Sacramento River General Reevaluation Report

Yolo Bypass Working Group

24 May 2016

US Army Corps of Engineers
BUILDING STRONG®

Guidance

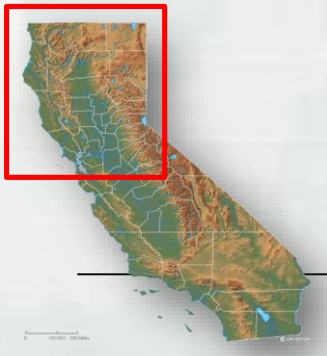
Engineer Circular (EC) 1105-2-404

Planning Civil Works Projects under the Environmental Operating Principles.

- Allows for multipurpose project planning
- "Synergistic process whereby environmental and economic considerations are effectively balanced…"
- "…strive to achieve the appropriate balance between the economic (Flood Risk Management) and environmental benefits provided by a project.

Sacramento River Watershed

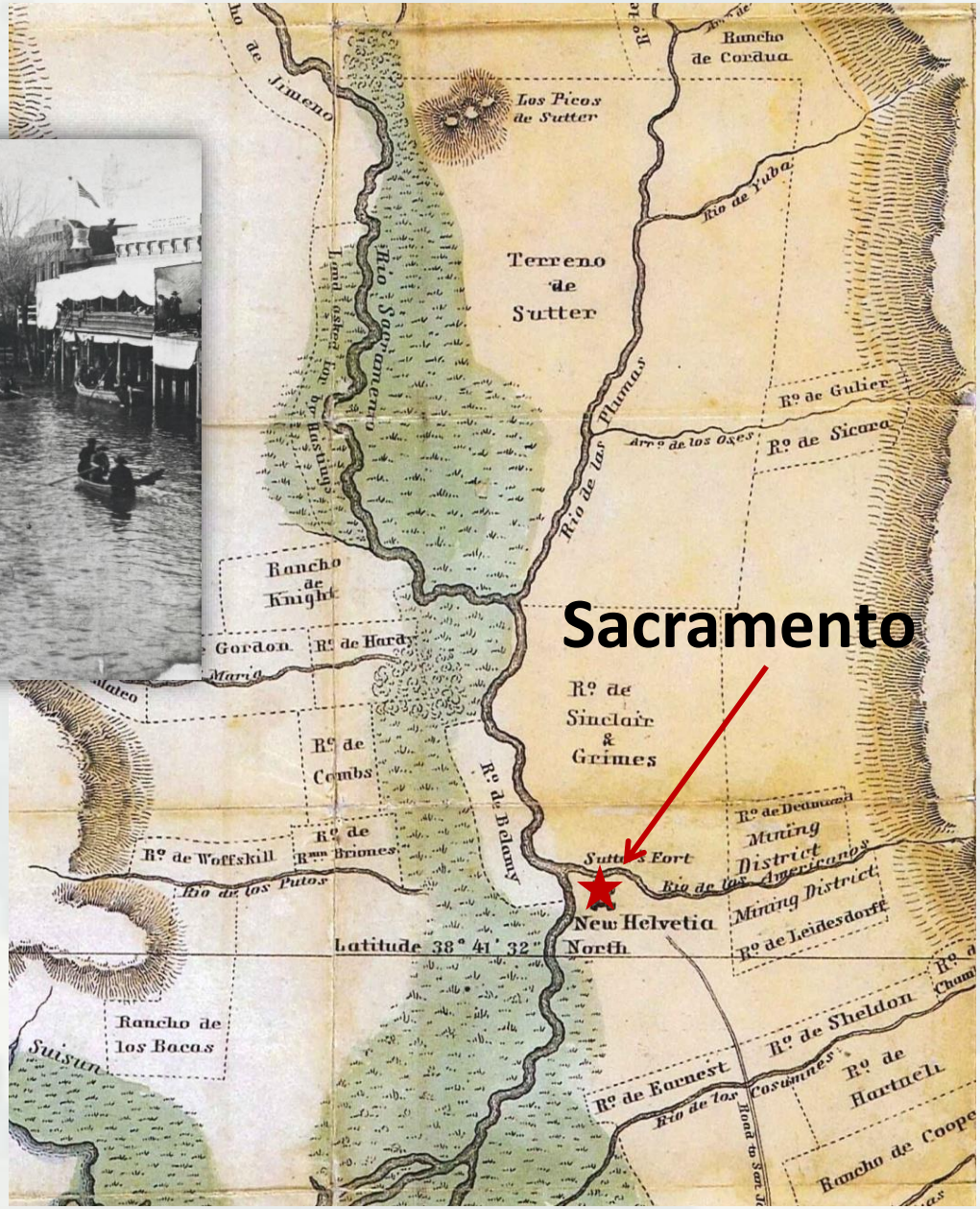
- City of Sacramento one of most at risk cities for flooding
- Major losses of riparian and wetland habitat in region



