

Sutter Basin

Sutter and Butte Counties, California
Sutter Basin Pilot Feasibility Study

Planning Community of Practice A Lessons Learned Webinar

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US Army Corps of Engineers
BUILDING STRONG®



Welcome & Logistics

- Please Sign-in so we know who you are
- Global Mute on the phone to improve sound quality.
Thanks for your understanding.
- Questions welcome via the chat function
 - Will address questions as time allows
- Slides and Q&A will be posted on SMART Guide
- Thank you for your time today



Sutter Basin Pilot Study Lessons Learned Outline

Welcome and Logistics (5 min)

Sutter Basin Study History (5 min)

An Overview: Journey to the Recommended Plan (10 min)

Pilot Study Lessons Learned (20 min)

Questions (20 min)



Sutter Basin Study Highlights



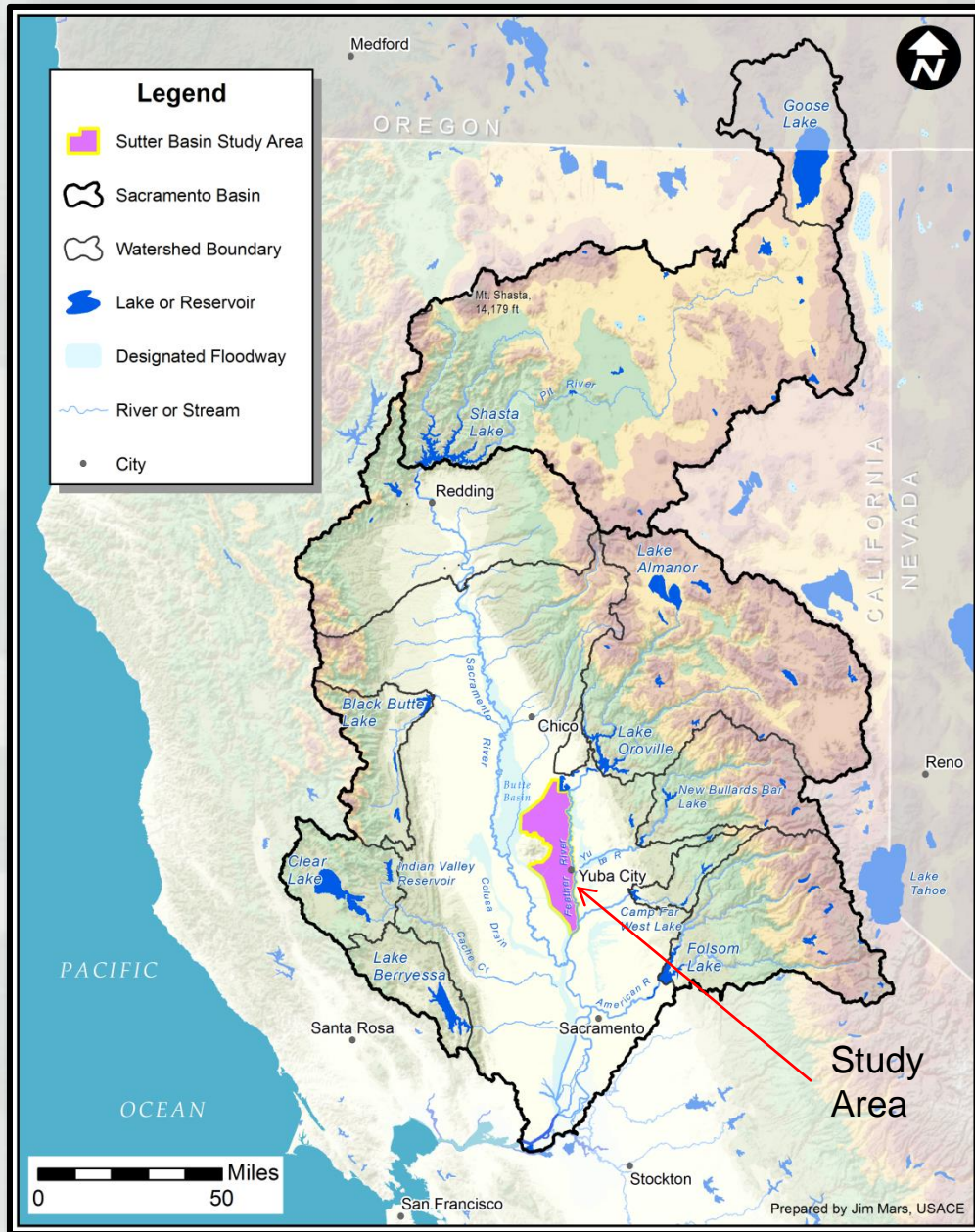
Sutter Basin Study History

- Feasibility study initiated in April 2000
- Feasibility Scoping Meeting (FSM) was held in January 2005 then study became inactive
- Sutter Butte Flood Control Agency (SBFCA) formed in 2007
- Study resumed in 2007 with SBFCA and Central Valley Flood Protection Board (CVFPB) signed on as the local partners
- In 2010 property owners passed a \$6.65 million per year assessment to support study and construct FRM actions
- In February 2011, the study was selected as a Pilot Study
- In October 2013, Civil Works Review Board – unanimous approval
- Chief's Report is scheduled for early March 2014

