Sonoma Water

**Clean. Reliable. Essential. Every Day.**

# Central Sonoma Watershed Project - Update

ZONE 1A FLOOD PROTECTION ZONE
ADVISORY COMMITTEE MEETING
DECEMBER 8, 2022

sonomawater.org

Prince Memorial Greenway October 24, 2021

# Overview

- Background – Central Sonoma Watershed Project
- Central Sonoma Watershed Planning Effort
- Matanzas Dam Rehabilitation

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Santa Rosa Creek Diversion (Upstream of Spring Lake)

# Background

# Central Sonoma Watershed Project

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SAN FRANCISCO EXAMINER PHOTO

SANTA ROSA in 1957

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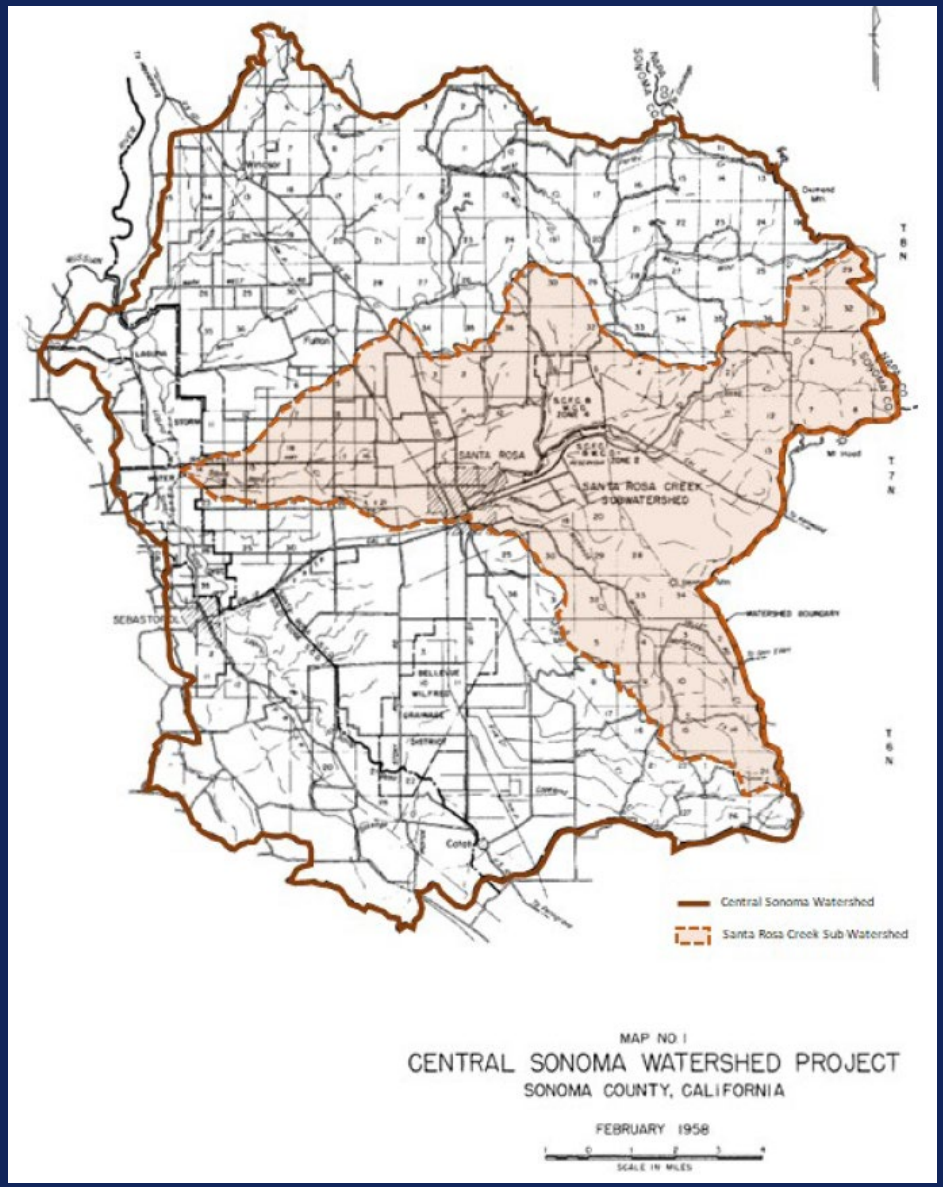
# Central Sonoma Watershed Work Plan

