



Pacheco Reservoir Expansion Project

Update to California Water Commission, October 18, 2023

Topics Covered Today

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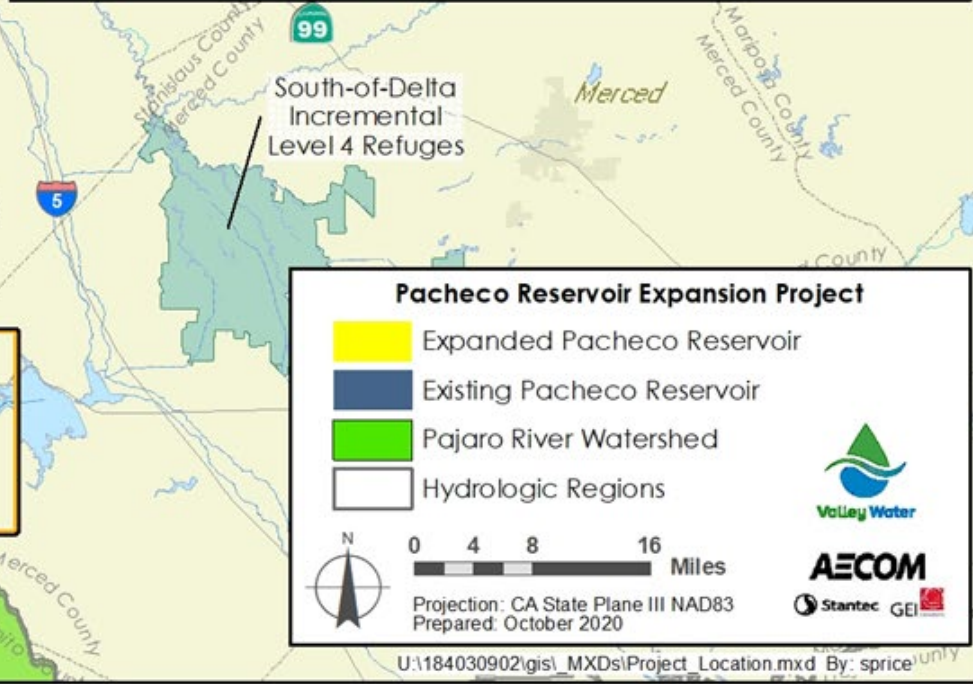
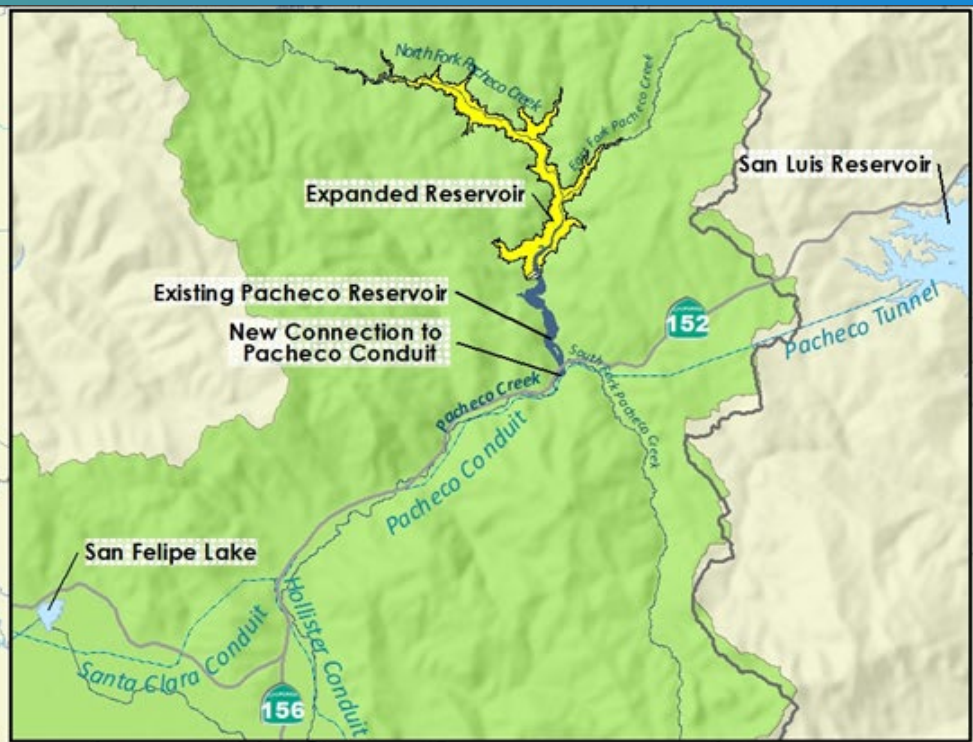
Pictured above: Existing Pacheco Reservoir