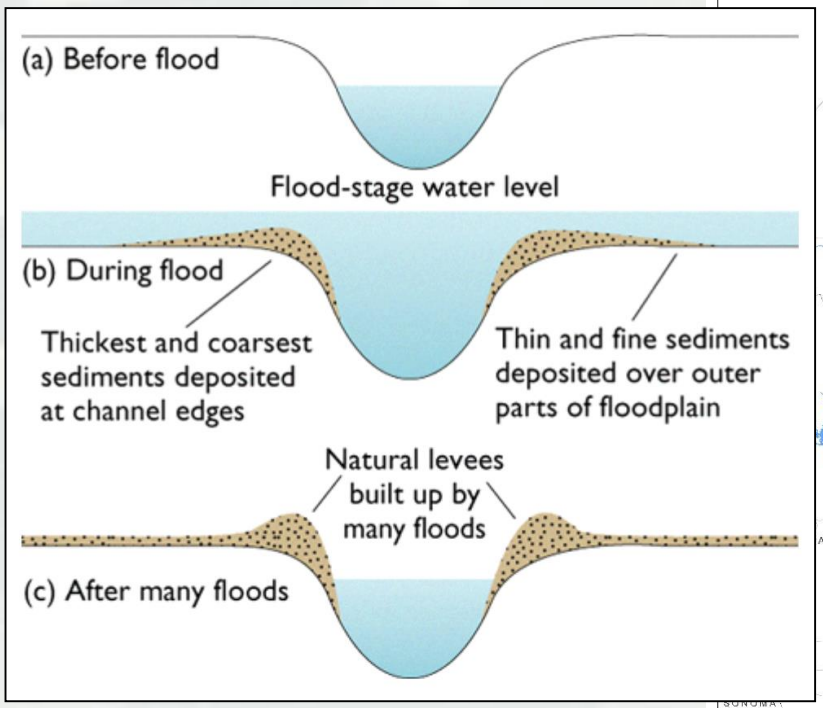
Historical Setting

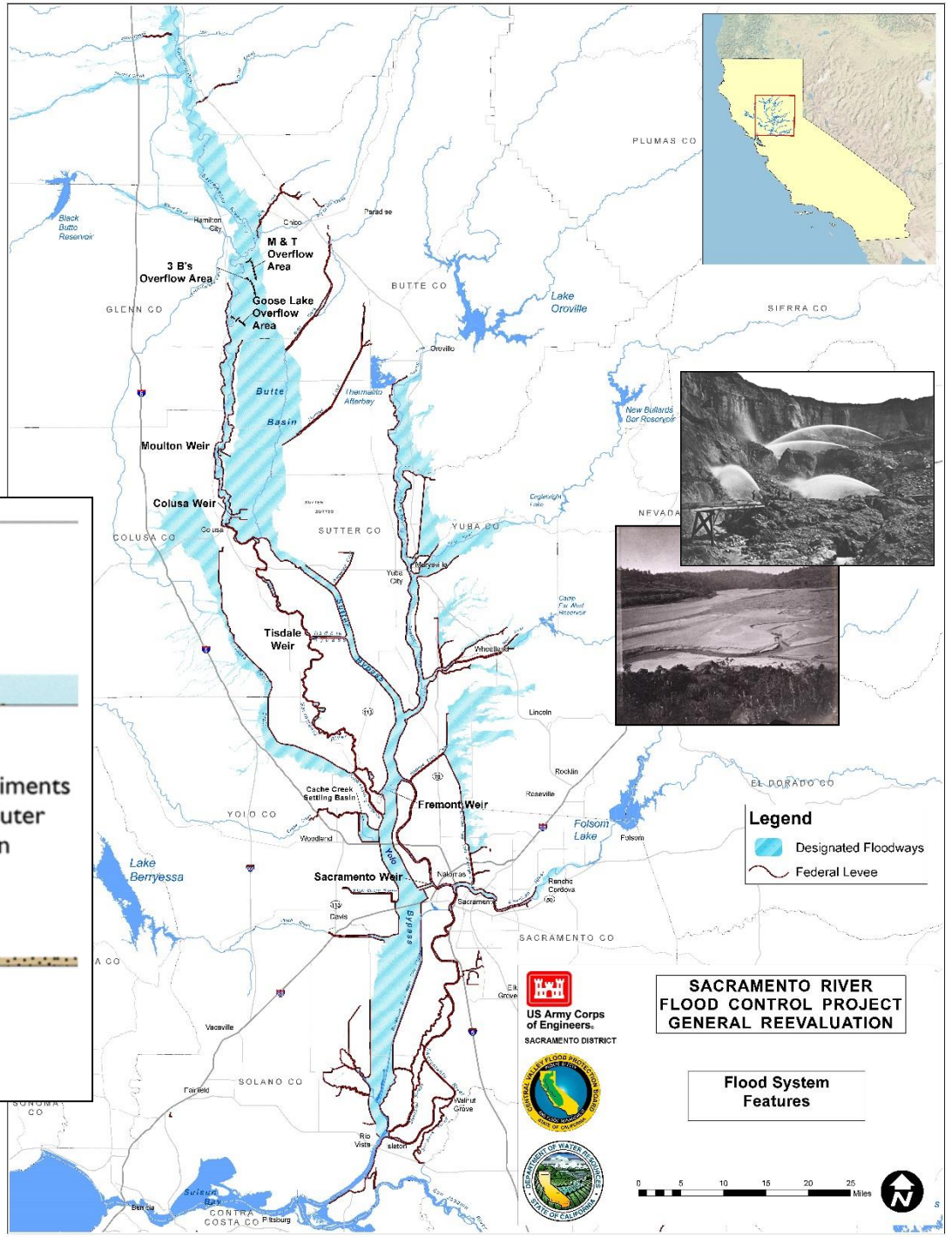
Flooding in Sacramento in the 1800's

Present day Sacramento with Yolo Bypass in foreground



Sacramento River Flood Management System





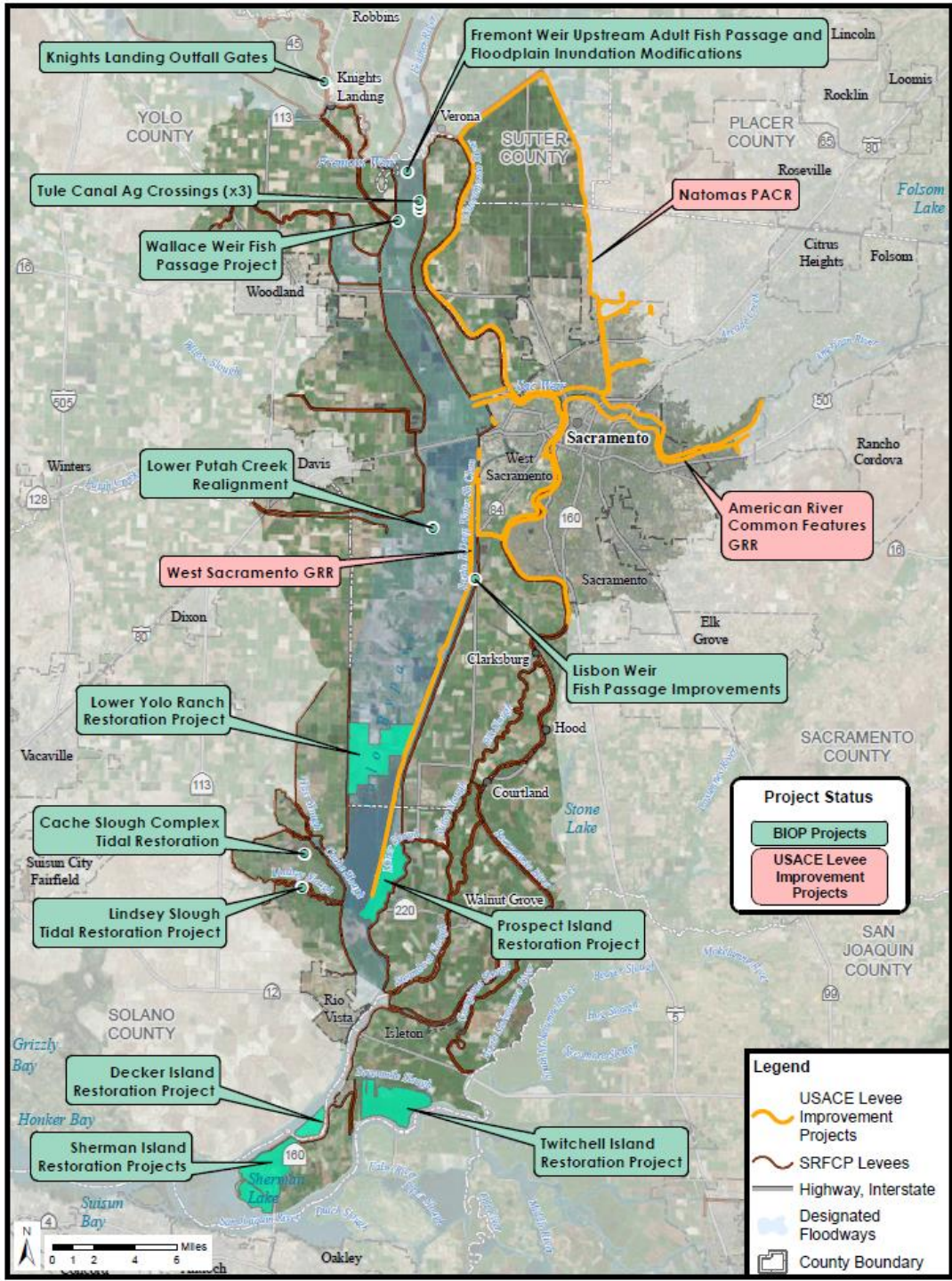
Study Area

- Specifically focused on the Flood Management System from Knight's Landing to Collinsville
- USACE missions focused on Flood Risk Management and Ecosystem Restoration