- Congress approved the Central Sonoma Watershed Work Plan
- Work Plan elements completed between 1962 and 1964[1]
- Sonoma Water, as Local Sponsor, continues to operate and maintain the system

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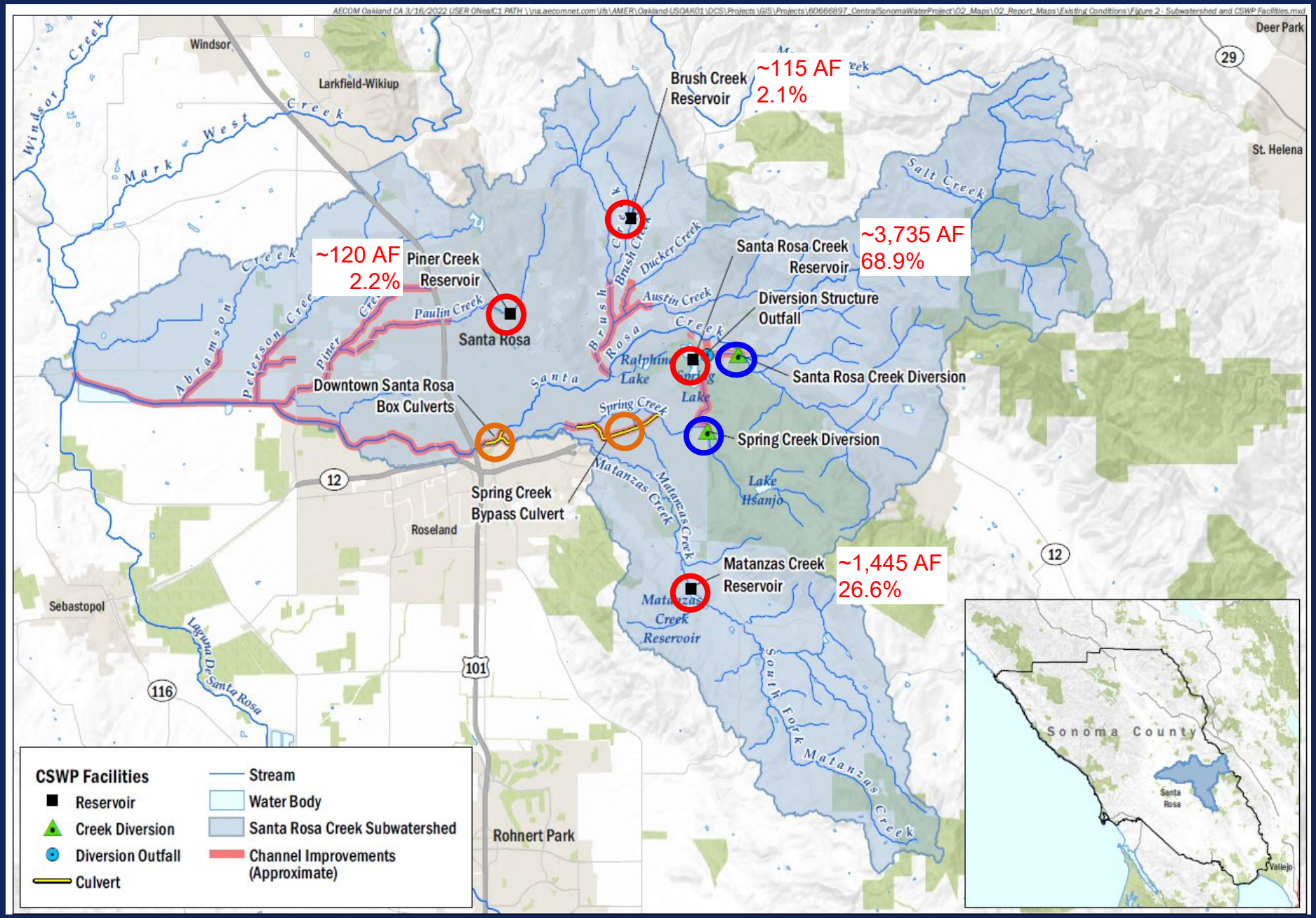
~115 AF
2.1%
Brush Creek Reservoir
~120 AF
2.2%
Piner Creek Reservoir
~3,735 AF
68.9%
Santa Rosa Creek Reservoir
Diversion Structure Outfall
Santa Rosa Creek Diversion
Spring Creek Diversion
Downtown Santa Rosa Box Culverts
Spring Creek Bypass Culvert
~1,445 AF
26.6%
Matanzas Creek Reservoir
Santa Rosa
Roseland
Rohnert Park
Sebastopol
Windsor
Larkfield-Wikiup
Deer Park
St. Helena
Lake Ralphine
Lake Sonoma
Lake Hsanjo
Sonoma County
CSWP Facilities
Reservoir
Creek Diversion
Diversion Outfall
Culvert
Stream
Water Body
Santa Rosa Creek Subwatershed
Channel Improvements (Approximate)

