
United Water
CONSERVATION DISTRICT
2024 Water
Sustainability
SUMMIT
October 17, 2024

1


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CONSERVATION DISTRICT
Thank You to
Catalyst
ENVIRONMENTAL SOLUTIONS
GEI
Consultants
GENERAL
PUMP
COMPANY
Over 72 Years of Water Well & Pump Service
GSI
Water Solutions, Inc.
KJ
Kennedy Jenks
nhc
Roscoe Moss Company
T·R·A·V·I·S

2

Keynote Speaker

William Ball
U.S. House of Representatives
Senior Policy Advisor

3

United Water
CONSERVATION DISTRICT

2024 Water Sustainability
SUMMIT

Current Basin Conditions and Real Progress for New Water Supply Projects

Presented by:
Bram Sercu, PhD, Principal Hydrologist

October 17, 2024

4

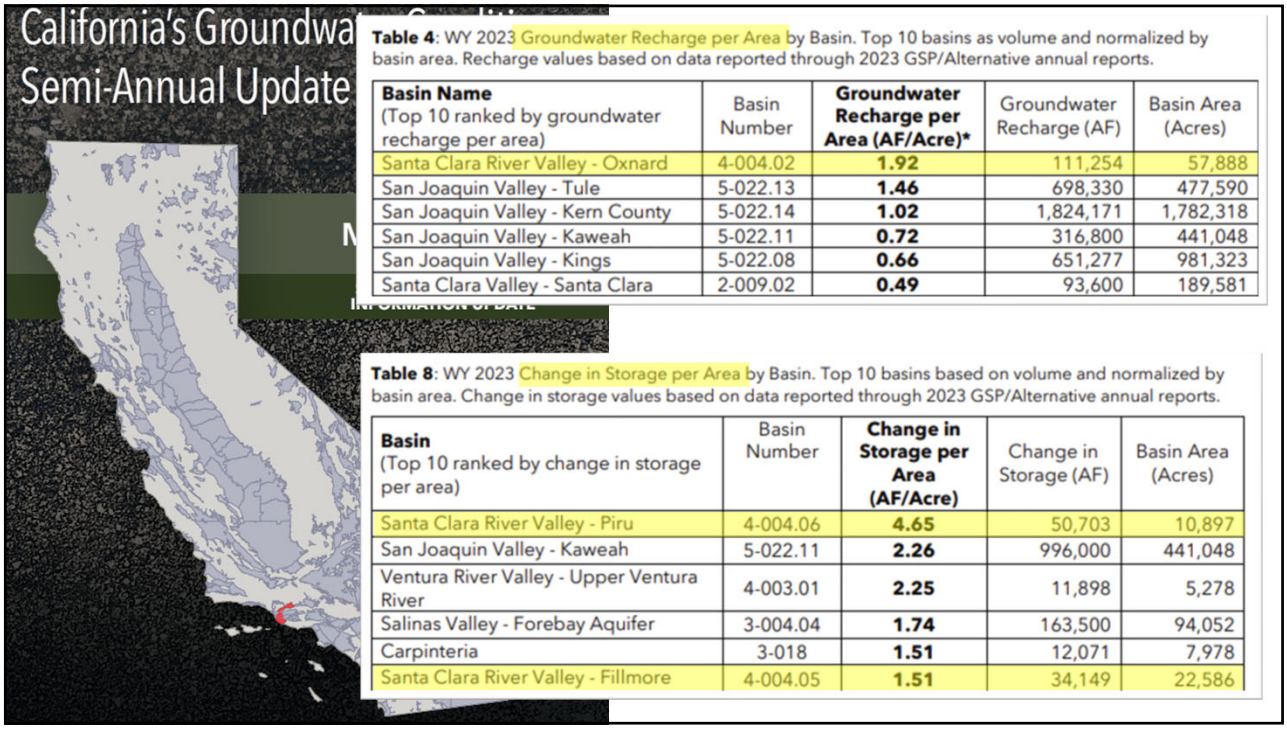


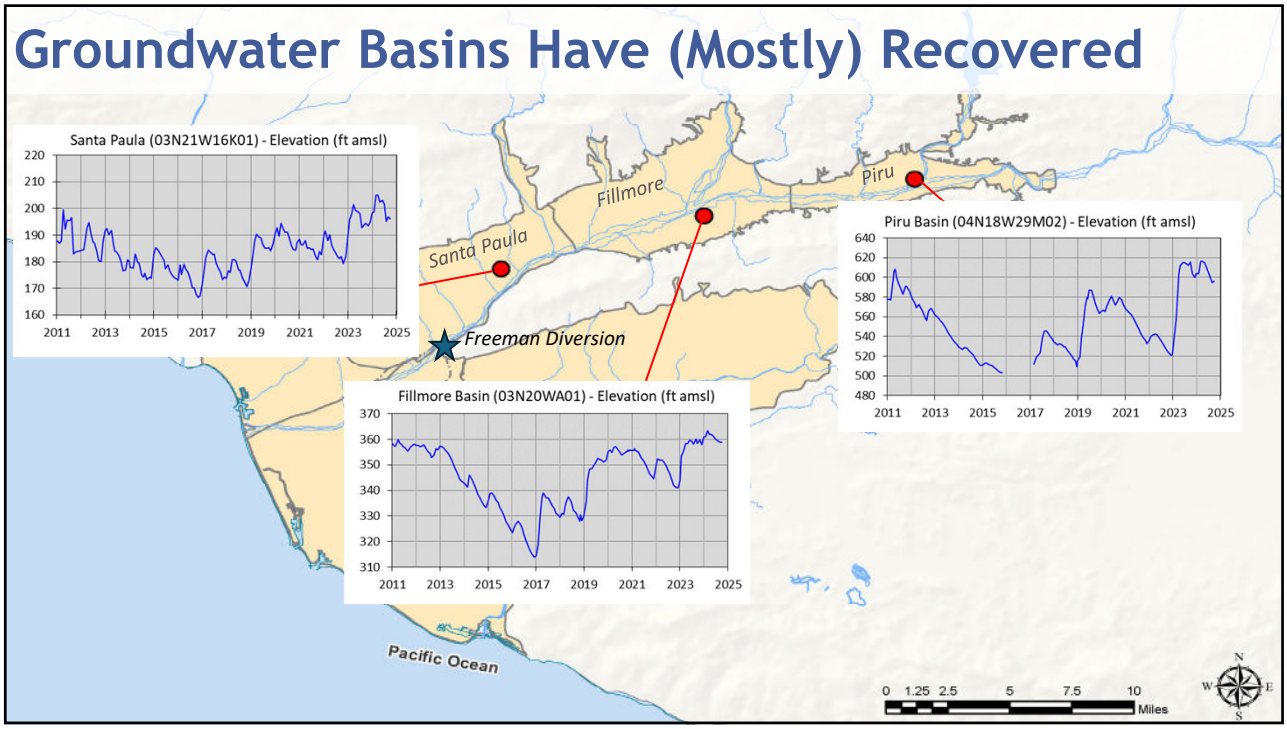
Table 4: WY 2023 Groundwater Recharge per Area by Basin. Top 10 basins as volume and normalized by basin area. Recharge values based on data reported through 2023 GSP/Alternative annual reports.