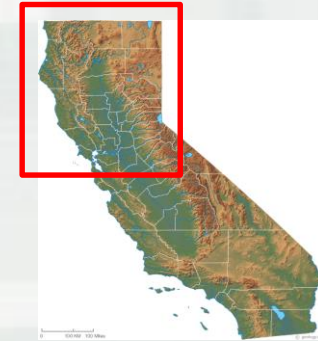


Status at Start of Pilot Study

- There was substantial information and engineering already available when the Study became a Pilot Study (original FS started in 2000).
- PDT benefited from the parallel efforts of a Section 408 report (Feather River West Levee Project):
 - ▶ Helped in some information and task sharing (savings in cost and time)
 - ▶ Created challenges in review and public process.
 - ▶ Supplemented off of FRWLP NEPA document for study
 - ▶ Construction commenced Summer 2013
- A levee section, Star Bend, was constructed in advance of study completion and received Section 104 credit approval.



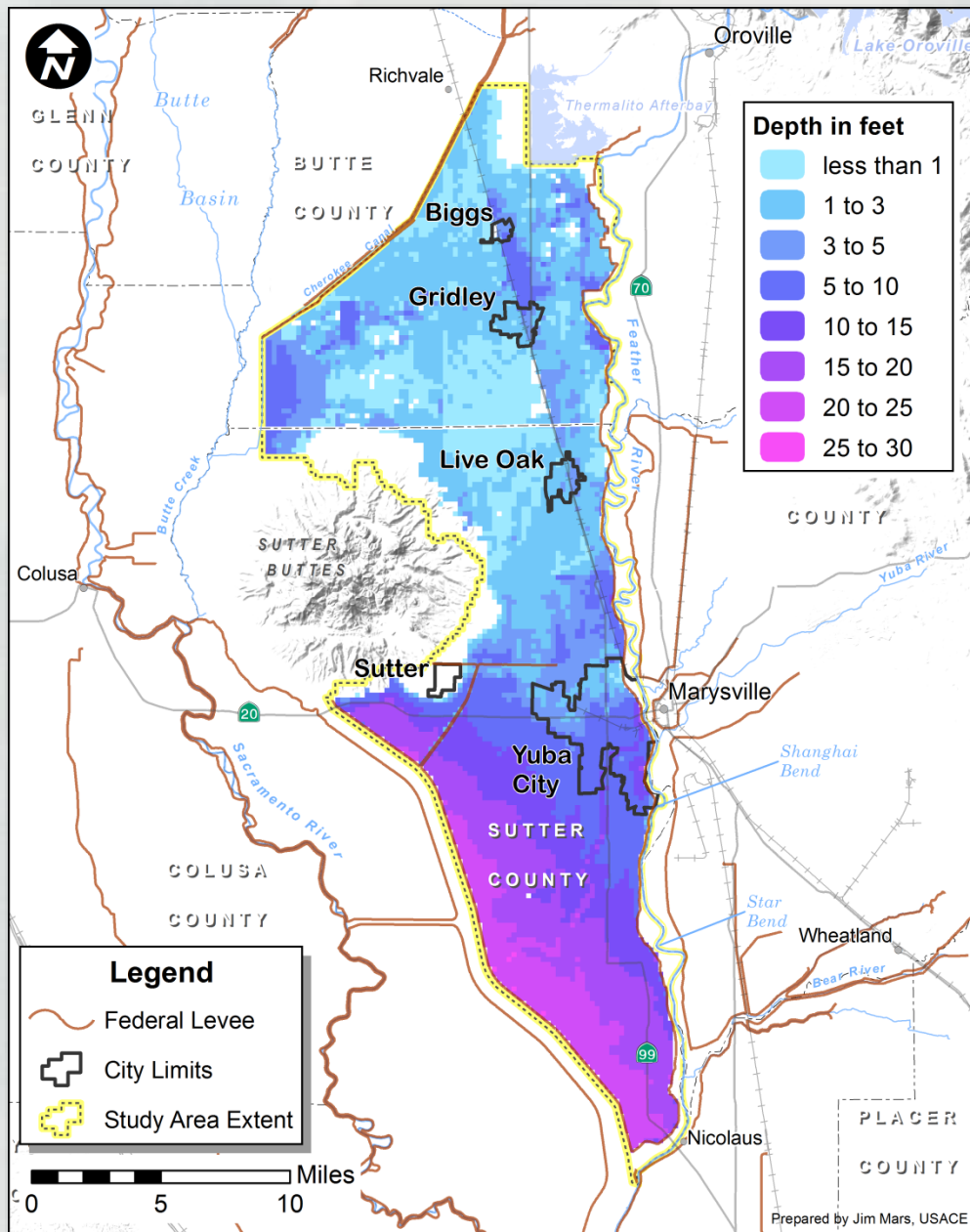
SACRAMENTO RIVER WATERSHED



California

- Sacramento River Drainage Area: 14,000 sq. miles
- Feather River Drainage Area: 6,000 sq. miles
- System is highly regulated by upstream reservoirs
 - Shasta Dam
 - Oroville Dam
 - New Bullards Bar Dam