- Improve the Flood Risk Management System to achieve both purposes
- Covers 726 Square miles

Future Without Project Condition-

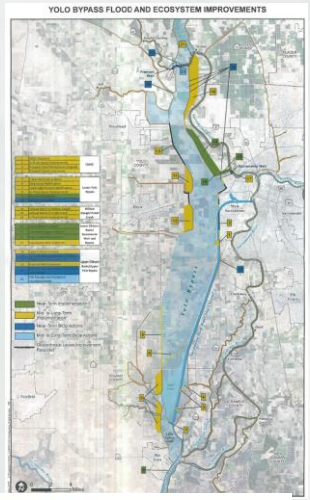
Assumes the following actions would be in place:

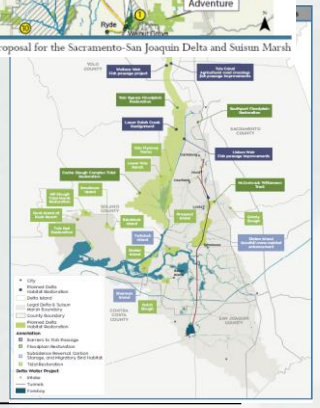
- American River Common Features
- West Sacramento
- Natomas Basin
- Sacramento River Bank Protection Project (additional 80,000 linear feet)
- Folsom Dam Joint Federal Project (JFP) + Dam Raise
- BiOp Actions