- Overview of Pacheco Reservoir Expansion Project
- Refinements to Project
- Feasibility Evaluations
- Summary of Costs
- Summary of Benefits
- Schedule of WSIP Milestones

PROJECT PARTNERS

- Santa Clara Valley Water District (Valley Water)
- San Benito County Water District (SBCWD)
- Pacheco Pass Water District (PPWD)





AECOM



Needs Addressed by Pacheco Reservoir Expansion Project

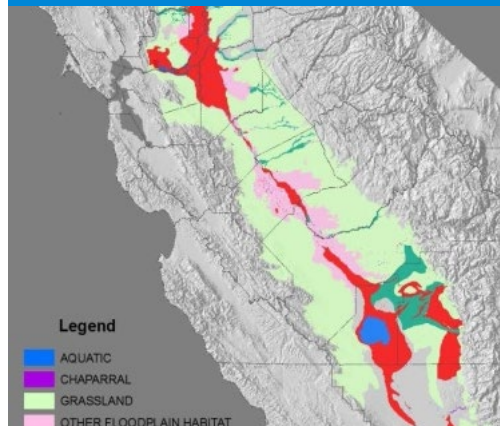
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Restore Federally
Threatened
Steelhead Fish
Habitat (WSIP Benefit)



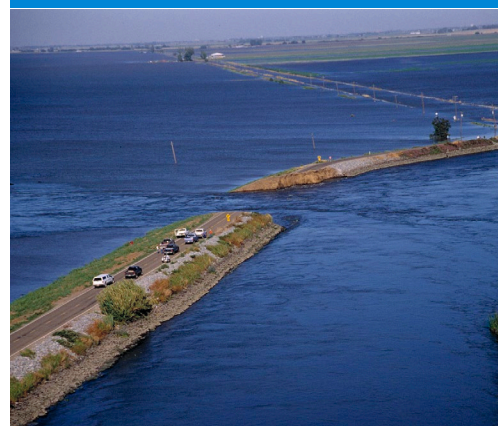
90% population decline in Pajaro watershed from 1960s to 1990s

Improve
Delta Watershed
Wetlands (WSIP
Benefit)



90% of Delta watershed wetlands have disappeared

Improve
Resiliency and
Emergency
Water Supply (WSIP
Benefit)



45% of water supply imported from Delta; 66% chance of Delta earthquake in next 50 years

Eliminate
Water Quality
Issues from San
Luis Reservoir



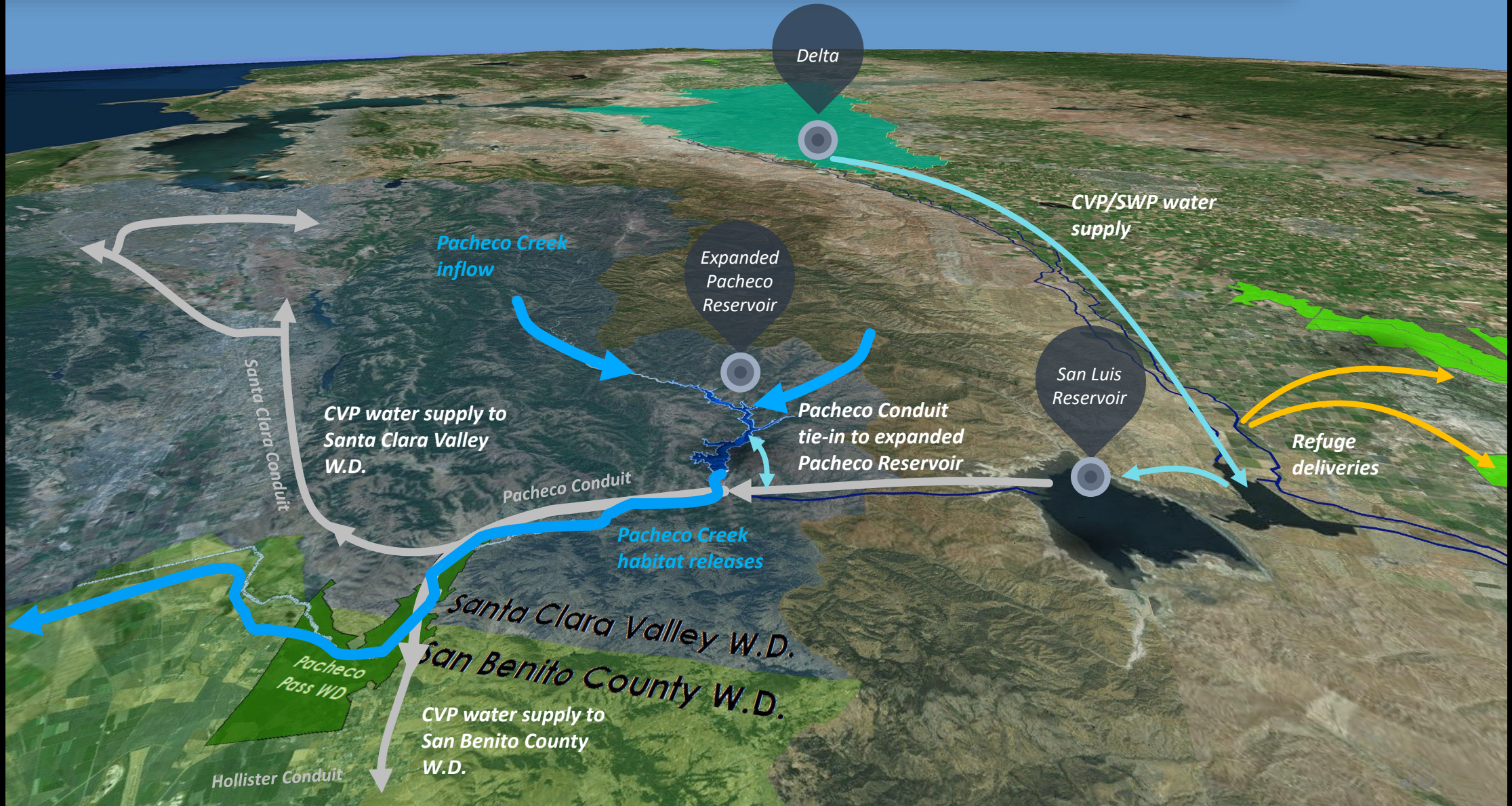
Water quality issues during summer months in 57% of years