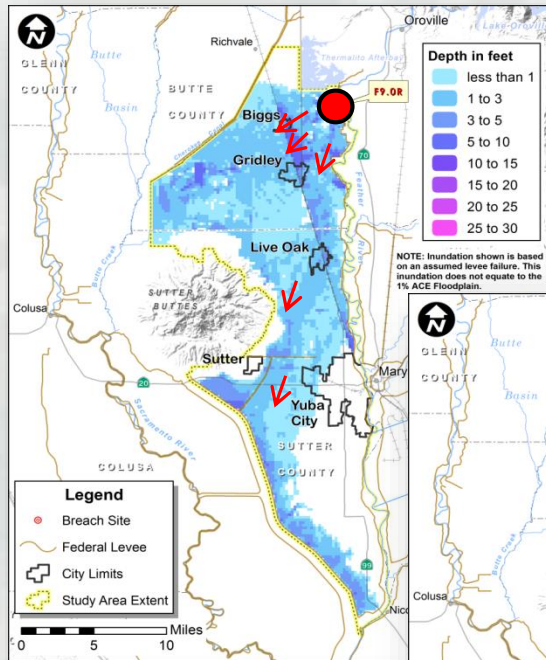


Without Project Floodplain 1% (1/100) ACE Floodplain

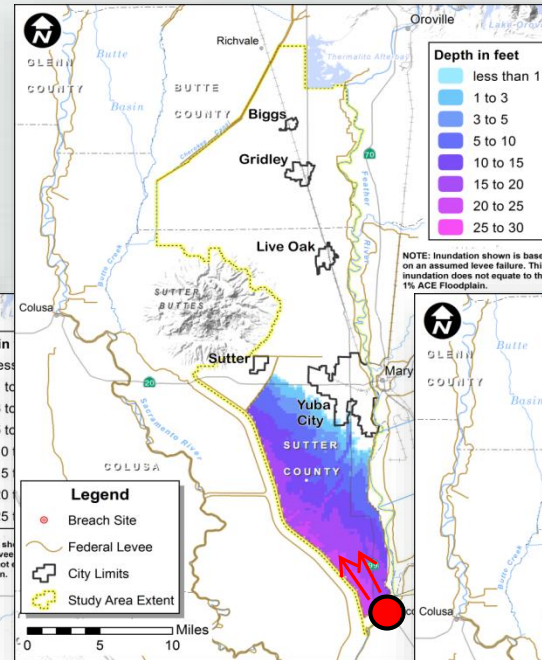
The Sutter Basin has a high risk of flooding and has historically flooded.



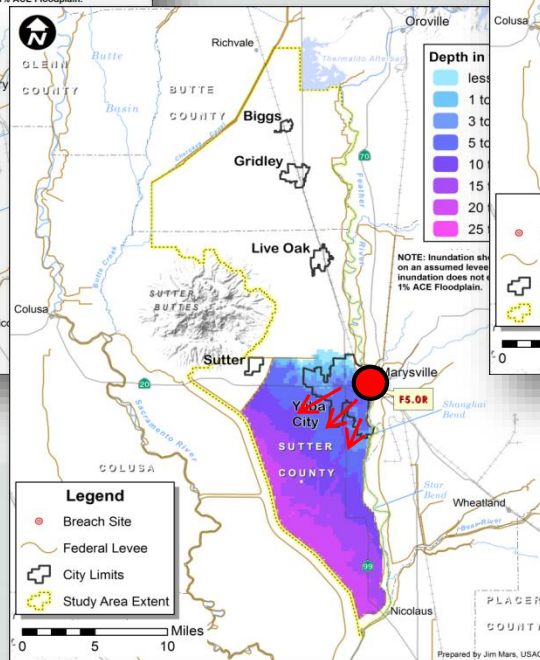
WITHOUT PROJECT LEVEE BREACH & FLOW SCENARIOS



