

Water Supply Augmentation Study Workshop

- June 17, 2025

Agenda

- Drivers and Objectives
- Study Background and Approach
- Project Summary and Snapshots
- Key Takeaways and Next Steps

Drivers



Climate Change



Regulatory Pressure



Changes in Demand



Aging Infrastructure

Objectives

Adaptable and Resilient Water Supply

Increased
Farm Yield

Reduced
Flood Risk

Diversified
Supply

Carbon-Free
Power

Local Control

Cost
Effectiveness

Study Approach



Phase 1

- Identify and evaluate options

Phase 2

- Prioritize based on objectives and feasibility

Phase 3

- Advance selected project(s)

Study Approach



Phase 1

- Identify and evaluate options

Phase 1 Process

Engineering Analysis

- Infrastructure
- Permits/CEQA
- Capital Costs

Hydrologic Analysis

- Runoff modeling
- Reservoir ops modeling
- Impact analysis

Phase 1 Process

Engineering Analysis

- Infrastructure
- Permits/CEQA
- Capital Costs

Hydrologic Analysis

- Runoff modeling
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Economic Analysis

- Hydropower value
- Water supply value
- NPV, IRR, and ROI

Projects Evaluated

ID	Alternative Name	Outcomes
1	Don Pedro Spillway Mod, 4-ft raise	Fully evaluated
2	Don Pedro Spillway Mod, 8-ft raise	Fully evaluated
3	Don Pedro Spillway Mod, 10-ft raise	Fully evaluated
4	Turlock Lake Dam Raise	Fully evaluated
5	Cardoza Ridge, inflow from Don Pedro	Fully evaluated
6	Montgomery, inflow from Don Pedro	Fully evaluated
7	Combined Cardoza and Montgomery Off-Stream System	Fully evaluated
8	Don Pedro and New Melones Interconnection	Fully evaluated
9	Montgomery Groundwater Recharge Basin	Pending
10	Large-scale groundwater storage	Pending
11	Montgomery, inflow from Merced River	Future Effort
12	Cardoza Ridge, other inflow options	Eliminated
13	Montgomery, other inflow options	Eliminated

Projects Evaluated



Turlock Lake Dam Raise

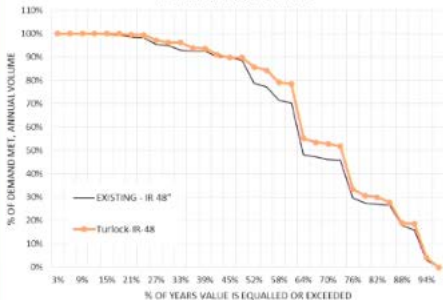


- **Features:**
 - Raise 15 existing dams by 17'
 - Reconstruct Dam A, TL Powerplant, outlet structure & spillway
 - Construct 8 new dams
 - 6.5 MW Hydropower Facility
 - Raise several miles of UMC walls
- **Additional Storage Capacity:**
 - 50,00 AF
- **Project Cost (2025 dollars):**
 - **\$524.5 Million**
 - \$487 Million (excludes UMC cost)
 - \$37.5 Million (Powerplant)
- **Impacts:**
 - TL Powerplant and inundates Lake Road

Turlock Lake Dam Raise

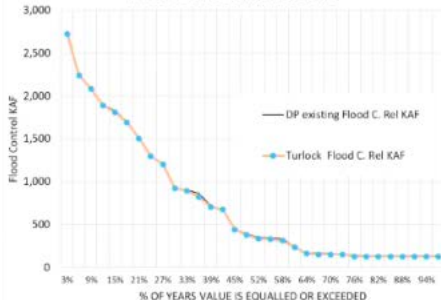
Water Supply

48" IRRIGATION DEMAND



Flood Control

FLOOD CONTROL ANNUAL VOLUME



Don Pedro Spillway Mod – 4-ft Raise



• Features:

- Top extension to existing radial gates
- 2 new radial gates in Dike A
- 4-foot raise to Emergency Spillway

• Additional Storage Capacity:

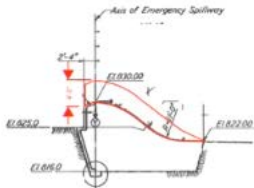
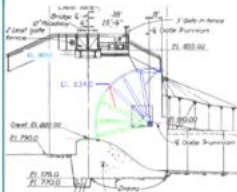
- 54,000 AF