# Central Sonoma Watershed Planning Effort


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# Basic Facts

- **Who?** Sonoma Water led, NRCS funded, Watershed and Flood Prevention Operations Program
- **What?** A vulnerability assessment on critical CSWP facilities and an update to the 1958 Plan
- **When?** October 2020 – October 2023
- **Where?** Entire 50,000-acre Santa Rosa Creek subwatershed
- **Why?** Restore or improve flood protection and mitigate vulnerabilities to increase community resilience over the next 50 years

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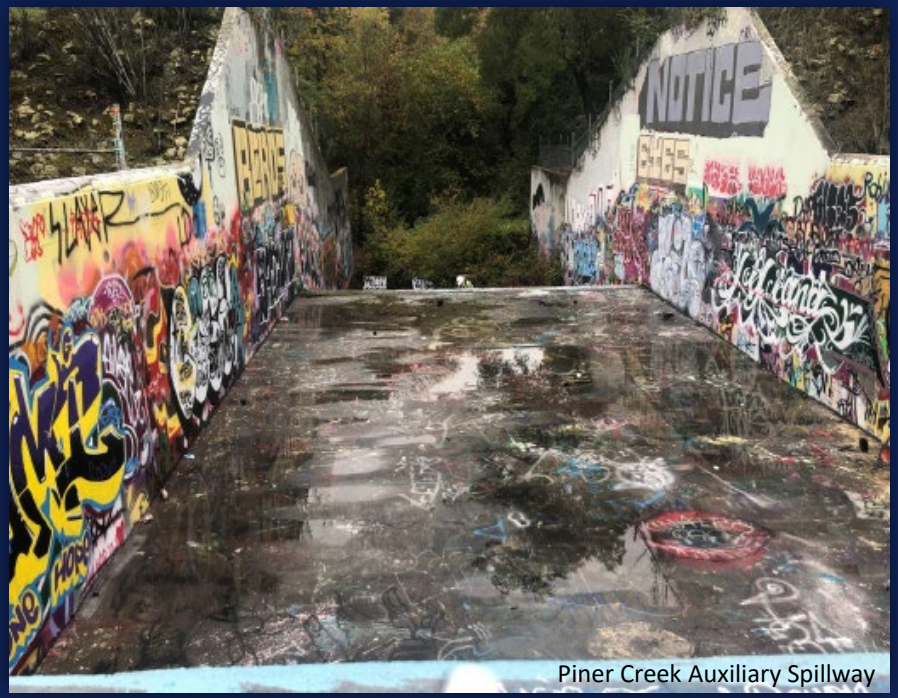
# Project Work

- ✓ Public Scoping (NEPA)
- ✓ Condition Assessments
- ✓ Hydrologic and Hydraulic Modeling Updates
- ✓ Geophysical Investigations
- ✓ Geology, Biology, and Cultural Resource Reports
- ✓ Seismic Deformation and Stability Analysis (Structures and Berms)
- ✓ Hydraulic Performance of Dams (Draft)
- ✓ Alternatives Analysis
- ✓ Economic Analysis
- ✓ Plan-EA (NEPA)


Piner Creek Reservoir



Piner Creek Auxiliary Spillway

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# Draft Vulnerabilities

- No major condition-related deficiencies in concrete structures or embankments
- Brush Creek Dam and Santa Rosa Creek Dam do not meet State-required freeboard during required design event
- Santa Rosa Creek Dam does not meet NRCS overtopping requirements
- Piner and Brush Creek dams may not have sufficient sediment storage for additional 50 years
- All dams are susceptible to damage during design criteria earthquakes