Basin Name (Top 10 ranked by groundwater recharge per area)	Basin Number	**Groundwater Recharge per Area (AF/Acre)***	Groundwater Recharge (AF)	Basin Area (Acres)
Santa Clara River Valley - Oxnard	4-004.02	**1.92**	111,254	57,888
San Joaquin Valley - Tule	5-022.13	**1.46**	698,330	477,590
San Joaquin Valley - Kern County	5-022.14	**1.02**	1,824,171	1,782,318
San Joaquin Valley - Kaweah	5-022.11	**0.72**	316,800	441,048
San Joaquin Valley - Kings	5-022.08	**0.66**	651,277	981,323
Santa Clara Valley - Santa Clara	2-009.02	**0.49**	93,600	189,581

Table 8: WY 2023 Change in Storage per Area by Basin. Top 10 basins based on volume and normalized by basin area. Change in storage values based on data reported through 2023 GSP/Alternative annual reports.

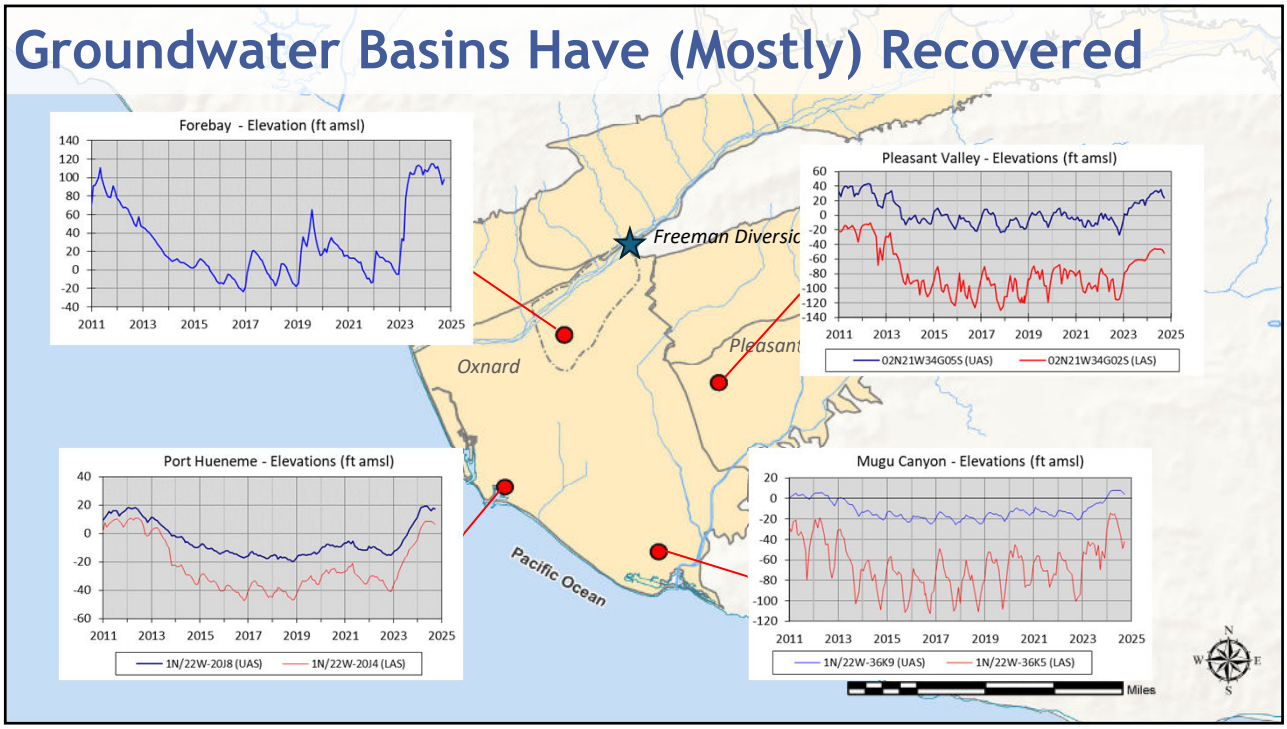
Basin (Top 10 ranked by change in storage per area)	Basin Number	**Change in Storage per Area (AF/Acre)**	Change in Storage (AF)	Basin Area (Acres)
Santa Clara River Valley - Piru	4-004.06	**4.65**	50,703	10,897
San Joaquin Valley - Kaweah	5-022.11	**2.26**	996,000	441,048
Ventura River Valley - Upper Ventura River	4-003.01	**2.25**	11,898	5,278
Salinas Valley - Forebay Aquifer	3-004.04	**1.74**	163,500	94,052
Carpinteria	3-018	**1.51**	12,071	7,978
Santa Clara River Valley - Fillmore	4-004.05	**1.51**	34,149	22,586