• Project Cost (2025 dollars):

- **\$115 Million**

• Impacts:

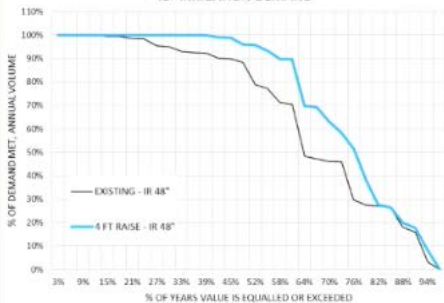
- DPRA facilities – Moccasin Point, Blue Oaks, Fleming Meadows & campsites
- CCSF facilities – Electrical transmission line & towers, access roads, Hetch Hetchy Aqueduct siphon & Moccasin powerplant



Don Pedro Spillway Mod – 4-ft Raise

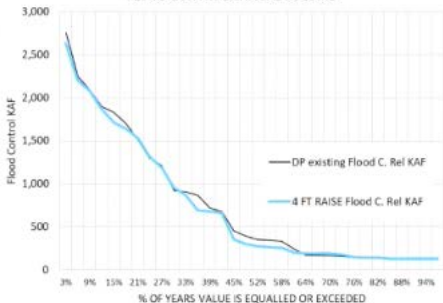
Water Supply

48" IRRIGATION DEMAND

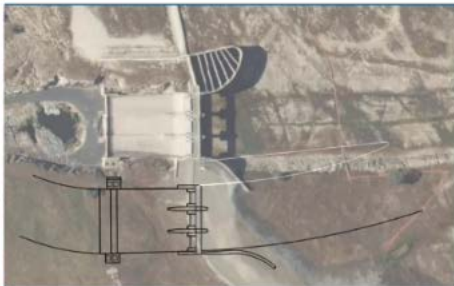


Flood Control

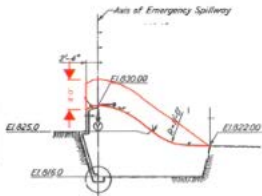
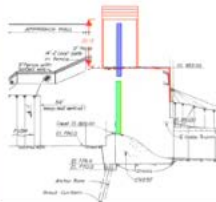
FLOOD CONTROL ANNUAL VOLUME



Don Pedro Spillway Mod – 8-ft Raise



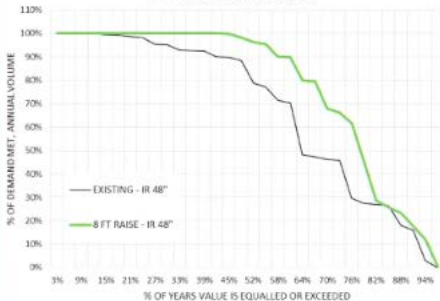
- **Features:**
 - Replace existing radial gates w/ vertical lift gates
 - 3 new radial gates in Dike A
 - 8-foot raise to Emergency Spillway
- **Additional Storage Capacity:**
 - 108,000 AF
- **Project Cost (2025 dollars):**
 - **\$184 Million**
- **Impacts:**
 - DPRA facilities – Moccasin Point, Blue Oaks, Fleming Meadows & campsites
 - CCSF facilities – Electrical transmission line & towers, access roads, Hetch Hetchy Aqueduct siphon & Moccasin powerplant



Don Pedro Spillway Mod – 8-ft Raise

Water Supply

48" IRRIGATION DEMAND



Flood Control

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Don Pedro Spillway Mod – 10-ft Raise



- **Features:**
 - Replace existing radial gates w/ vertical lift gates
 - 4 new radial gates in Dike A
 - 10-foot raise to Emergency Spillway

- **Additional Storage Capacity:**

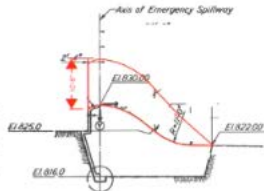
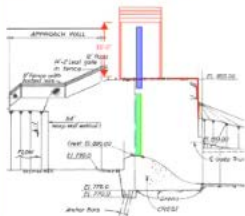
- 135,500 AF

