing the \$300 million, FRWLP that improves and rehabilitates an existing project levee. Within the last six years, SBFCA has planned, designed, permitted and constructed 29 miles of federal project levee improvements—levees that are among the most hazardous in California—without any federal investment.

While successful, SBFCA's experience with the 408 permission process has been beset with inefficiencies that subject people, property and the environment to undue risk. Delays due to lengthy and redundant reviews are commonplace, and because 408 projects are a secondary priority to the Corps Civil Works mission, even large scale projects that provide significant public safety benefits often take three to four years to obtain approval.

From the onset, the FRWLP was specifically designed to avoid even the perception of conflict with Corps policies, recognizing that long bureaucratic delays could otherwise result. For example, SBFCA levee designers replicated existing, non-uniform crest roads to avoid any inference that the original project purpose was being changed. Despite this extreme approach, the 408 review process still took 19 months start to finish—and this was viewed as light-speed. To achieve this record-setting timeline, Corps staff exercised heroic and creative effort to split the 408 permission into two reaches to allow construction to begin on a critically damaged levee in late 2013. As I speak today, SBFCA is completing flood fight measures (financed by SBFCA and the State), much of which would have been unnecessary had the Corps approved the repair of a one-mile reach of levee in a more timely manner this last year.

The final issue relates to the federal appropriations issue described previously. Despite successfully navigating a difficult 408 process and constructing the vast majority of the federally authorized project, we now struggle to secure federal funding to finish the final four miles. California flood agencies like SBFCA are models for innovative financing within the Corps process by bringing higher percentages of non-federal money to the table and delivering timely, Corps compliant projects; however, SBFCA's efforts are not reflected or prioritized by the federal government as the project moves from study to budgeting phases of implementation.

Solutions: Nexus of Corps Civil Works and Local Projects

There are a number of measures that would greatly improve risk reduction whether performed by local, State, federal or even private entities:

- a. Prioritize work flow by risk reduction, not the project implementer. In California, 408 projects are often large strategic projects that should not take a backseat to Civil Works projects simply because someone other than the Corps is performing the work.
- b. The new Corps Feasibility Study process made tremendous improvements in the way Corps manages reviews that could be directly applied to Section 408 processes. Notable among these were extensive use of the vertical team concept in which all levels of review were conducted simultaneously instead of through interminable routing up and down organizational chains. Local agencies are heartened by recent interim guidance provided by Civil Works Director James Dalton to make use of this mechanism. Mr. Dalton also proposes to delegate more decisions to Divisions and Districts, a move that recognizes the real-world difficulties of non-federal sponsors in navigating the former process. We are grateful for Mr. Dalton's attention to this important local issue and hope to see these changes expanded and formally codified.
- c. Many of the policy issues associated with the 408 process were intermingled with the parallel Corps Feasibility Study process. However, they are two separate questions. Put simply, the 408 process asks "Will this project cause harm?" and the Civil Works process asks "Is this a wise federal investment?" Much of the unnecessary churning associated with these review processes could be alleviated by recognizing the comity between the overarching Central Valley Flood Protection Plan and Corps policy, and where there is conflict between the two, by reverting to these two essential questions.
- d. Allow local, State and even private entities to implement Civil Works Projects. Rather than construct projects, the State has taken the strategic approach to fund local agencies in the Central Valley to finance, plan, design and construct levee projects. This bottom-up approach has resulted in more cost effective, timely, and efficacious risk reduction projects. The Corps could do something similar. WRRDA 2014 includes a provision to advance this concept; however this pilot has not been implemented to date. Other granting programs have also been discussed as a means to implement projects that have traditionally been the domain of the Corps, and we believe these should be investigated as well.

Section 106

Through regulation of locally-led projects or construction of federal Civil Works projects, the Corps plays a critical role in satisfying requirements of Section 106 of the National Historic Preservation Act, particularly in regard to the treatment of Native American cultural resources. In both types of projects, it is the Corps, not the local sponsor, who is required to fulfill Section 106, even in situations where a local agency is leading construction of a flood protection project.

California levees in the Central Valley are typically located on the fractious intersection of historic Goldrush-era pioneer settlements, prehistoric villages and sacred lands of a large and

vibrant Native American civilization. Today, comingling of historic and prehistoric infrastructure and cultural properties has caused a number of costly and time-consuming conflicts during the recent construction of billions of dollars of public safety infrastructure. California has also legislated a number of recent and relatively untested legal protections for Native American remains and properties. This scenario is further exacerbated by ambiguities in State and federal laws and assertion of rights by well-funded, experienced tribes that often manifest late in the design and construction process, causing costly delays of critical public safety infrastructure. The final destabilizing elements are: 1) inconsistent application of Section 106 throughout the Corps, including a hazy characterization of good faith tribal consultation; and 2) a lack of federal recognition of the real-world impacts of State laws on actual and necessary construction.

There are solutions availed to us right now. The federal government has a tremendous wealth of experience working with the tribes in varying institutional and cultural settings throughout the country, with many of the most difficult problems resolved by guidance from the Advisory Council for Historic Preservation (ACHP)—essentially the final board of appeal for disputes regarding Section 106 implementation. Despite this experience, improvements in the Corps' implementation of Section 106 could be achieved with more consistent policy guidance across Corps districts as well as objective, third-party guidance from experienced agencies outside the Corps. Proactive consultation with the ACHP would address both of these needs, and is critical to successful implementation of public safety infrastructure in the complex cultural and legal environment of the Central Valley.