5



6

Groundwater Basins Have (Mostly) Recovered



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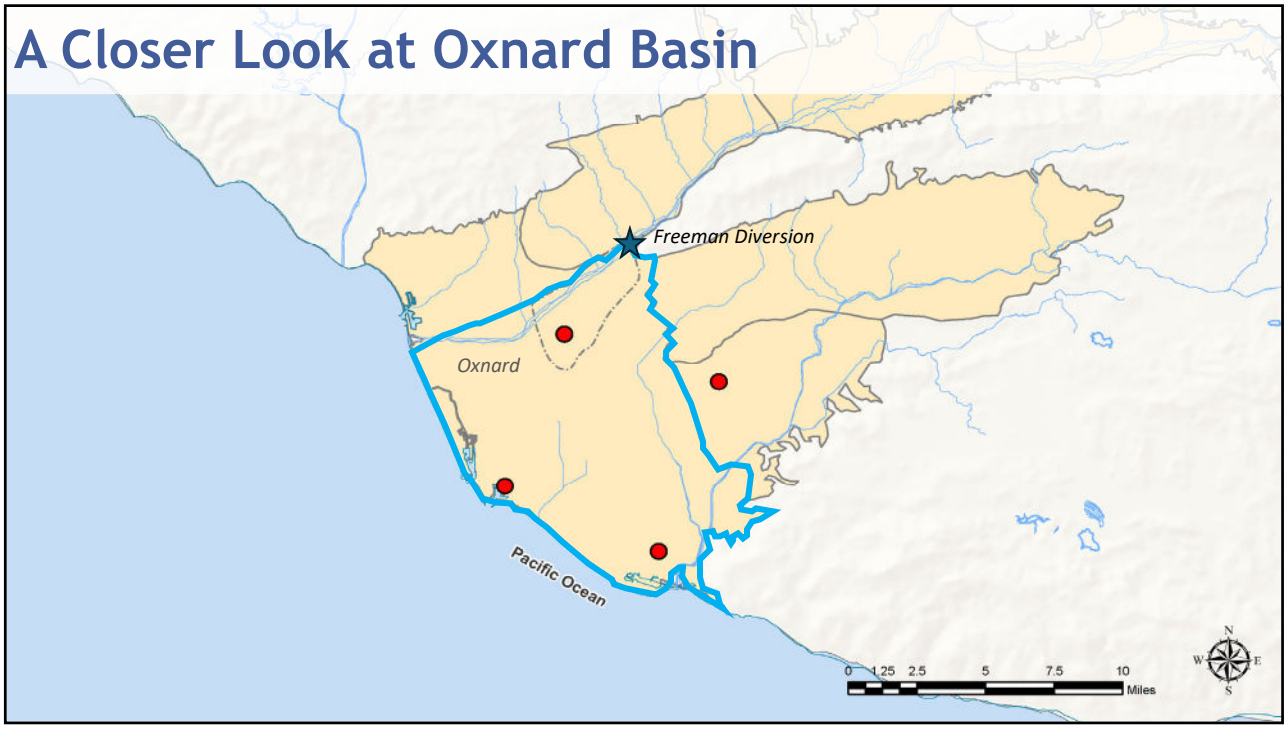
A Closer Look at Oxnard Basin