- **Project Cost (2025 dollars):**

- **\$207 Million**

- **Impacts:**

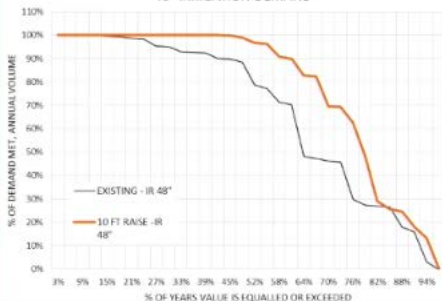
- DPRA facilities – Moccasin Point, Blue Oaks, Fleming Meadows & campsites
- CCSF facilities – Electrical transmission line & towers, access roads, Hetch Hetchy Aqueduct siphon & Moccasin powerplant



Don Pedro Spillway Mod – 10-ft Raise

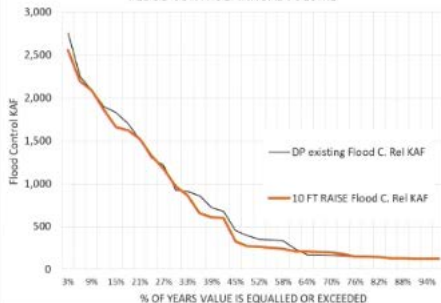
Water Supply

48" IRRIGATION DEMAND

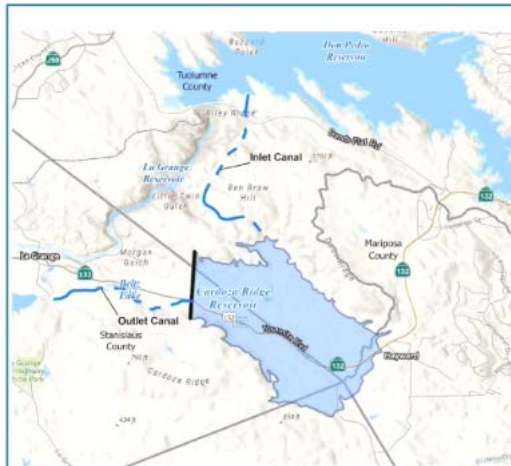


Flood Control

FLOOD CONTROL ANNUAL VOLUME



Cardoza Ridge Off-Stream Reservoir

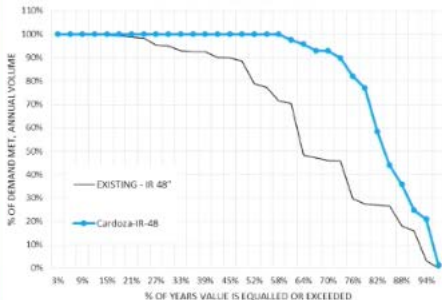


- **Features:**
 - 5000 cfs intake at Don Pedro
 - 4 mile long gravity & tunnel conveyance system
 - Outflow into McDonald Creek into TL
 - 15 MW Hydropower Facility
- **Storage Capacity:**
 - 503,00 AF
- **Project Cost (2025 dollars):**
 - **\$1.35 Billion**
 - \$1.26 Billion
 - \$87 Million (Powerplant)
- **Impacts:** Inundates Highway 132 and surrounding land

Cardoza Ridge Off-Stream Reservoir

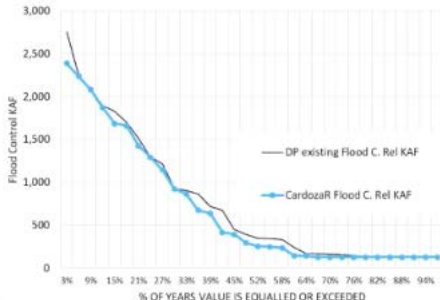
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Flood Control

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Montgomery Off-Stream Reservoir

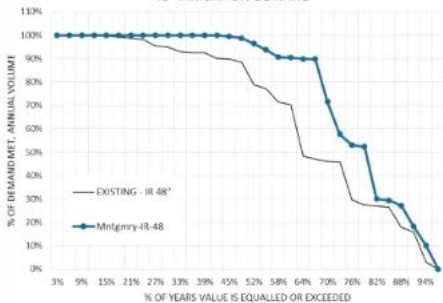


- **Features:**
 - 5000 cfs intake at Don Pedro
 - 10.6 mile long gravity & tunnel conveyance system
 - Outflow via 6 mile canal to TL
 - 6.3 MW Hydropower facility
- **Storage Capacity:**
 - 517,00 AF
- **Project Cost (2025 dollars):**
 - **\$617.8 Million**
 - \$581 Million
 - \$36.8 Million (Powerplant)
- **Impacts:** Inundation of J59 and surrounding lands