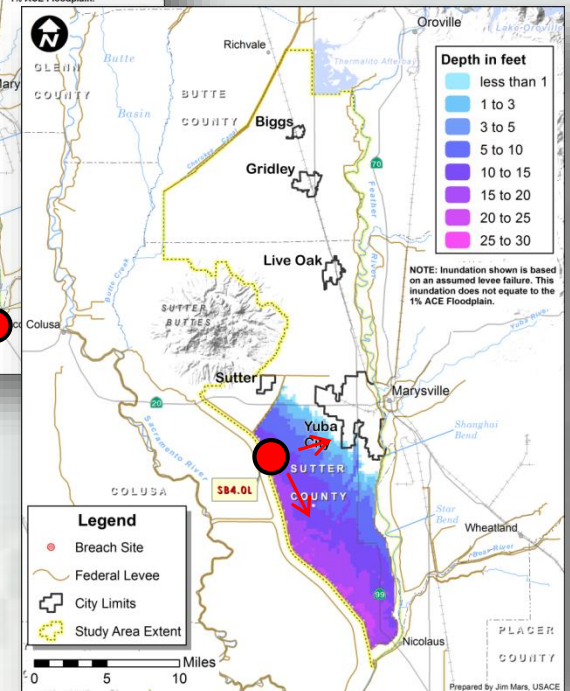
North Feather River Breach



Lower Feather River Breach



Mid-Feather River Breach

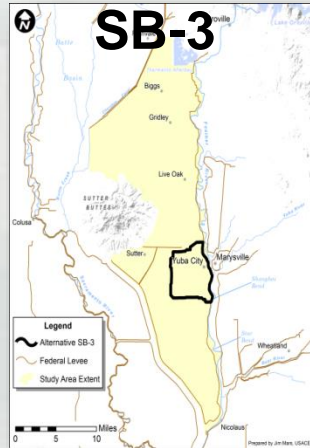


Mid-Sutter Bypass Breach



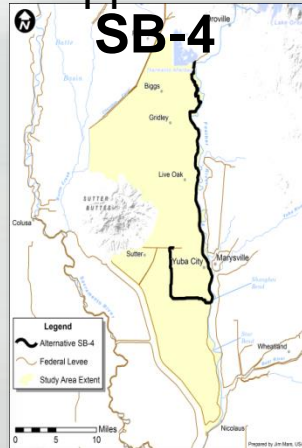
Draft Array of Alternatives

Ring Levee Approach

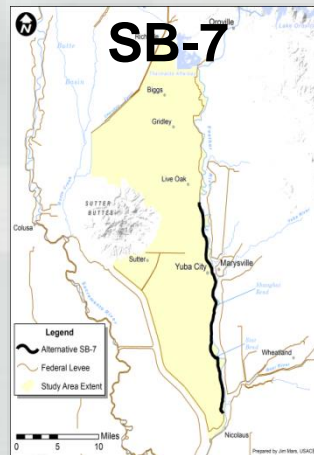


YUBA CITY RING LEVEE

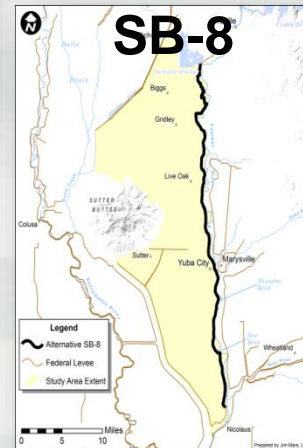
Partial Ring Levee & Fix-in-Place Approach