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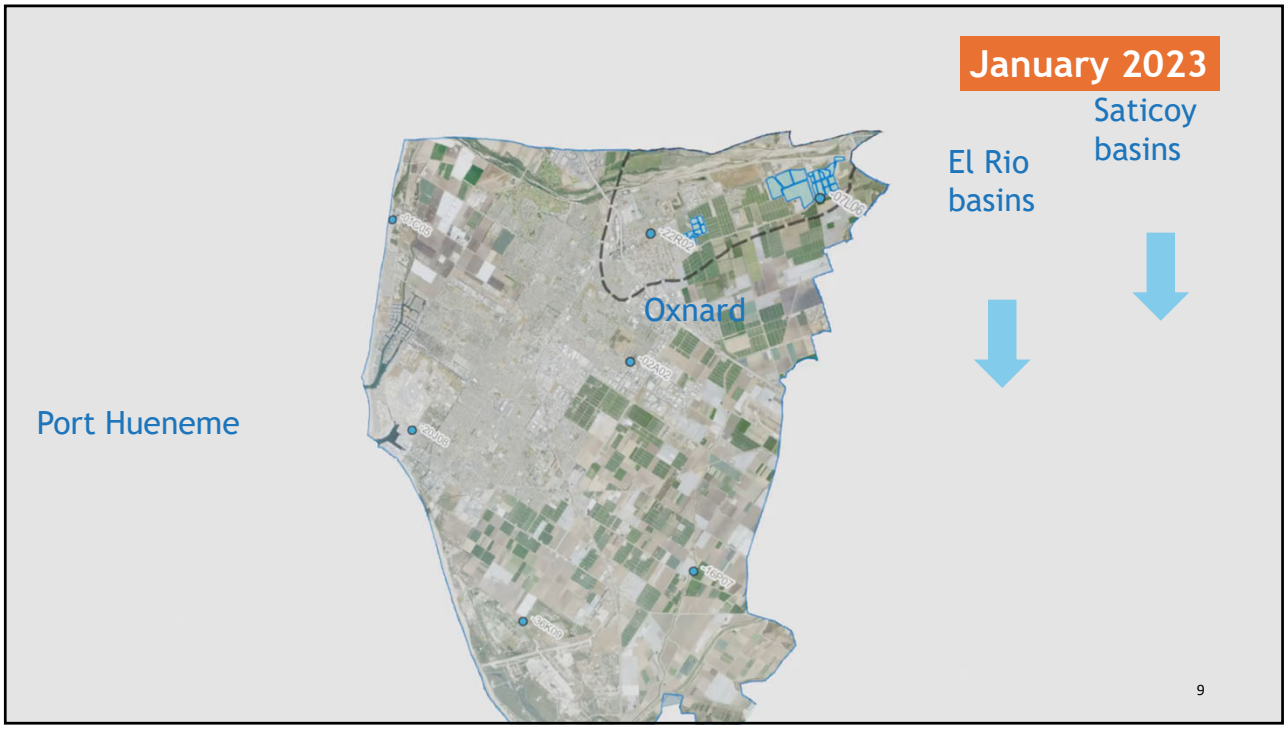
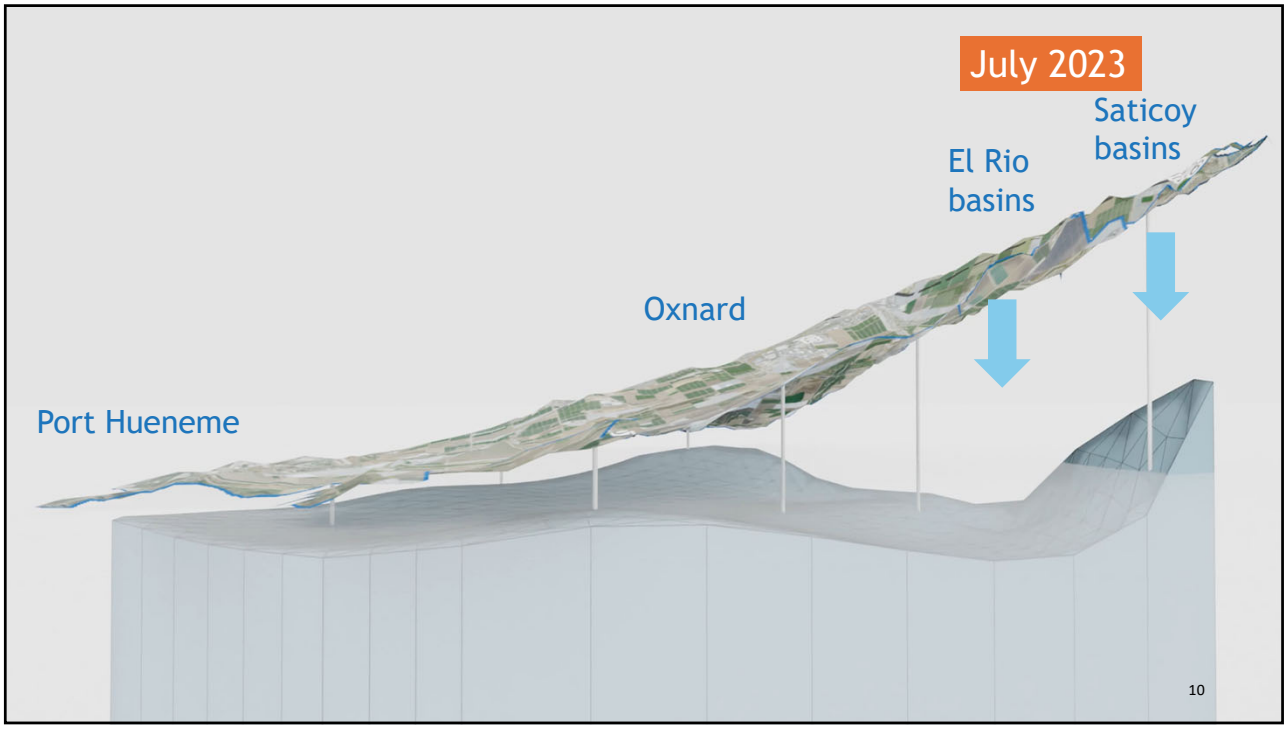
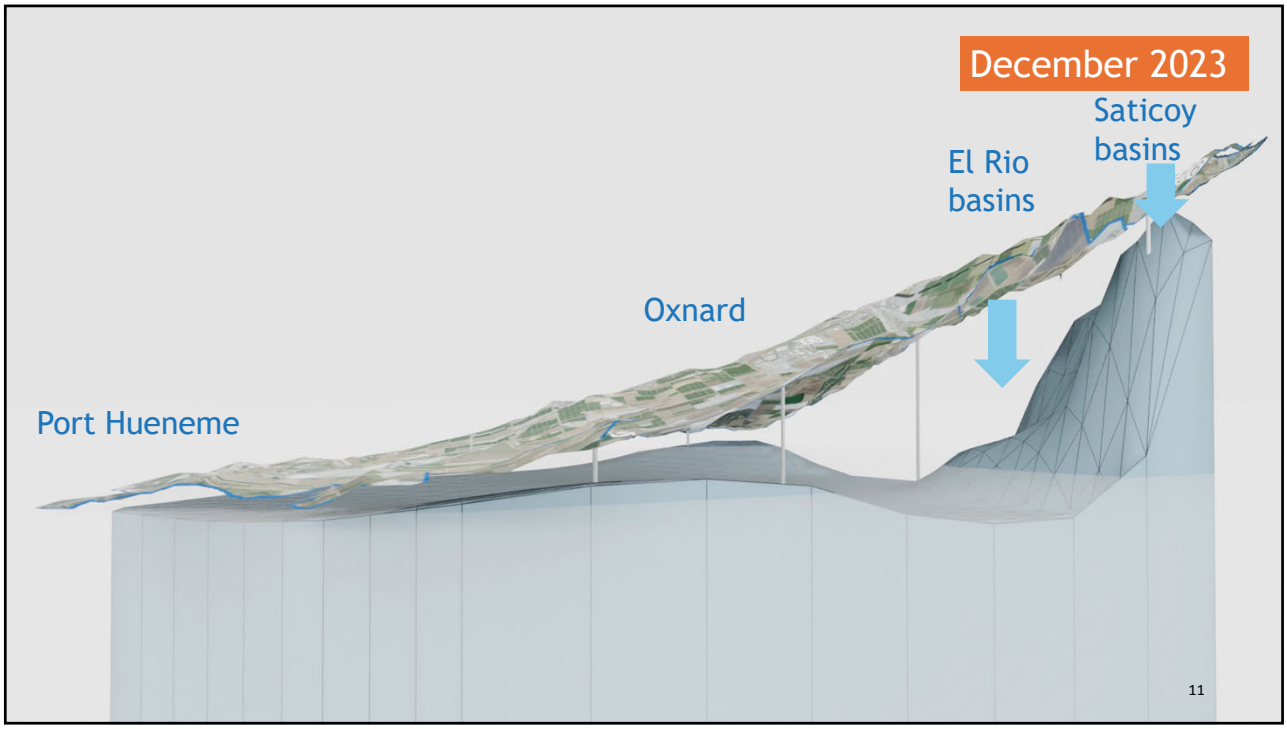