Montgomery Off-Stream Reservoir

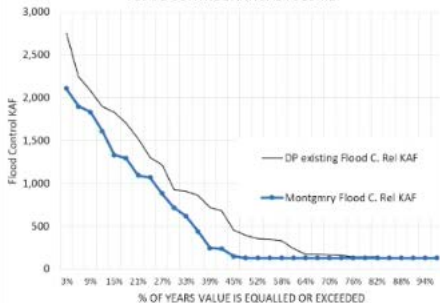
Water Supply

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Flood Control

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Combined Cardoza Ridge - Montgomery Off-Stream Reservoir System



- **Features:**

- 5000 cfs intake at Don Pedro
- 4 mile long gravity & tunnel conveyance system into Cardoza
- Outflow out of Cardoza into Hayward Creek and gravity into Montgomery
- Outflow out of Montgomery into 6 mile canal and gravity into TL
- 21.3 MW combined

- **Storage Capacity:**

- 1,020,000 AF

- **Project Cost (2025 dollars):**

- **\$1.9 Billion**
 - \$1.79 Billion
 - \$123.8 Million (powerplant)

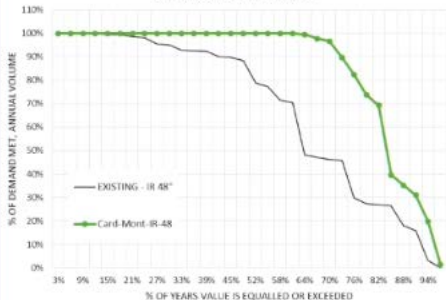
- **Other Considerations:**

- Require amendment to FERC license

Combined Cardoza Ridge - Montgomery Off-Stream Reservoir System

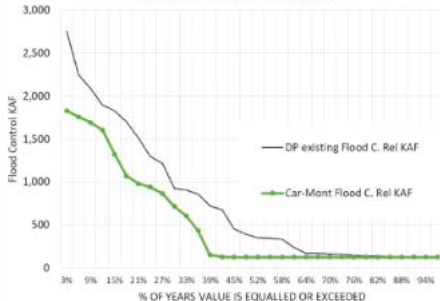
Water Supply

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Flood Control

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Don Pedro & New Melones Interconnection



• Features:

- 7.5 mile long – 20' diameter concrete pipeline between Don Pedro and New Melones
- Gravity from New Melones to Don Pedro (3,000 cfs)
- Pump from Don Pedro to New Melones (3,000 cfs)
- 72.1 MW Hydropower Facility

• Storage Capacity:

- Variable (0-300,000 af)

• Project Cost (2025 dollars):

- **\$2.1 Billion**
 - \$950 Million (Tunnel)
 - \$1.14 Billion (Hydropower Plant)

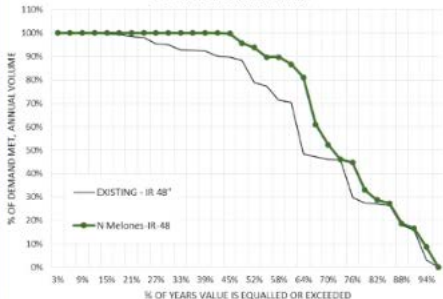
• Other Considerations:

- Require agreement with USBR and amendment to FERC license

Don Pedro & New Melones Interconnection

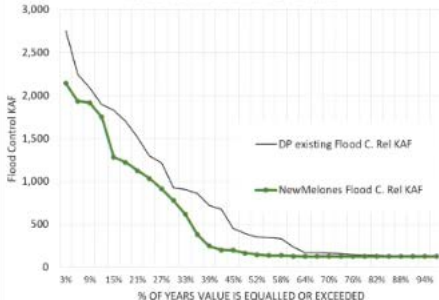
Water Supply

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Flood Control

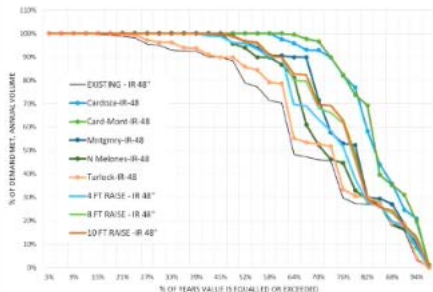
FLOOD CONTROL ANNUAL VOLUME



Key Takeaways

Water Supply

48" IRRIGATION DEMAND



Flood Control

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