Brush Creek Dam


Santa Rosa Creek Auxiliary Spillway

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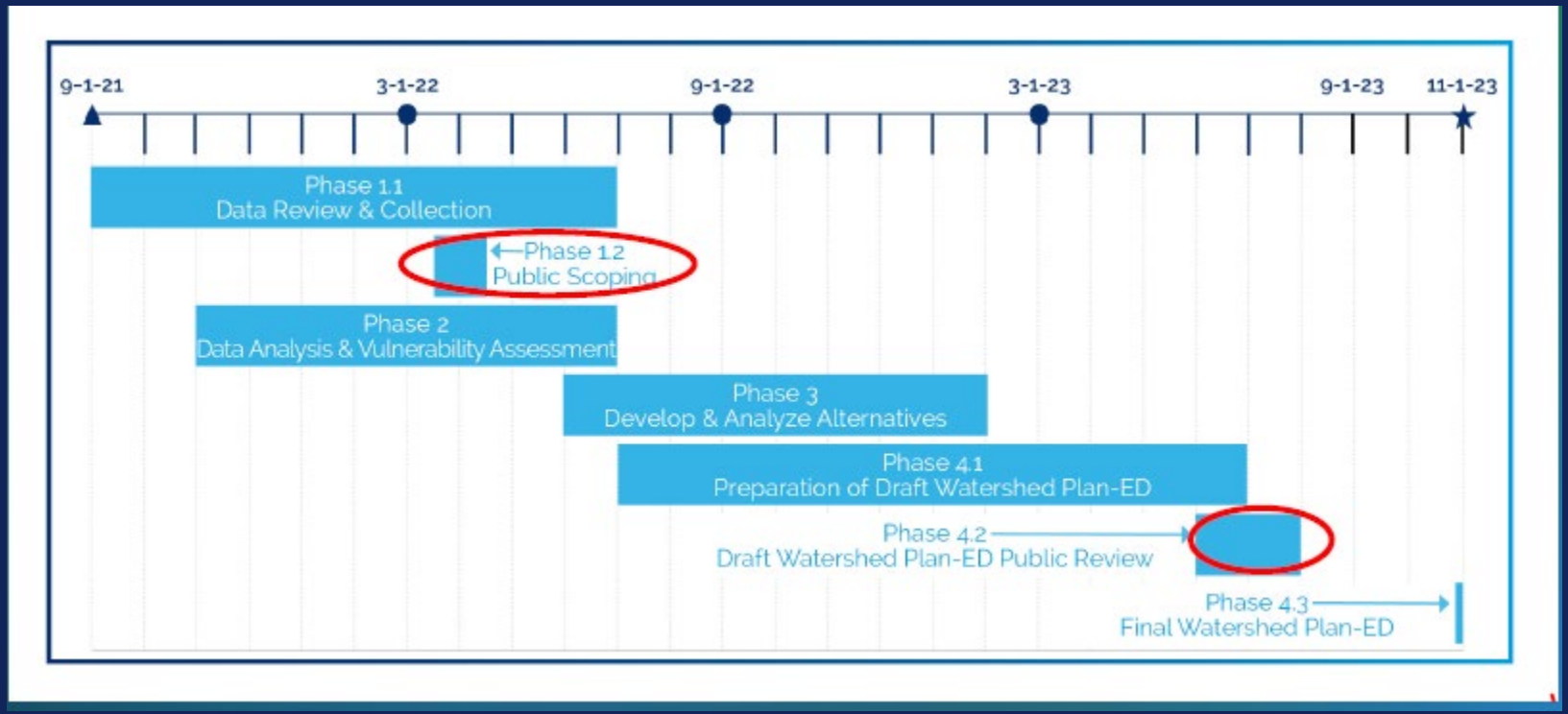
# Next Steps and Schedule

- Develop alternatives that target identified vulnerabilities and improve community resilience for the next 50 years.