January 2023
Saticoy basins
El Rio basins
Oxnard
Port Hueneme
9

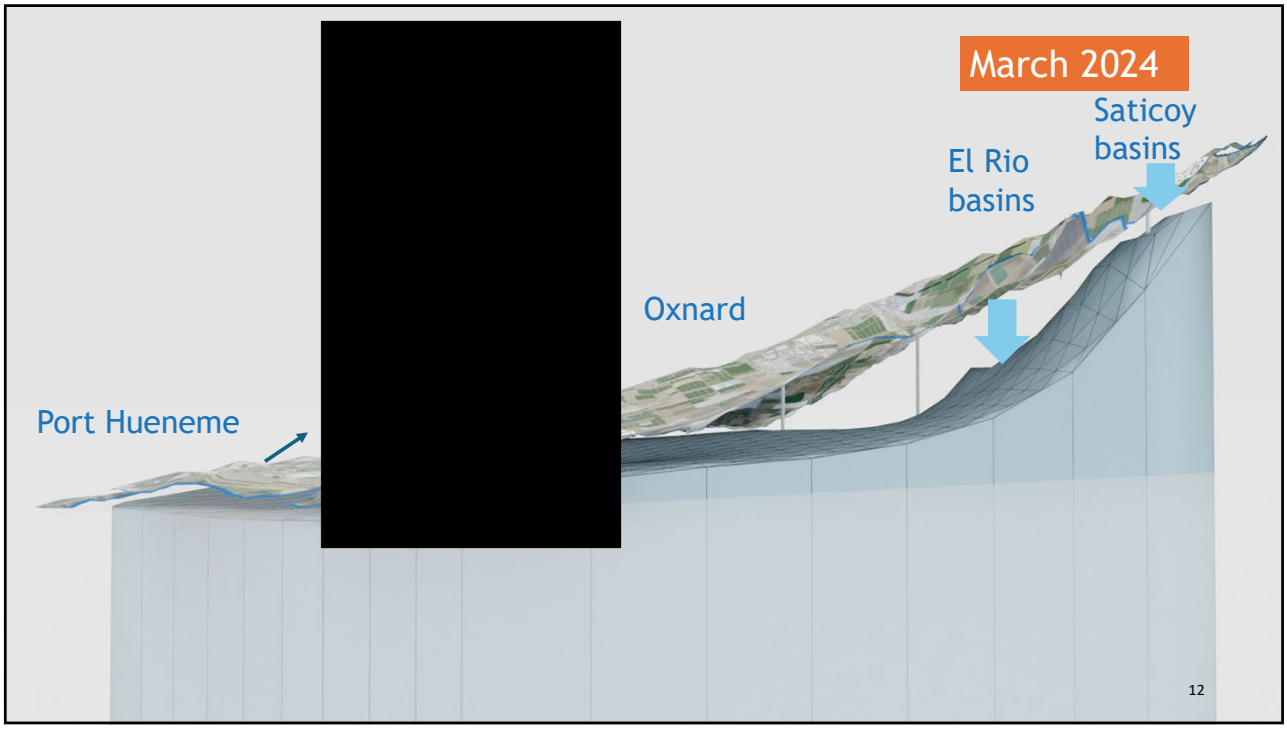
9


July 2023
Saticoy basins
El Rio basins
Oxnard
Port Hueneme
10

10


December 2023
Saticoy basins
El Rio basins
Oxnard
Port Hueneme
11

11


March 2024
Saticoy basins
El Rio basins
Oxnard
Port Hueneme
12