LITTLE "J" LEVEE

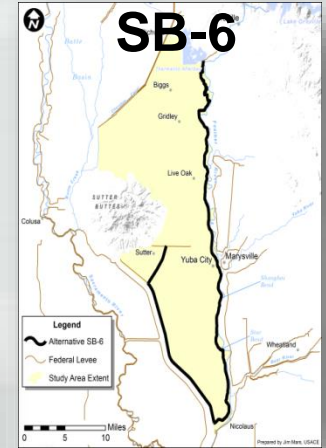


**FIX IN PLACE
FEATHER RIVER,
SUNSET WEIR TO
LAUREL AVE**



**FIX IN PLACE
FEATHER RIVER,
THERMALITO TO
LAUREL AVE**

Fix-in-Place Primary Levees Approach



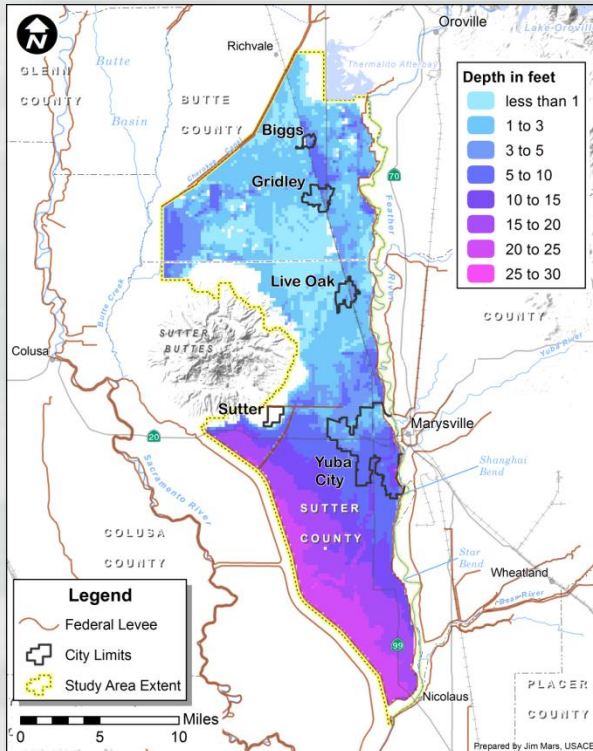
**FIX IN PLACE FEATHER
RIVER,
SUTTER BYPASS, AND
WADSWORTH**

Fix-in-Place: Feather River Levee Approaches

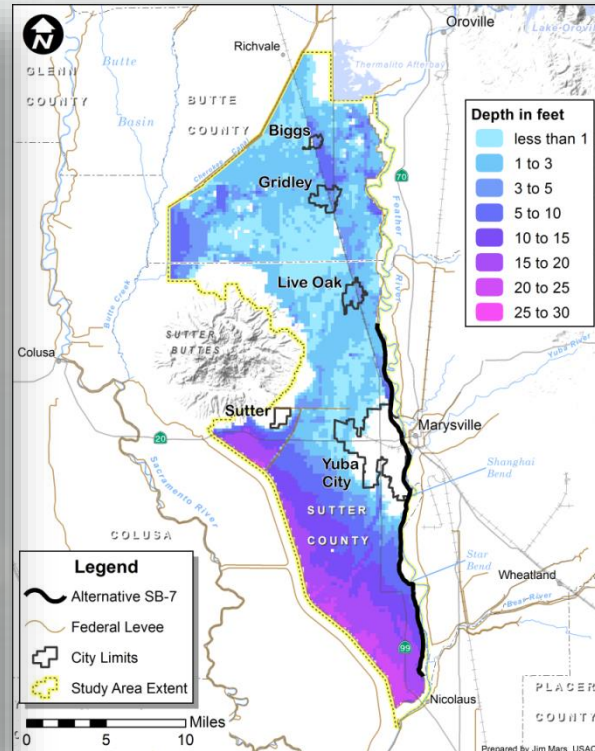


Final Array of Alternatives

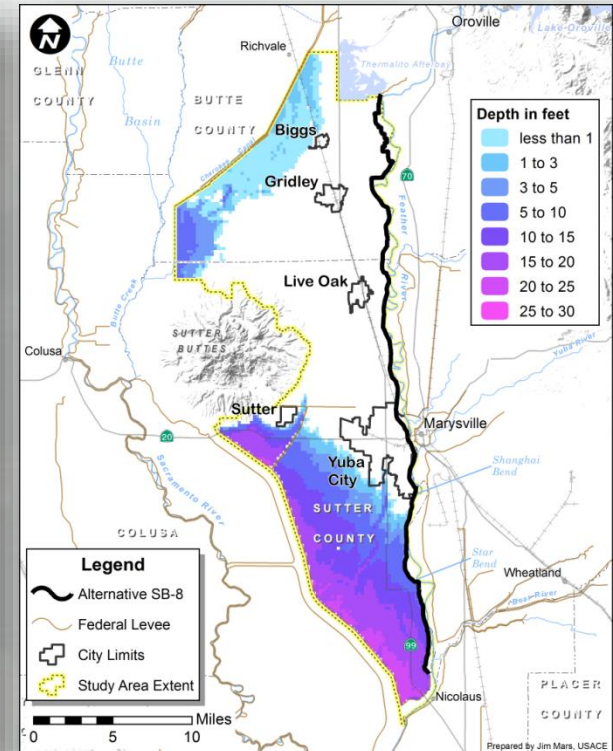
(Residual Risk of the NED)