Formulation Strategy for Preliminary Alternatives

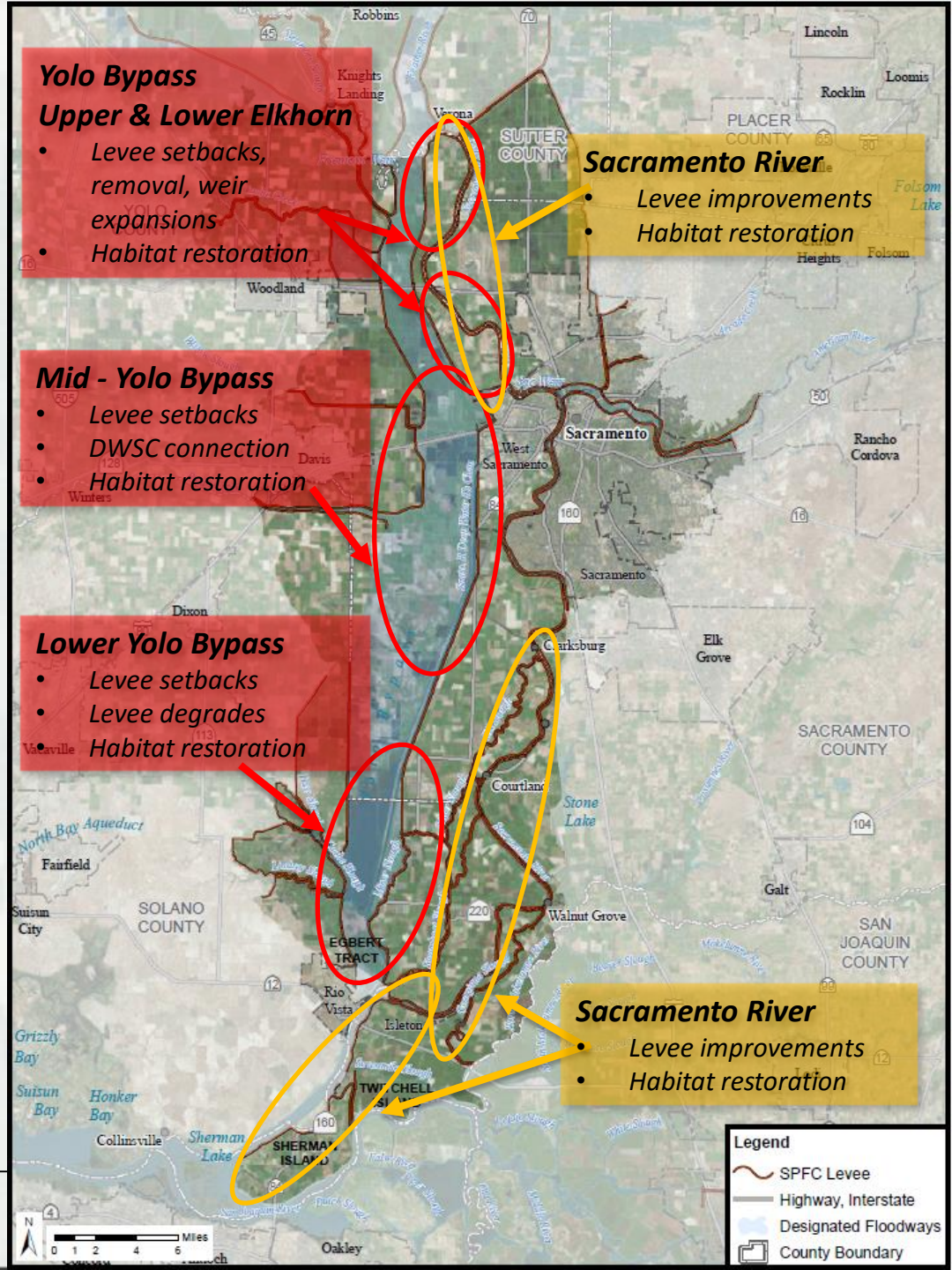
- Initial Ecosystem Restoration (ER) only Alternatives
  - Locations with significant potential for ecosystem restoration
  - Gathered info from current projects/proposals/agency plans
  - Alternatives developed incrementally from small to large
- Initial Flood Risk Management (FRM) only Alternatives
  - Incremental approach to flood risk reduction while
  - Leveraging current projects/proposals/agency plans
  - Non-Structural elements