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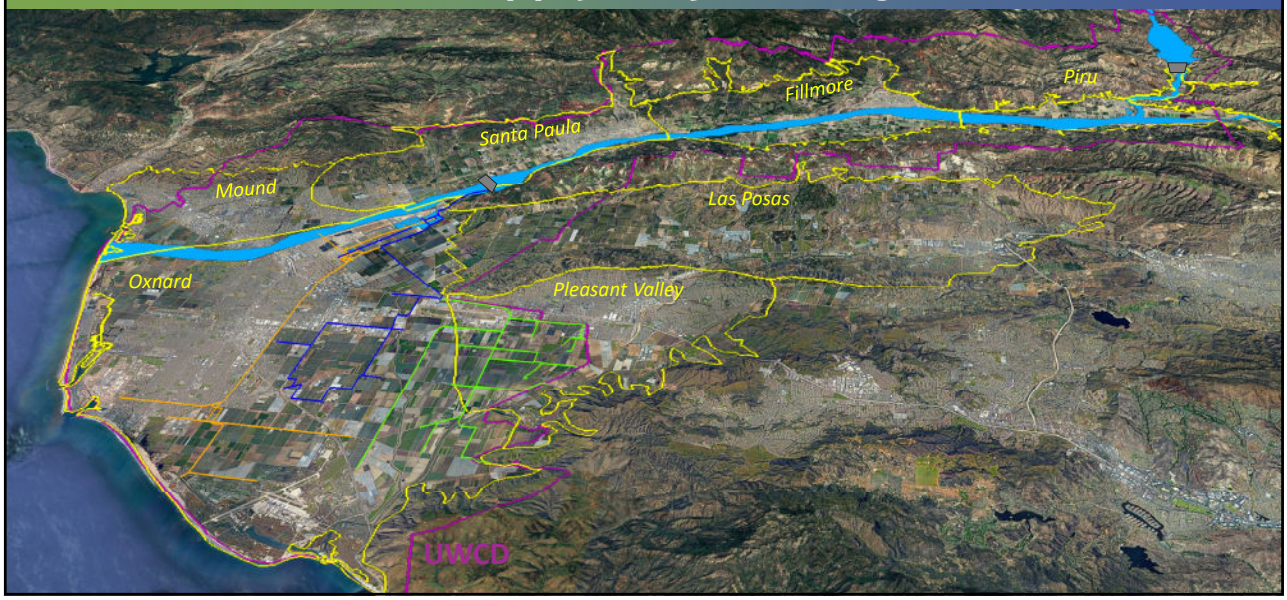
WS Summit I vs. V
Water Supply Project Progress



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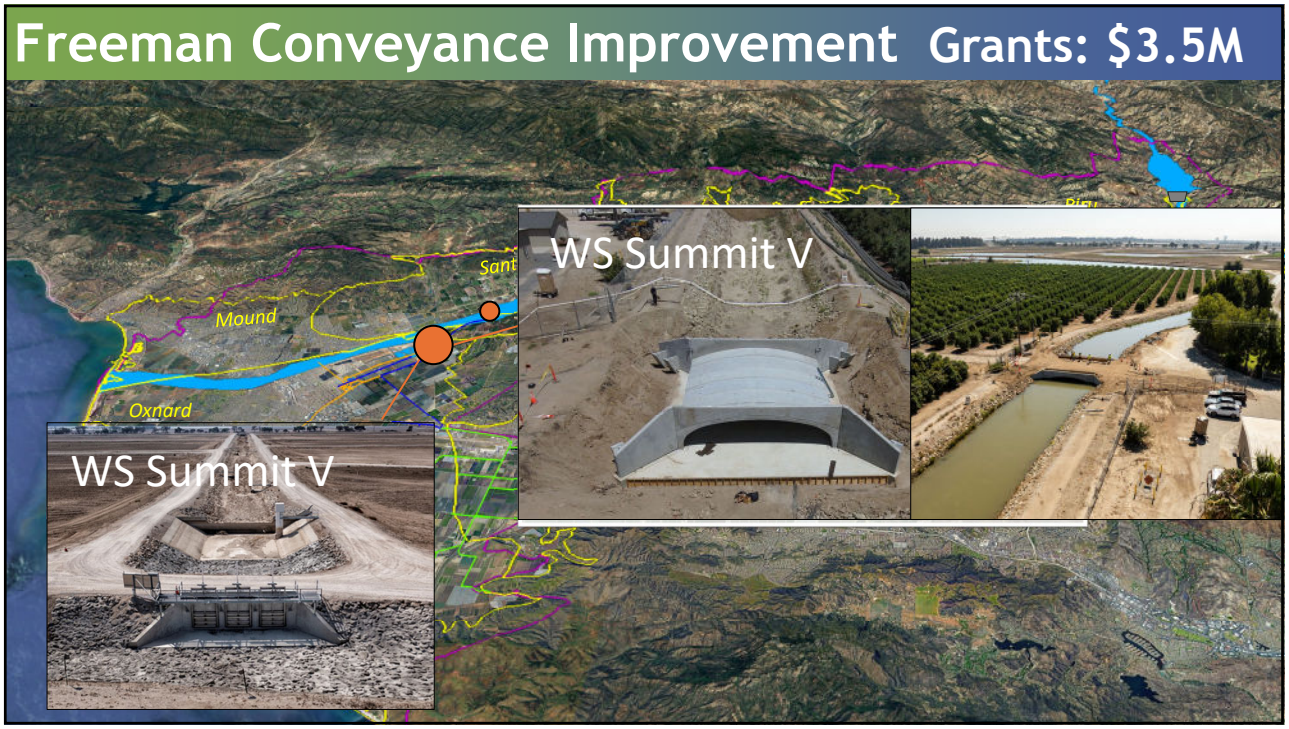
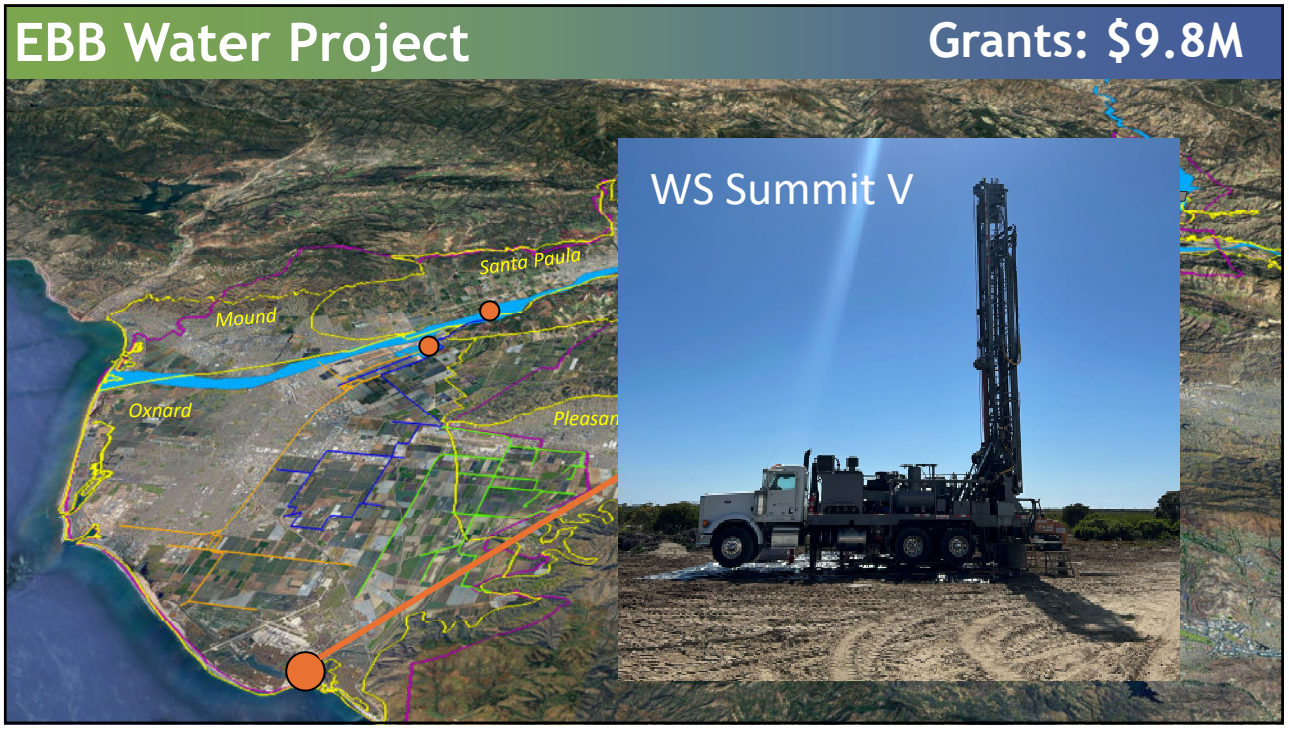
Freeman Expansion Project
Grants: $20M