No Action



NED



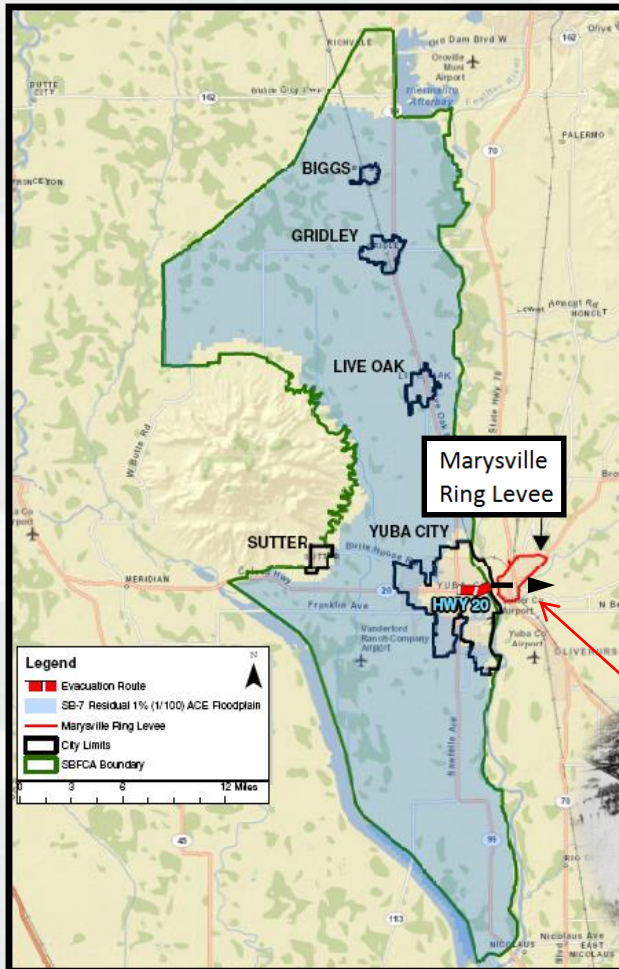
LPP

1% (1/100) ACE Residual Floodplains Used for Comparison Purposes



Residual Risk: Evacuation Routes

1% ACE Residual Floodplain



NED

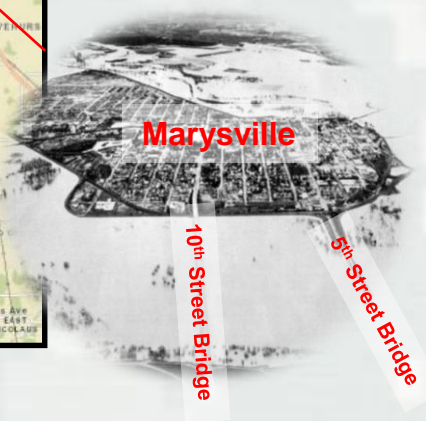
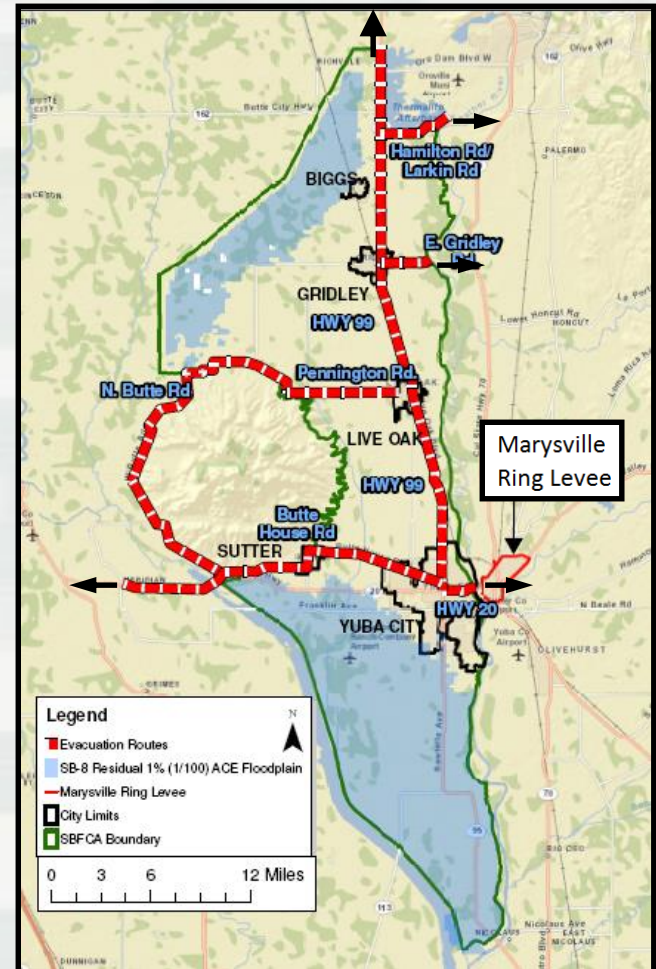