Reduction of
Downstream
Flooding



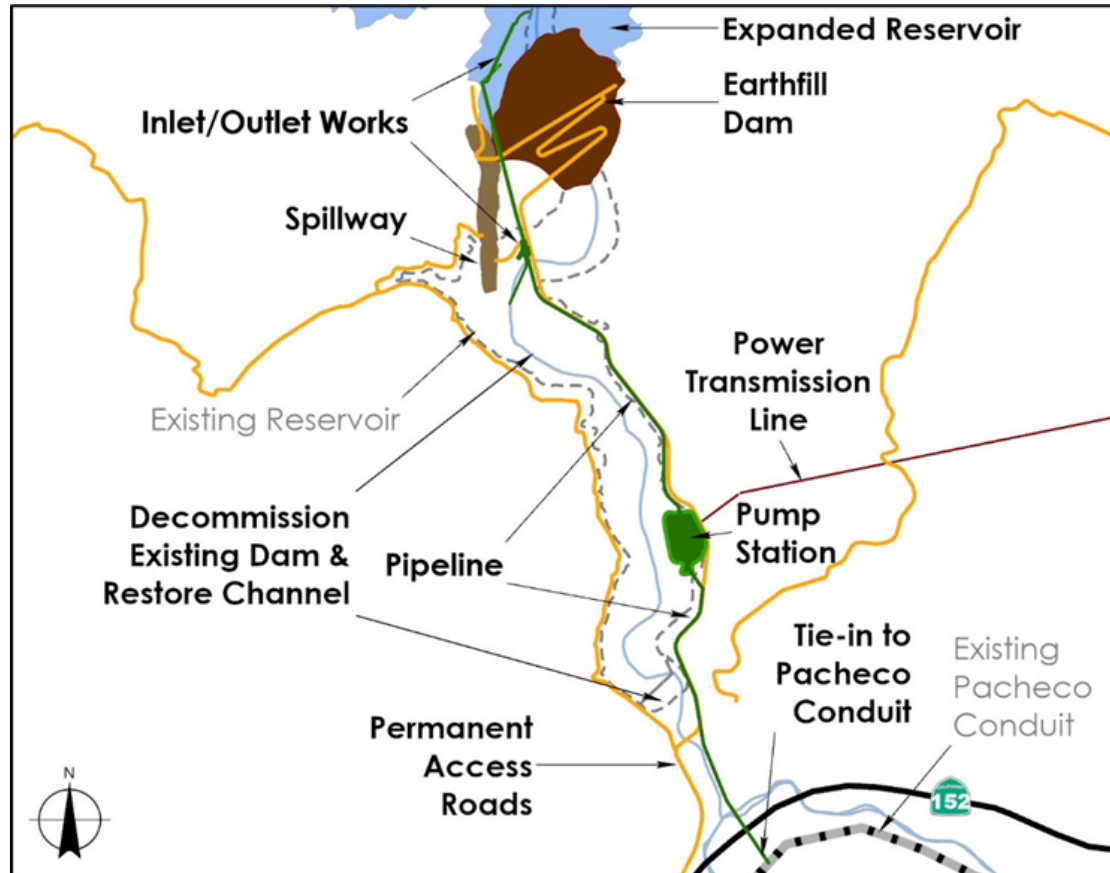
Extensive flooding even for frequent/small events; 20-year flood in 2017 (pictured)