- Initial Combined FRM &ER Alternatives
  - Focused on measures that would provide both FRM and ER benefits
  - Supplemented with additional FRM only and ER only measures from current projects/proposals/agency plans
  - Included 2 locally developed plans





Preliminary Alternatives

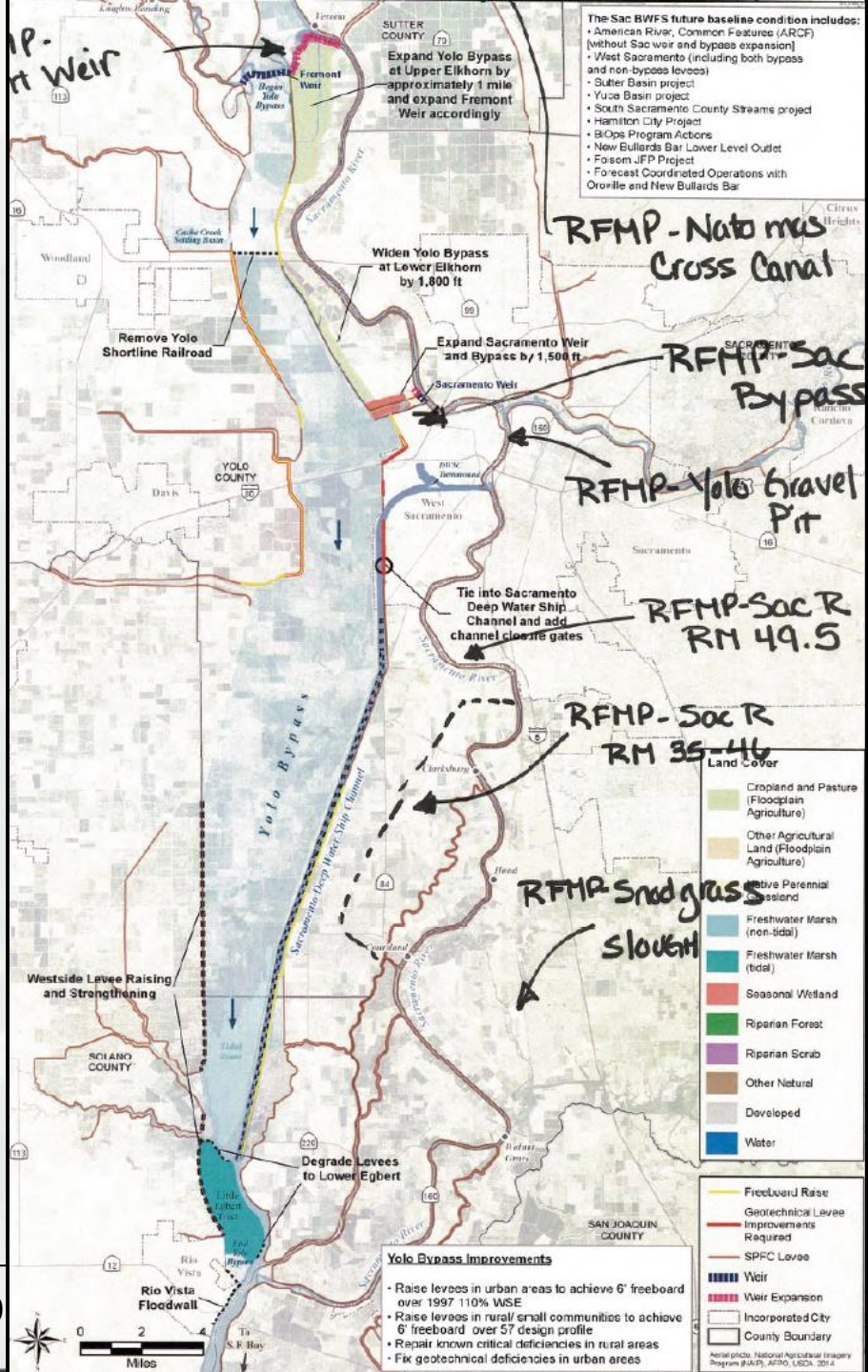
- Composite showing range of alternatives that will analyze multipurpose features throughout the study area.
- 2 locally developed plans (Flood Protect and DWR Preferred Alt.)