Photo taken December 23, 1955

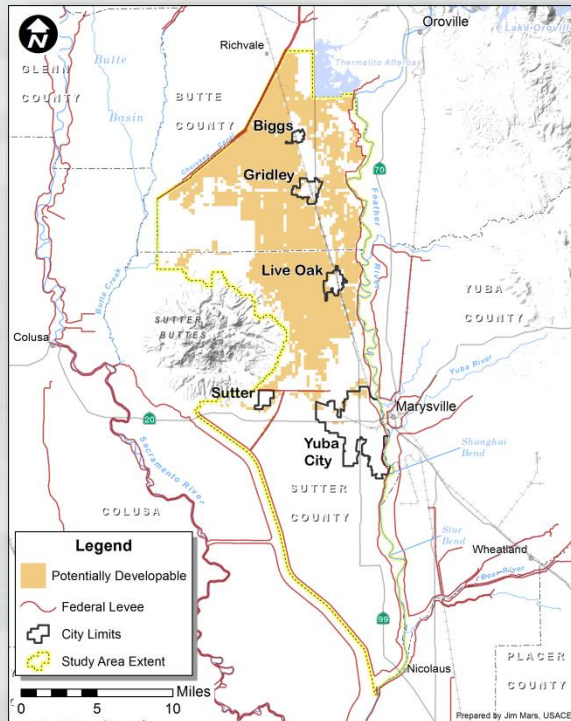


LPP



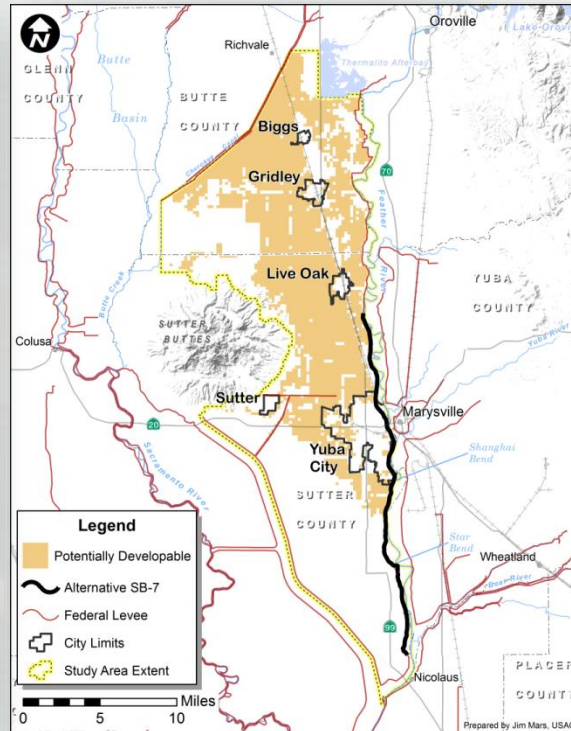
Residual Risk: Potentially Developable Floodplain

Comparison Using 1% ACE Residual Floodplains



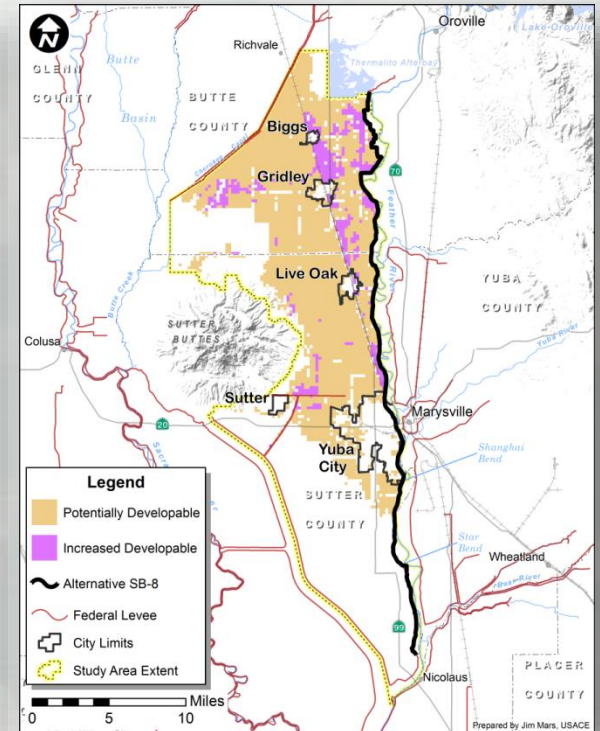
No Action

Existing 71,800 acres of defined
Potentially Developable Floodplain*



NED

Increase of 16,400 acres around
Yuba City from the No Action Plan



LPP

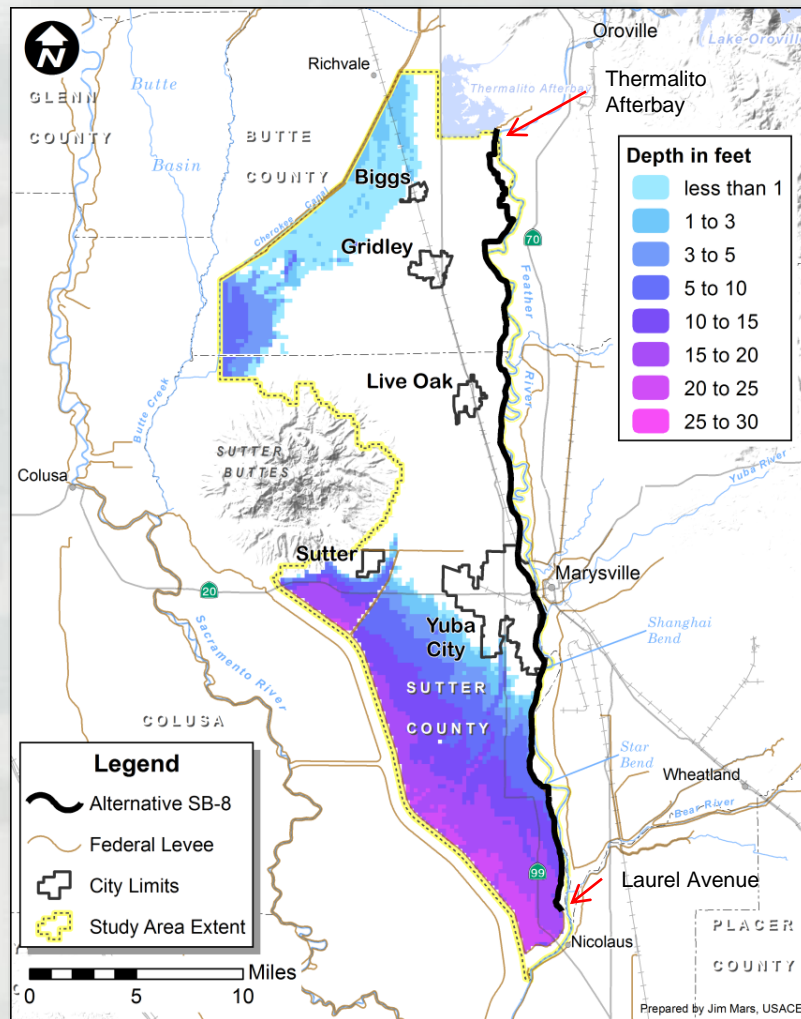
Increase in acres (magenta) from
NED to the LPP: 12,000 acres