How the Project Will be Operated



Project Facilities

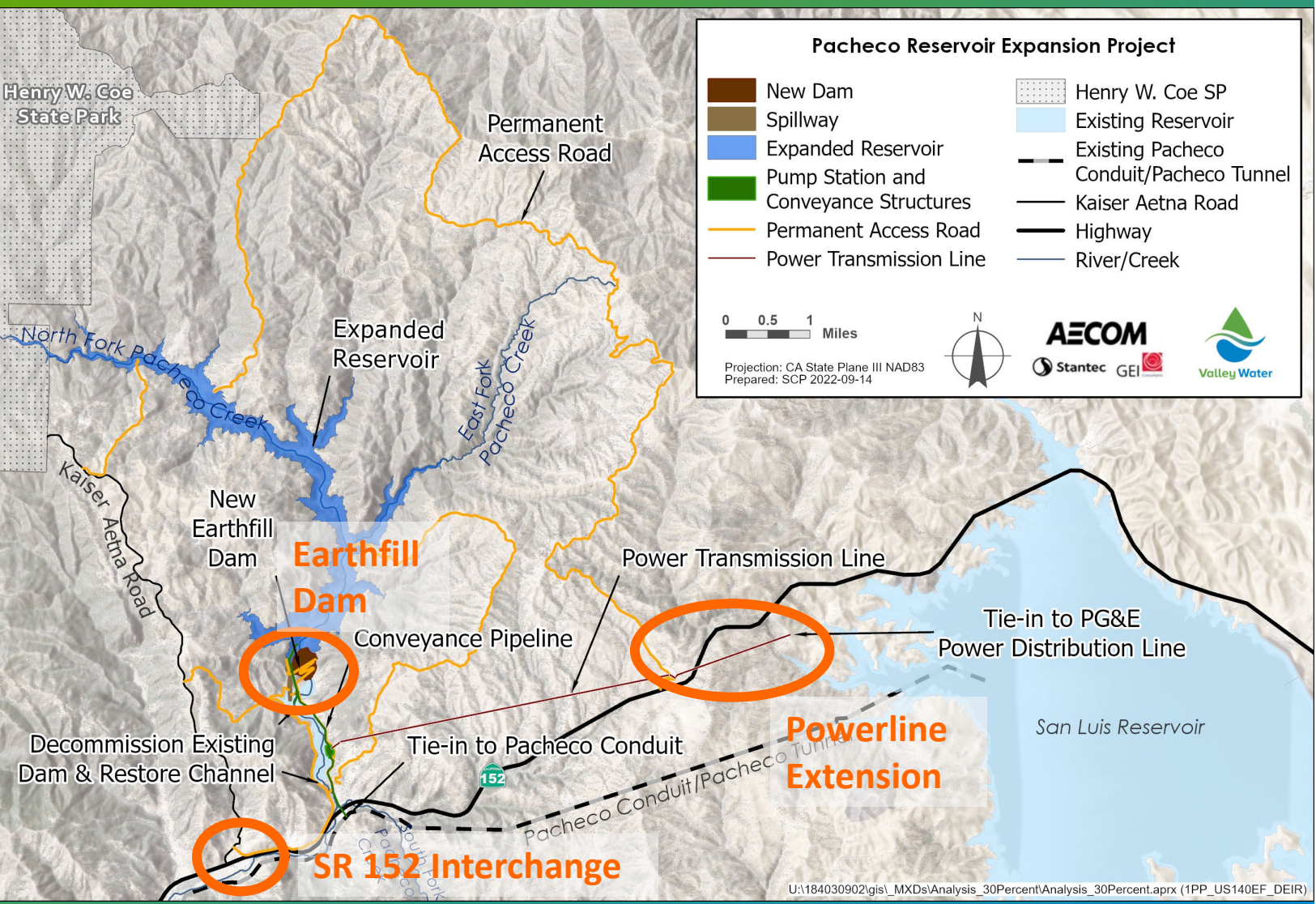
- Reservoir Expansion 140 TAF
- Earthfill Dam ~ 310 feet high
- Spillway Ogee weir, chute, stilling basin
- Inlet/Outlet Works 3 adits (variable levels) and lower intake for temperature management
- **Pump Station & Conveyance Pipeline** Transfer water to and from Pacheco Conduit
- Existing Dam Decommission/remove
- **Channel Restoration** ~ 1.3 miles of new stream channel habitat
- Power Transmission Line ~ 6 miles
- Roadways Access to and from SR-152