14

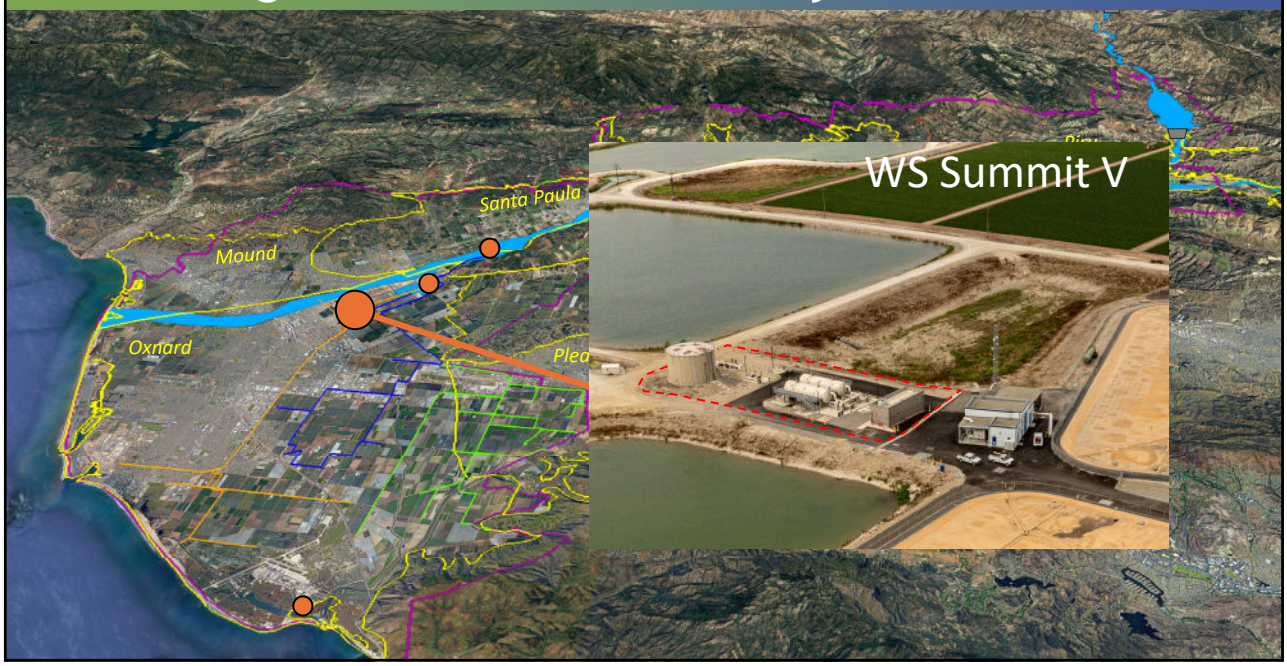

Freeman Conveyance Improvement
Grants: $3.5M
WS Summit V
WS Summit V
Mound
Oxnard