Locally Developed Plan

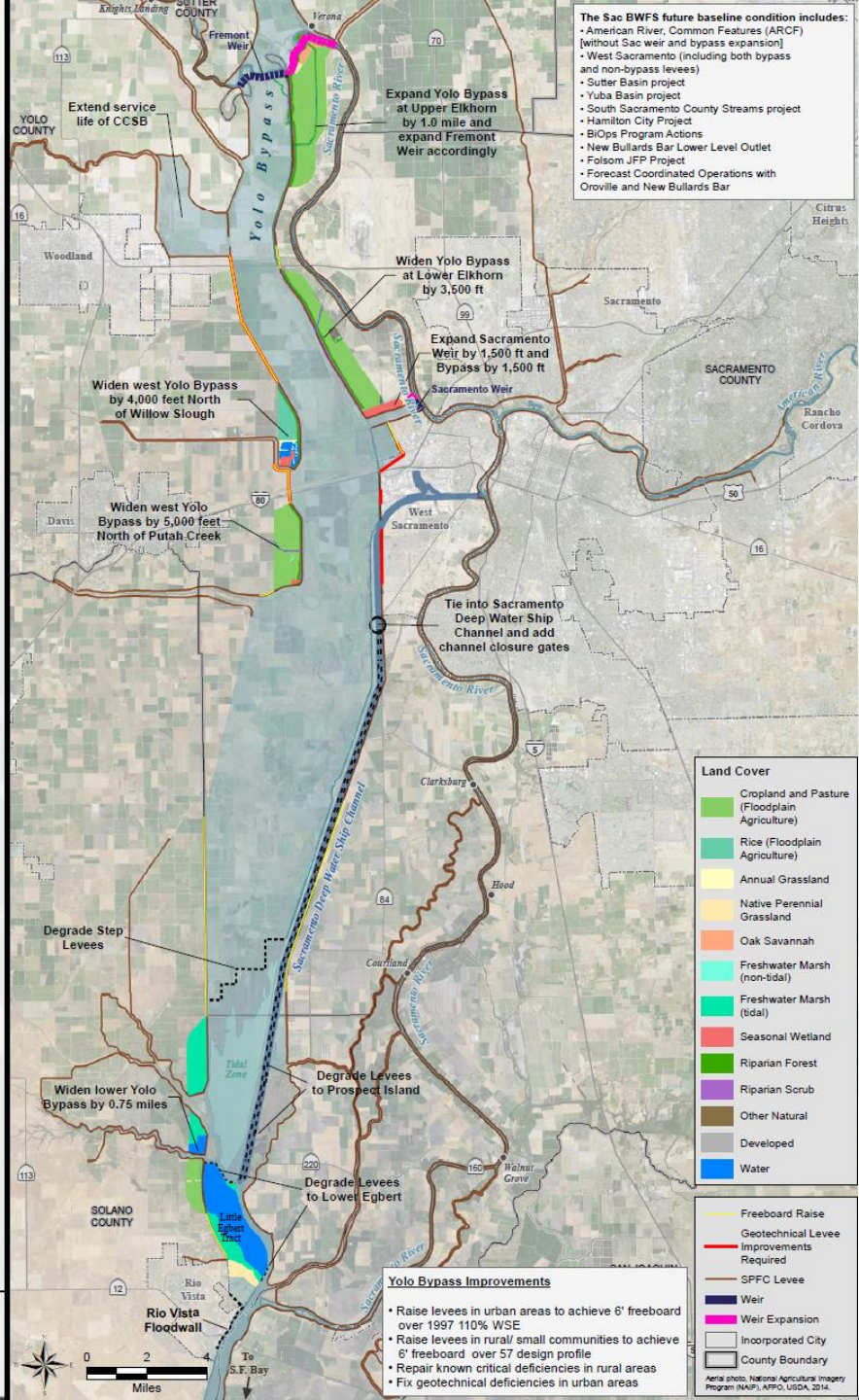
Regional Flood Management Plan

- Weir expansion – Fremont
- Riparian habitat restoration – Tule Canal/toe drain
- Setback Levee with Habitat Restoration – Upper Elkhorn, Lower Elkhorn, Willow