Key Refinements to Facilities

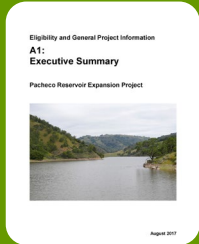
- Change to earthfill dam; refinements of earthfill dam and appurtenant structures design
- Eastern extension of powerline
- SR 152 interchange type - permanent vs. temporary

Extension of powerline to the east is primary driver for preparation of recirculated draft EIR (e.g., new impacts)



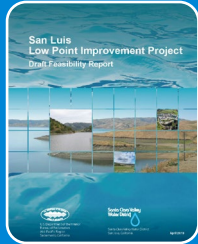
Completed Public Feasibility Evaluations of Pacheco Reservoir Expansion

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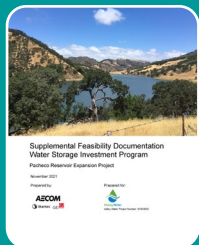
2017/2018 Water Storage Investment Program – Application & California Water Commission Review/Evaluation

- Evaluated and quantified environmental enhancement (fisheries, refuge water supplies), emergency response, M&I water supply, and water quality benefits; non-monetized flood benefits
- Highest ranked project of 13 evaluated by California Water Commission



2019 San Luis Low Point Improvement Project – Draft Feasibility Report

- Pacheco Reservoir Expansion Alternative maximized net economic benefits (benefits – costs)
- Highest ranking alternative of the 5 alternatives evaluated

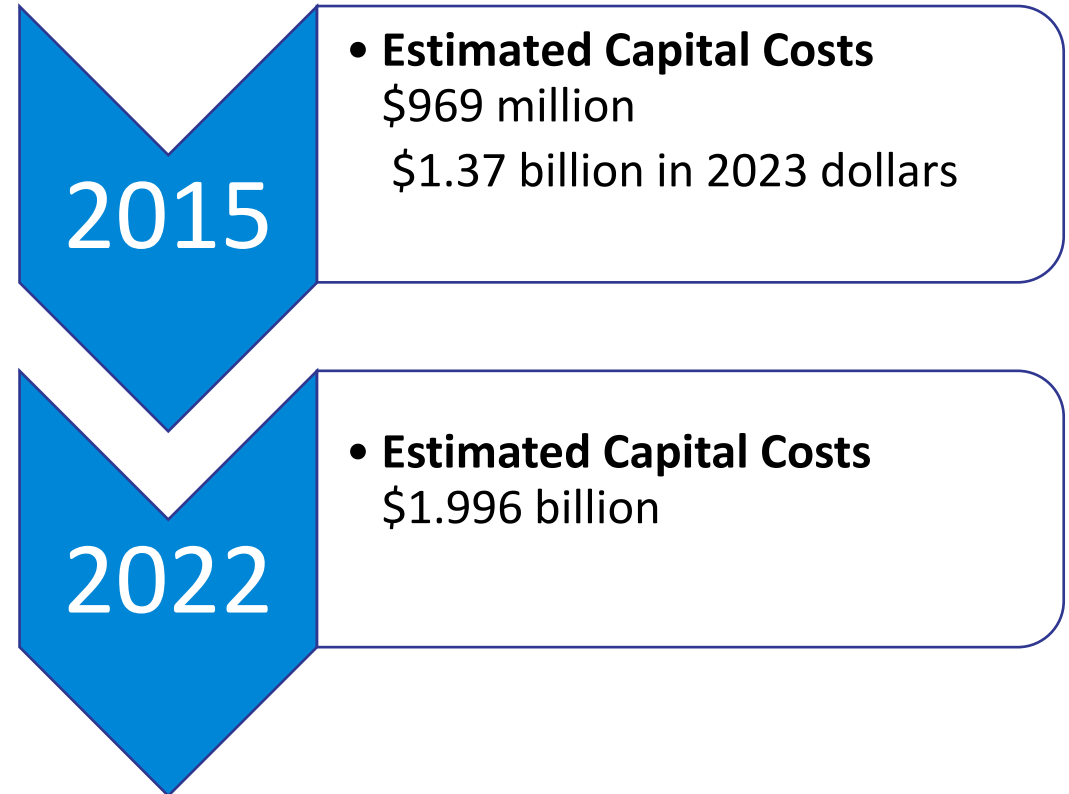


2021 Water Storage Investment Program – Supplemental Feasibility Documentation

- Updated evaluations for environmental enhancement (fisheries, refuge water supplies), emergency response, M&I water supply, and water quality benefits
- Project determined to be technically, economically, financially, and environmentally feasible