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# Matanzas Dam  Rehabilitation


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# Basic Facts

- **Who?** NRCS led, Watershed Rehabilitation Program, Sonoma Water is Local Sponsor
- **What?** A site-specific (focused) dam rehabilitation project on Matanzas Creek Dam
- **When?** October 2020 – October 2023
- **Where?** Matanzas Creek Dam - Bennett Valley, Upstream of Bennett Valley Golf Course on Sonoma Water property
- **Why?** Bring Matanzas Creek Dam into compliance with current NRCS and DSOD design criteria for hydrology, sediment, and seismic performance

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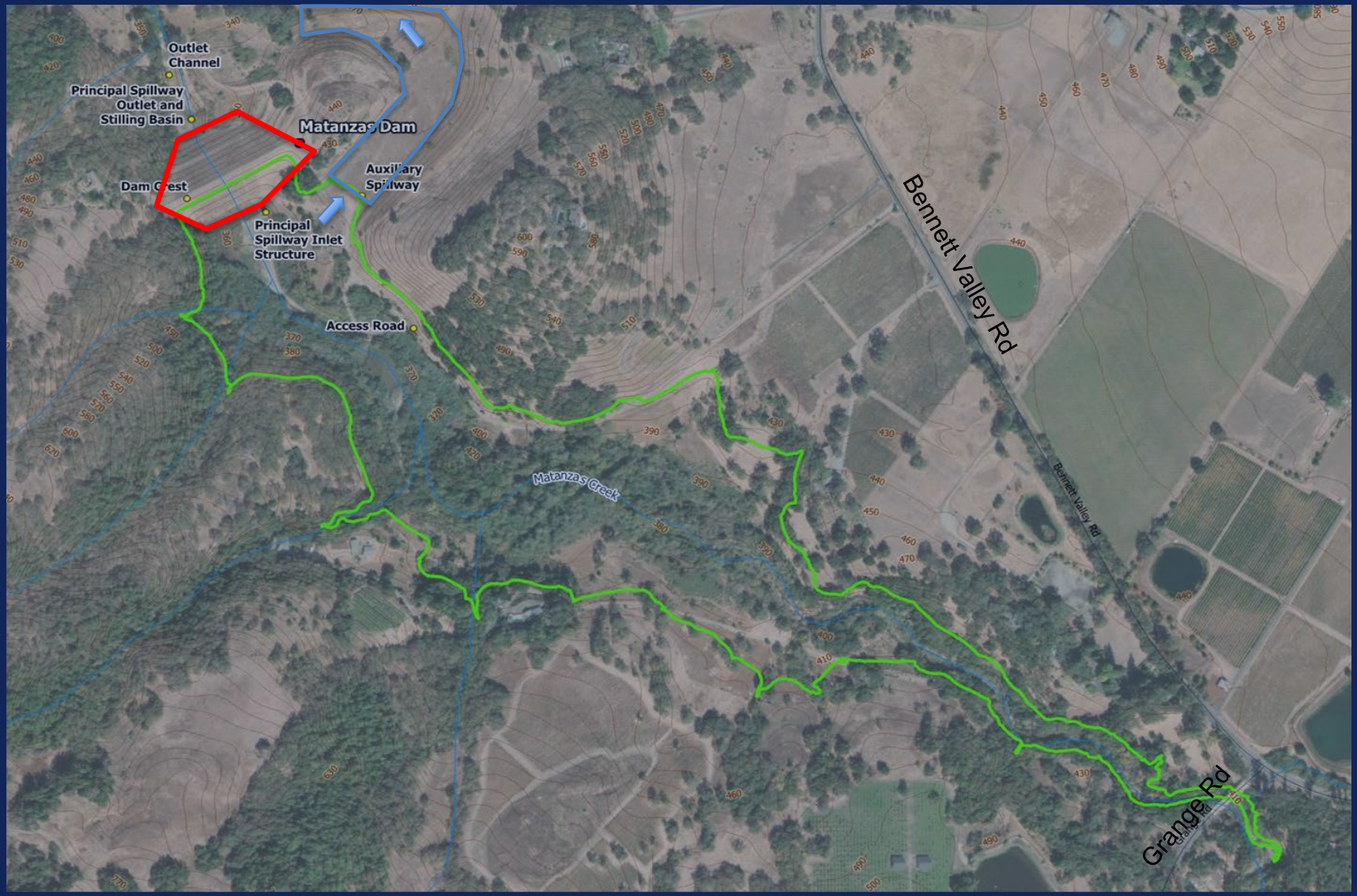