Oroville Dam Spillway Incident

This statement would be incomplete without noting the importance of the single, most important flood control structure on the Feather River: Oroville Dam. The Feather River *is* the discharge channel of Oroville Spillway. Dams and levees are a system, and as the ongoing crisis at Oroville Dam evolves, it is easy to forget that the primary failure mode that threatens lives and property is not necessarily dam spillway failure, but rather **levee failure**. Dam structures, even those as damaged as the Oroville spillways, are built to standards that are orders of magnitude greater than levee standards due to a variety of factors. In the last century, the devastation wrought by a single event, the levee/floodwall failures in New Orleans caused by hurricanes Katrina and Rita, probably killed more people than all dam failures combined¹. Before the Oroville Spillway incident initiated on February 7, unimproved levees on the lower Feather River were already showing signs of distress. The loss of full functionality of both the service and emergency spillways significantly increases the likelihood that our levees, even in their vastly improved state, could experience flows and accompanying water surface elevations that exceed capacity. Under this foreseeable event, the unimproved levees protecting rural areas would be overcome and the improved levees would be at grave risk. Again, the Corps plays a crucial role in flood operations by governing the use of flood space in the reservoir, and through their investment in the first cost of Oroville Dam.

Oroville Dam has appropriately captured all of our attention at the moment, but we cannot neglect the vulnerability of our levees in the system that includes the Oroville Dam spillways.

Thank you for holding this hearing and your continued attention to these important issues. Our lives and livelihoods depend on it.

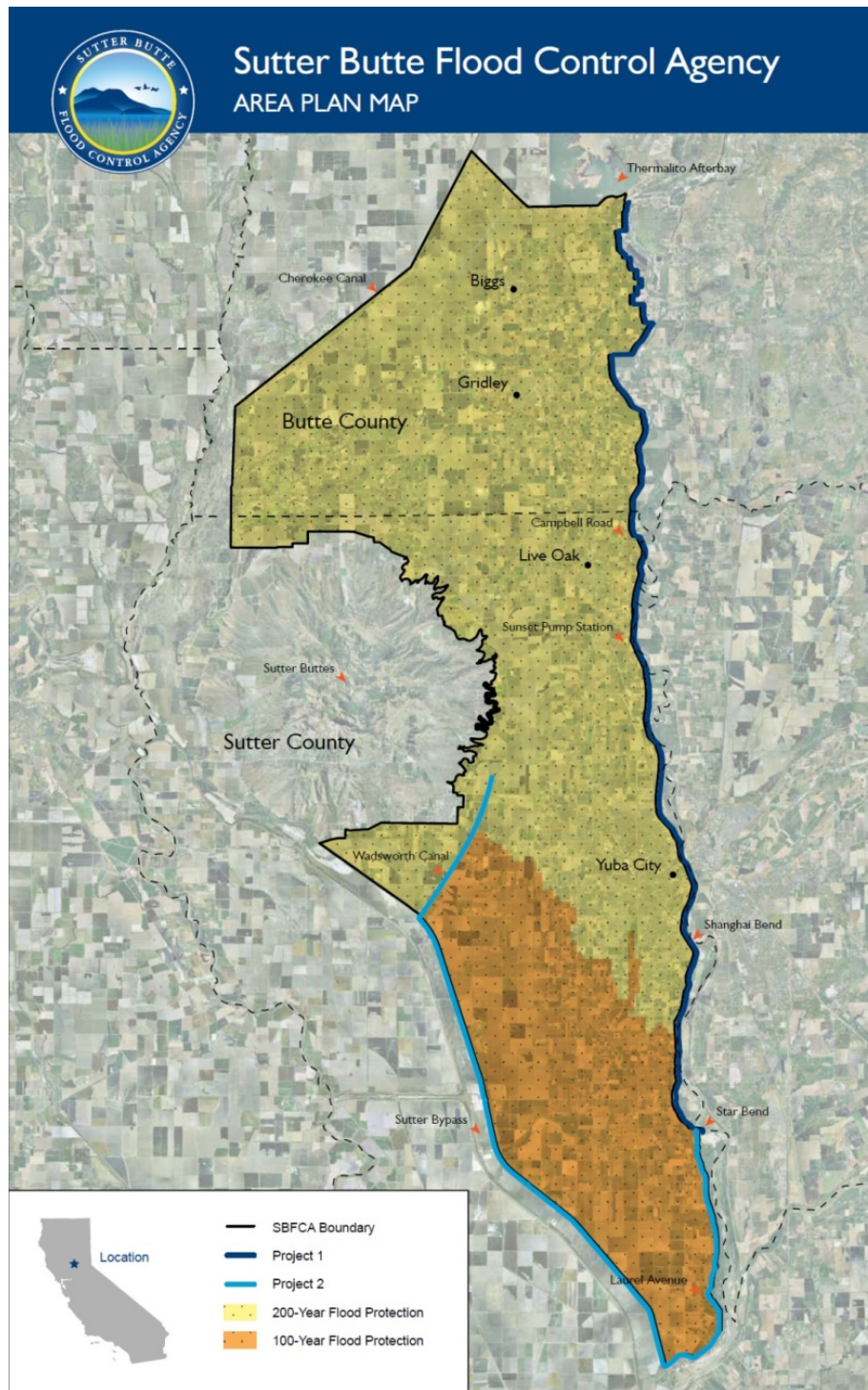


Figure 1. Sutter Butte Flood Control Agency boundaries

Reference:

¹Harder Jr., Leslie F.; Hradilek, Peter J.; Krivanec, Christopher; Meyer, Barry J.; *Improving Flood Protection - Understanding How Levees Are Different From Dams (2008); Dam Safety 2008, 25th annual conference of the Association of State Dam Safety Officials; Sept. 7-11, 2008; Indian Wells, California.*