Construction Costs

- There has been significant inflation and cost escalation impacts to land values, construction costs, labor, materials and services between 2015 and 2023
 - CPI has increased by 31%
 - Reclamation Construction Cost Trend increased by 40%
 - USDA land values have increased by 49%
- Those impacts have significantly affected both Project costs and value of public and non-public benefits



Changes to Capital Costs

Document	2021 WSIP Supplemental Feasibility Documentation	2021 WSIP Supplemental Feasibility Documentation	2022 Valley Water 30% Design
Dam Type/ Reservoir Capacity	Hardfill Dam/140 TAF	Earthfill Dam/140 TAF	Earthfill Dam/140 TAF
Capital Cost (Date)	\$1.875 billion (April 2021)	\$2.003 billion (April 2021)	\$1.996 (April 2022)
Escalated Capital Cost (April 2022)	\$2.093 billion	\$2.279 billion	\$1.996 billion

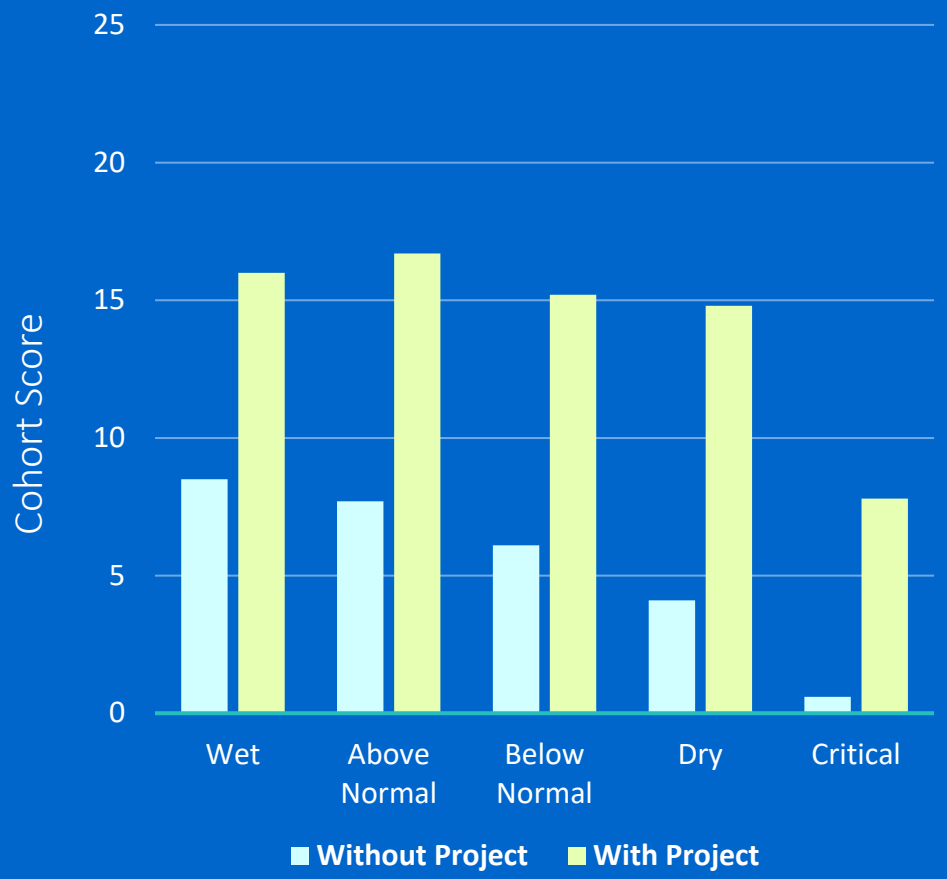
Change in Dam Type

Increased Level of Design

Enables Federally Threatened Steelhead Recovery

The Project will improve conditions in watershed critical to recovery

- Improved flow and temperature conditions provide substantial improvements in habitat conditions
- Larger cold water pool improves temperature in Pacheco Creek
- Enables development of an independent population in the Pajaro River watershed
- Increases South Central California Coast Steelhead cohort score between 147%



Emergency Water Supply

The project will provide dedicated emergency water supply

- Increases local surface storage capacity by 90%
- Mitigates risk of Delta export outages and imported water conveyance outages
- Increases emergency water supply by acre-feet 107,158 AF (99,904 acre-feet for Valley Water, 7,254 acre-feet for SBCWD)