Slough, Putah Creek, Lower Yolo Bypass
- Degrade Levee – Egbert Tract
- DWSC tie-in
- Degrade step levees
- Degrade levees – Prospect Island
- Rio Vista floodwall



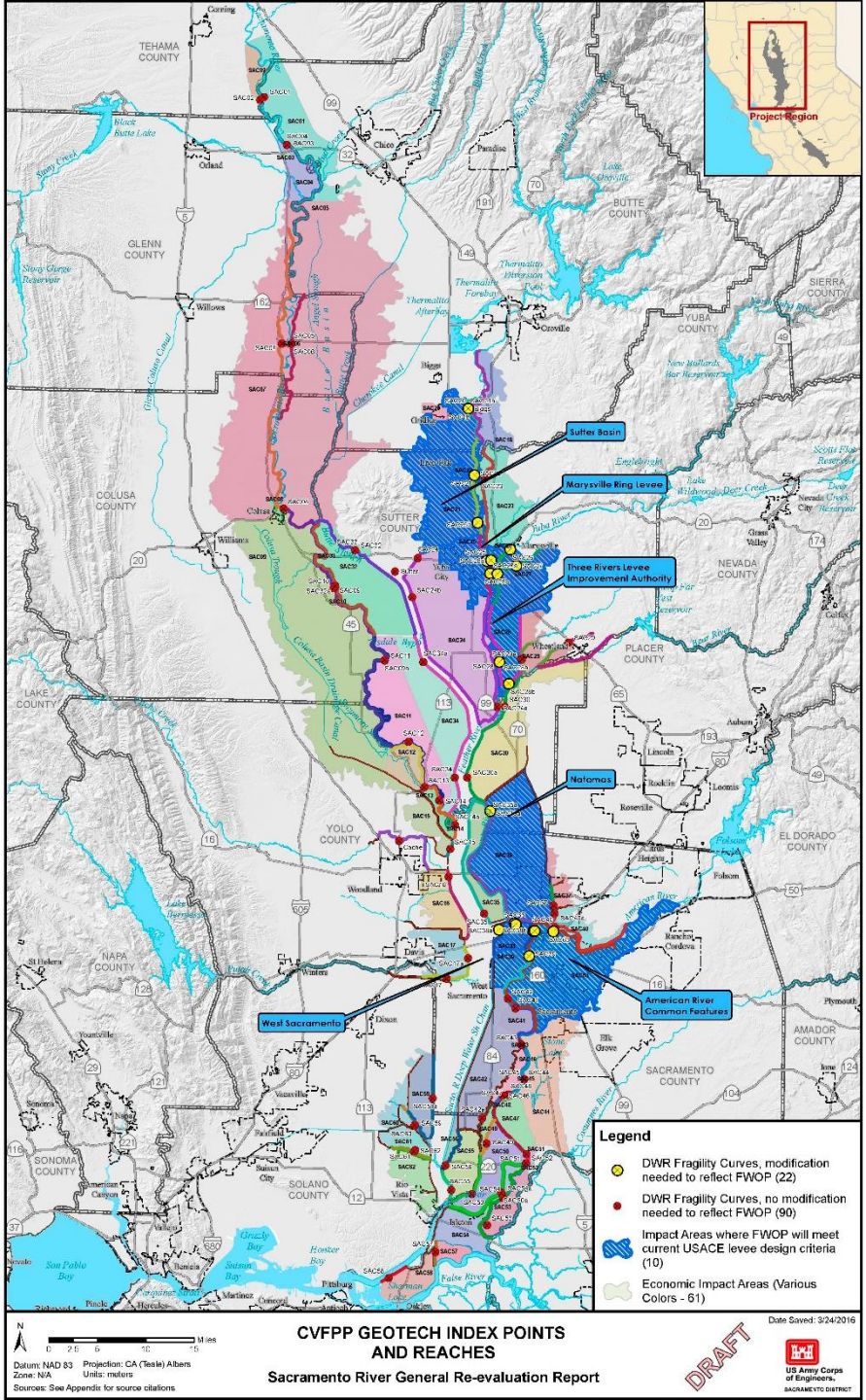
Locally Developed Plan
DWR Preferred Alternative