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# Project Work

- ✓ Public Scoping (NEPA)
- ✓ Condition Assessment
- ✓ Hydrologic and Hydraulic Modeling
- ✓ Geotechnical & Geophysical Investigations
- ✓ Spillway Integrity and Stability Analysis
- ✓ Seismic Deformation and Stability Analysis
- ✓ Alternatives Development & Analysis
- ✓ Economic Analysis (Draft)
- ✓ Plan-EA (NEPA)


Dam Embankment - Facing South


Facing Northwest (Towards Santa Rosa)

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# Identified Vulnerabilities

- Reservoir storage is insufficient to avoid activating the earthen auxiliary spillway.
- Integrity and stability analyses indicate potential auxiliary spillway failure.
- Activation and failure could lead to auxiliary spillway erosion and substantial downstream flooding.

Eroded Oroville Dam Spillway

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# Identified Vulnerabilities

- Dam is susceptible to deformation during NRCS and DSOD design criteria earthquake. Seismic event during rainfall season or when reservoir is full could lead to substantial downstream flooding.

- Reservoir does not provide 50-yr sediment capacity as required by NRCS.

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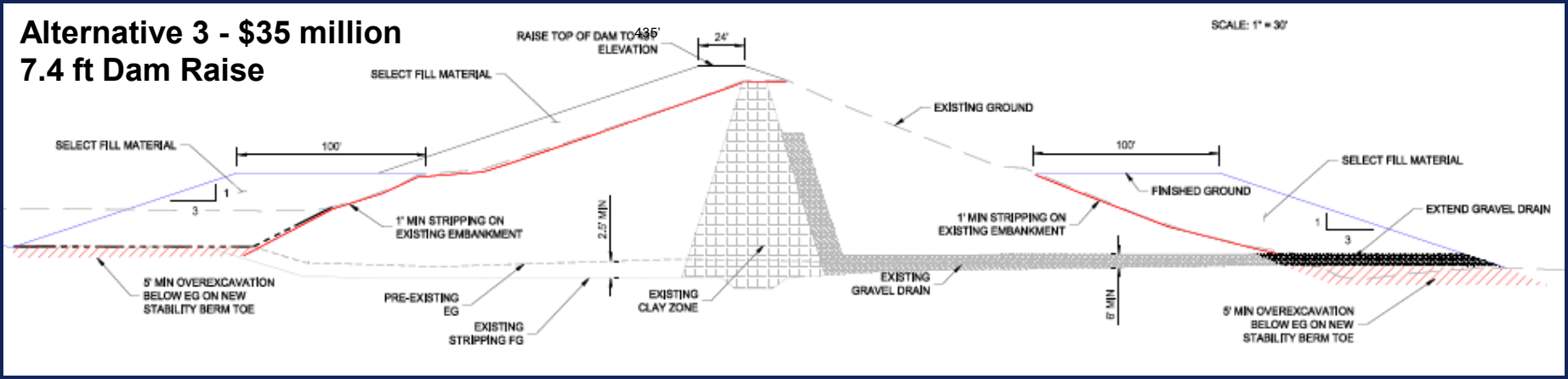
# Alternatives

- **Alternative 1:**
  - Remove sediment, install stability berms, line auxiliary spillway and raise auxiliary spillway crest by ~3 feet.
  - Flood storage capacity improved to a ~25-yr event.
  - D&I – $47 million with $16 million required local match.

- **Alternative 2:**
  - Remove sediment, install stability berms, raise dam crest and auxiliary spillway crest by ~3.5 feet and ~7.4 feet, respectively.
  - Flood storage capacity improved to a ~50-year event.
  - D&I – $33 million with $11.5 million required local match.

- **Alternative 3:**
  - Remove sediment, install stability berms, raise dam crest and auxiliary spillway crest by ~7.4 feet and ~11.4 feet, respectively
  - Flood storage capacity improved to a ~100-year event.
  - D&I – $35 million with $12.5 million required local match.

## Alternative 3 - $35 million
## 7.4 ft Dam Raise

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# Next Steps

- Finalize economic analysis
- Convene/engage Zone 1A committee for input
- Present alternatives and locally-preferred alternative to Sonoma Water Board of Directors (April 2023)
- Circulate Draft Plan-EA (Environmental Assessment) for Public Comment
- Complete CEQA and State permitting
- Secure local funding
- Request Federal Design and Implementation Funding

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# Questions?

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