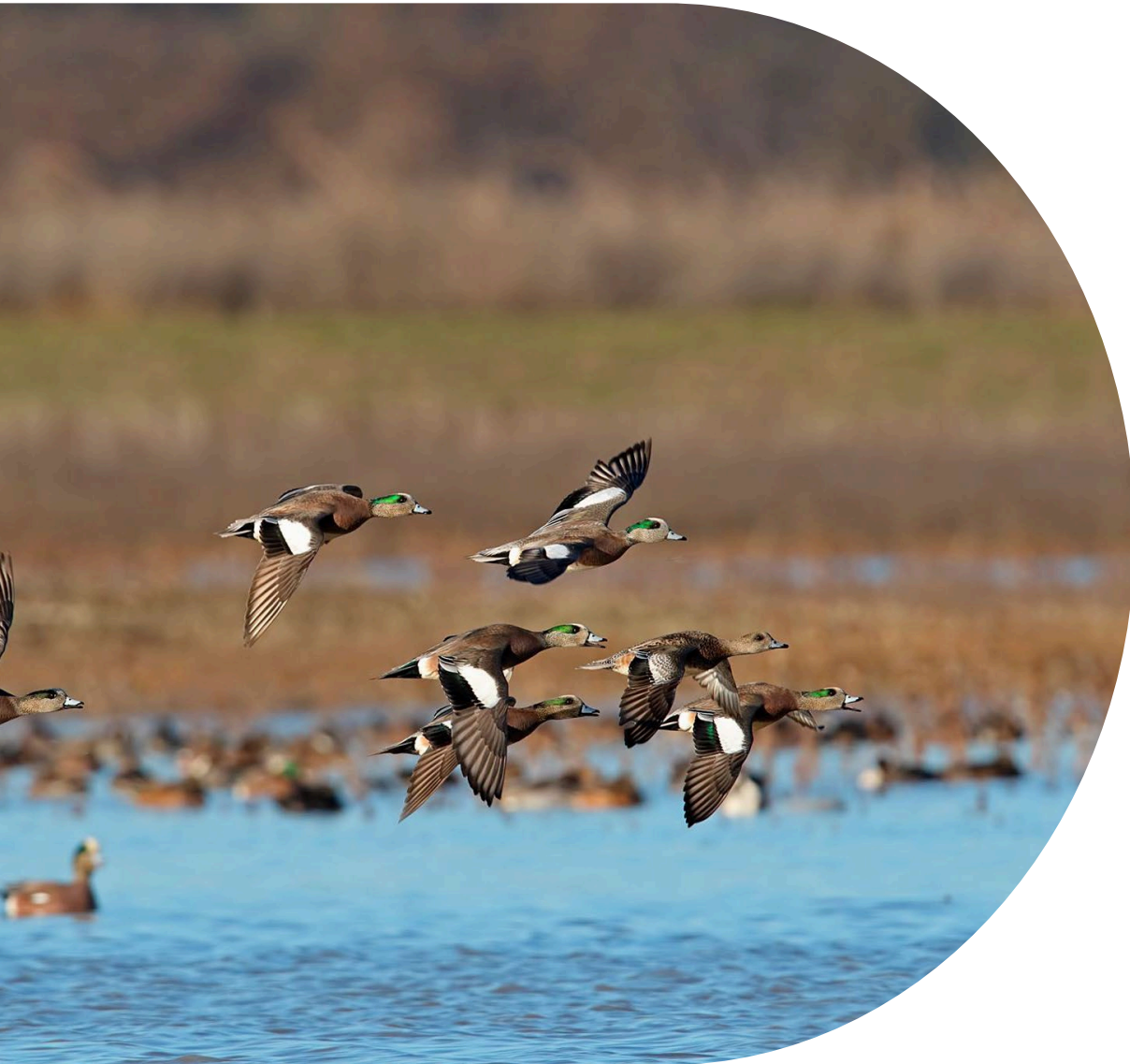


Delta levee
failure,
Jones Tract

Enhances Bay-Delta Ecosystem

Increased water supplies to Delta watershed refuges

- Dedicates 2,000 acre-feet for wetlands in below-normal water years
- Increases food supply for migrating Pacific Flyway waterfowl in the fall and winter





Algae Bloom
in San Luis
Reservoir

Eliminates San Luis Low Point Water Quality Issues

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The project reduces operational constraints at San Luis Reservoir

Prevents 63 months of impaired water quality deliveries over analysis period (97% reduction) by:

- Delivering CVP supplies to the Pacheco Reservoir earlier in the season
- Capturing Pacheco watershed supplies in the expanded reservoir
- Using the Pacheco Reservoir as a blending source when needed.
- Thus, project operations will avoid spikes in taste and odor measuring 10 times normal levels, which cause problems in today's domestic supply



The Project will Enhance Water Supply for Agriculture and M&I

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The project will reduce drought risk to agricultural and M&I water users

- Increases water supply by up to 8,300 acre-feet in critical years
- Improves groundwater conditions for agricultural water users
- Materially contributes to sustainable groundwater management goals in four basins

Reduces Flooding in 17 Disadvantaged Communities



January 2023 Floods along Pacheco Creek

The project will protect disadvantaged and vulnerable communities against flooding

January 2023 Case Study

- Flooding along Pacheco Creek with 15,800 cfs peak flow at Dunnville
- North Pacheco Creek largest tributary to Pacheco Creek
- Project would have resulted in a 46 % reduction of peak flows in Pacheco Creek

Feasibility Findings

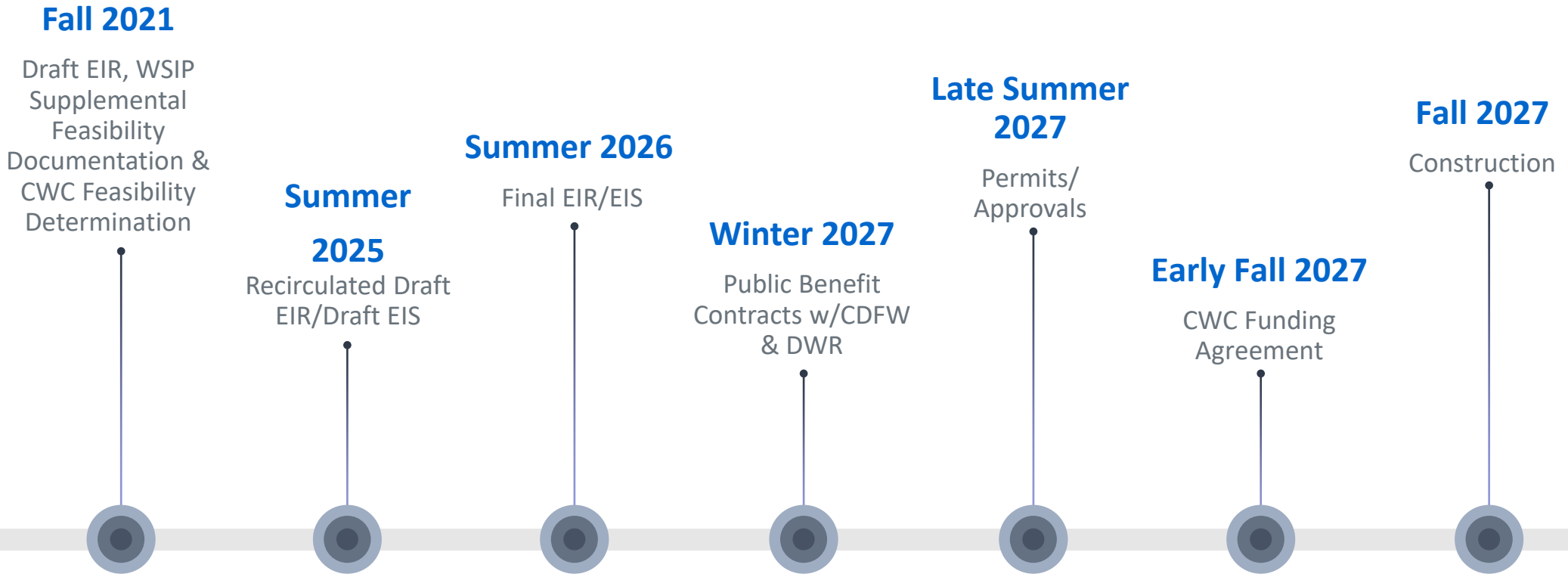
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Pictured above: Pacheco Creek below Existing North Fork Dam

- 2021 WSIP Supplemental Feasibility Documentation included evaluation of both earthfill and hardfill dam alternatives
- Staff evaluation approved by CWC in December 2021
 - \$1.874 Billion Construction Cost (April 2021 \$)
 - \$2.161 Billion Total Costs (April 2021 \$)
 - \$2.375 Billion Quantified Benefits (April 2021 \$)
 - 1.1 B/C Ratio
 - \$214.5 million Net Benefits (April 2021 \$)
- 30% design construction cost estimate (April 2022 dollars) is lower than escalated prior construction cost estimates

Key WSIP Milestones



QUESTIONS





Valley Water

Clean Water • Healthy Environment • Flood Protection