- Weir expansion – Fremont
- Setback levee with Habitat Restoration – Upper and Lower Elkhorn
- Degrade limited height levees – Lower Egbert Tract
- DWSC tie-in
- Degrade step levees
- Rio Vista floodwall
- Sacramento Bypass restoration
- Woodlake improvements
- Yolo Gravel Pit Riparian
- Sacramento River RM 49.5 right and left bank restoration
- Sacramento River RM 35 to 46 restoration
- Snodgrass Slough restoration

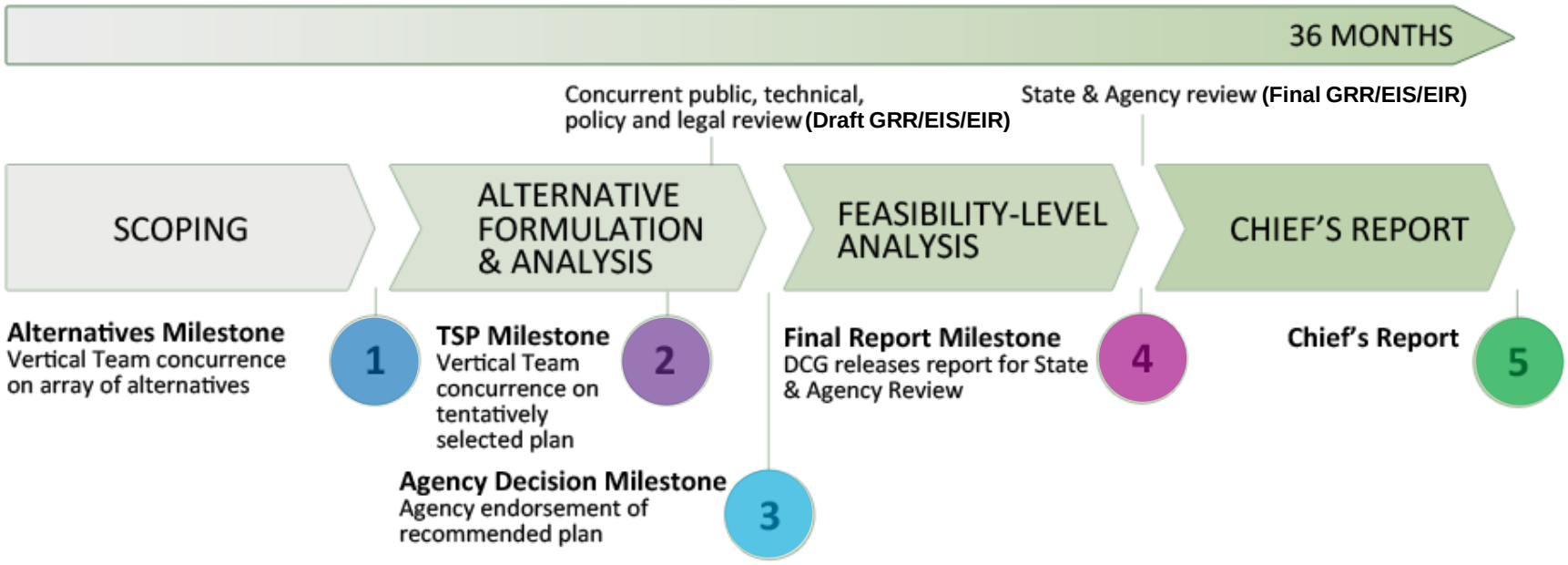


Models

- **Hydrology Model** – *HEC-HMS and RES SIM developed by DWR and USACE for 2017 CVFPP*
- **Hydraulic Model** – *HEC-RAS developed by DWR and reviewed by USACE for 2017 CVFPP*
- **Geotech Fragility Curves-** *developed by DWR, ongoing review by USACE*
- **Environmental Model-** *Existing pre-certified HEP Models*
- **Economic Model** – *HEC-FDA developed by DWR, ongoing review by USACE*



Tentative Sacramento River GRR Schedule



Discussion

Fremont Weir - 1963