* Study evaluation metric of potentially developable floodplains is defined as:
Acres within the 1% ACE floodplain with depths of less than 3 feet.



Recommended Plan

Locally Preferred Plan



1% ACE Residual Floodplain

- Fix-in-Place 41.4 miles of existing Levees
- ASA(CW) approval of exception to NED plan received 07 May 2013
- Satisfies sponsor objective and State Senate Bill 5 for flood risk management of existing urban areas
- Annual Net Benefits: \$ 54 million
- First Cost: \$ 689 million
- Benefit/Cost (@3.5%): 2.6:1
- Federal Cost Share: \$ 255 million (Limited investment to the NED Plan cost share)



Sutter Basin Pilot Study Lessons Learned

Some Lessons Gained for SMART Planning Consideration



Sutter Basin Pilot Study

Process Considerations

- The Vertical Team Integration concept was probably the most valuable process developed and used for the Study.
- Risk based planning and process needs to be understood, supported, and shared.
- NED Policy Exception for a LPP was completed and approved with an ASA (CW) with primary concerns on Wise Use of Floodplains and EO 11988.

Sutter Basin Pilot Study

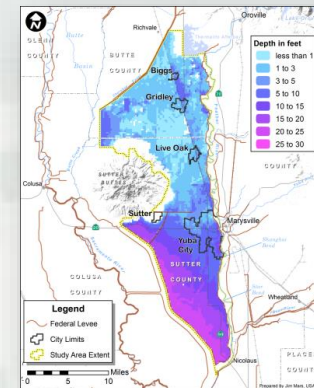
Initial Considerations

- A strategy to decide on the Level of Detail was developed and utilized by the PDT to focus resources and efforts.
- A Schedule and Level of Detail strategy to balance resourcing and time was used by the PDT.
- Professional judgment was a key piece to the Pilot Study planning.
- PDT Members must understand their discipline, but also how it interrelates to other disciplines and the study.



Sutter Basin Pilot Study Useful Tools

- Study Technical Memos were used as key decision and technical documentation for the study.
- Day-to-Day (D2D) Schedules are effective and PDT friendly tools to keep members and team informed and on task.
- Study Graphics were the key communication tool for the study.



Sutter Basin Pilot Study

Useful Tools and Processes

- Risk Register: This tool and process was developed allowing the PDT to identify and document risks and resolution status.
- Risk Memorandum: A new memorandum for submittals to communicate and document risk.
- Concurrent Review was scheduled and occurred at the Draft Report milestone and included reviews for: NEPA Public, ATR, IEPR, and OWPR.

Sutter Basin Pilot Study

Level of Detail Decisions

- Economic Ranges were developed and reported out for the draft alternatives.
- Parametric Cost Estimates were developed for measures and draft alternatives.
- Evaluation Metrics were developed to support a multi-objective planning process strategy focused on public and life safety.

Sutter Basin Pilot Study

Resource Challenges

- Consistent and Effective team communication is required when conducting separate and parallel work efforts.
- More experienced team members should develop effective ways to provide continuous on the job teaching and hands-on learning opportunities at the beginning of SMART studies.
- Significant Planning process reiterations or change in direction can be challenging to accommodate under SMART planning.

Pilot Study Outside Resources

- The strategic use of Local Sponsor work-in-kind was valuable.
- Resource Agencies requirements and regulations need to be incorporated within the new planning process.
- Programmatic Agreements to address some Cultural Resource regulations are a successful option.

Questions?

Type questions in the chat box.
We will answer as many
as time allows.

For more information:
<http://www.corpsplanning.us>