15


EBB Water Project
Grants: $9.8M
WS Summit V
Santa Paula
Mound
Oxnard

16

Iron & Manganese Treatment Facility — Grants: $7.4M



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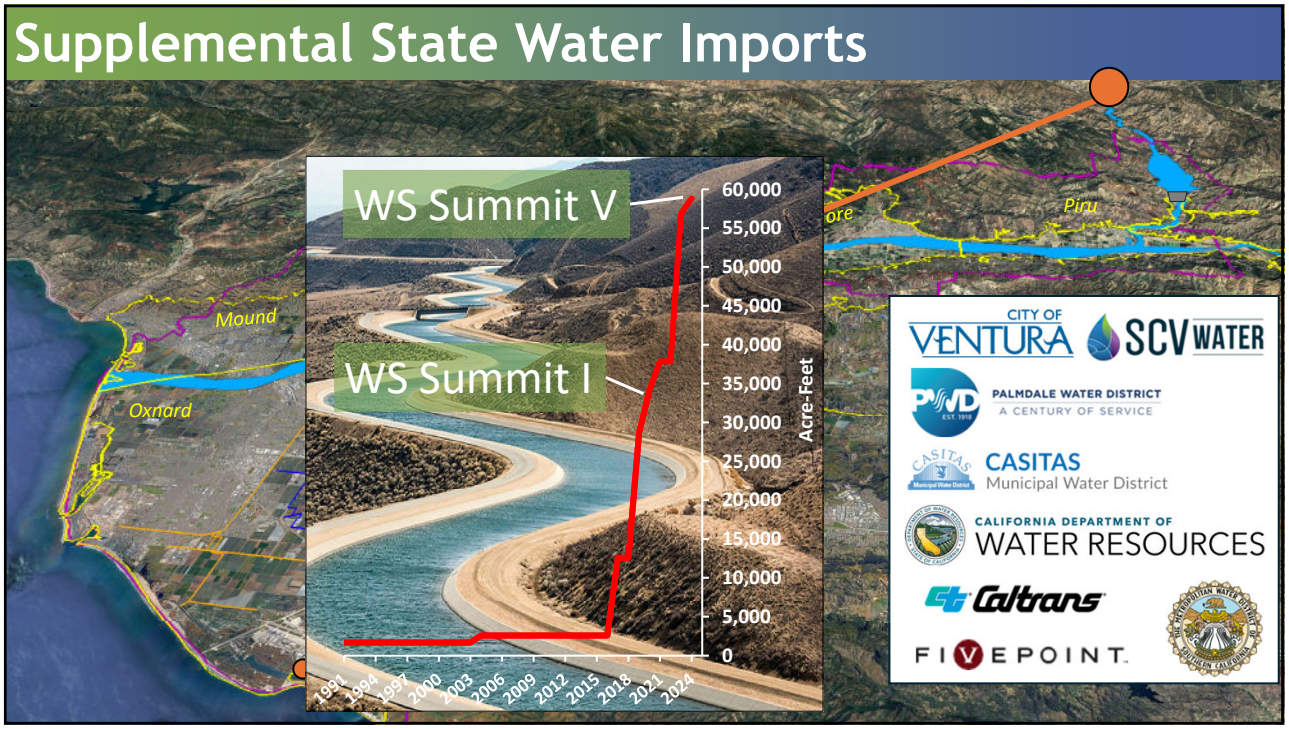
Recycled Water — Grants: $5M

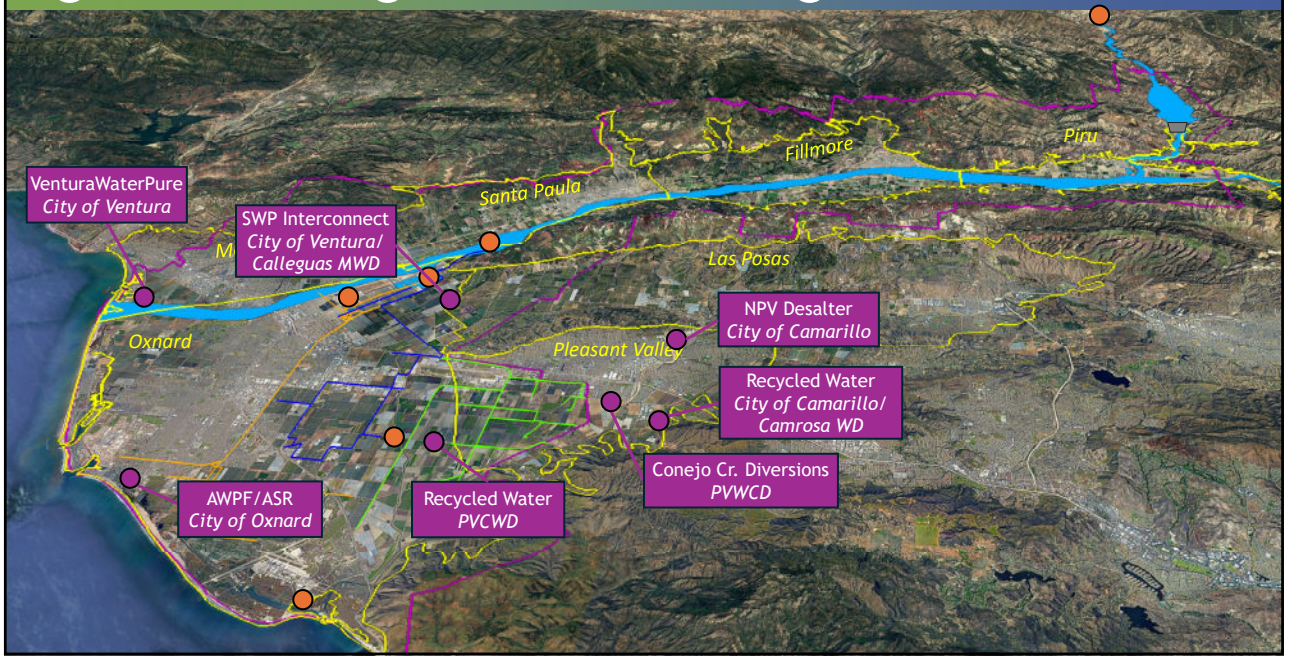
18

Supplemental State Water Imports



19

Significant Progress for Other Agencies



20

United Water CONSERVATION DISTRICT

Bram Sercu, PhD

Principal Hydrologist

United Water Conservation District

Ph: (805) 695-3627

brams@unitedwater.org

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CALLEGUAS MUNICIPAL WATER DISTRICT

Regional Path Forward: Partnership and Progress

2024 Water Sustainability Summit

22

Drought Challenges…

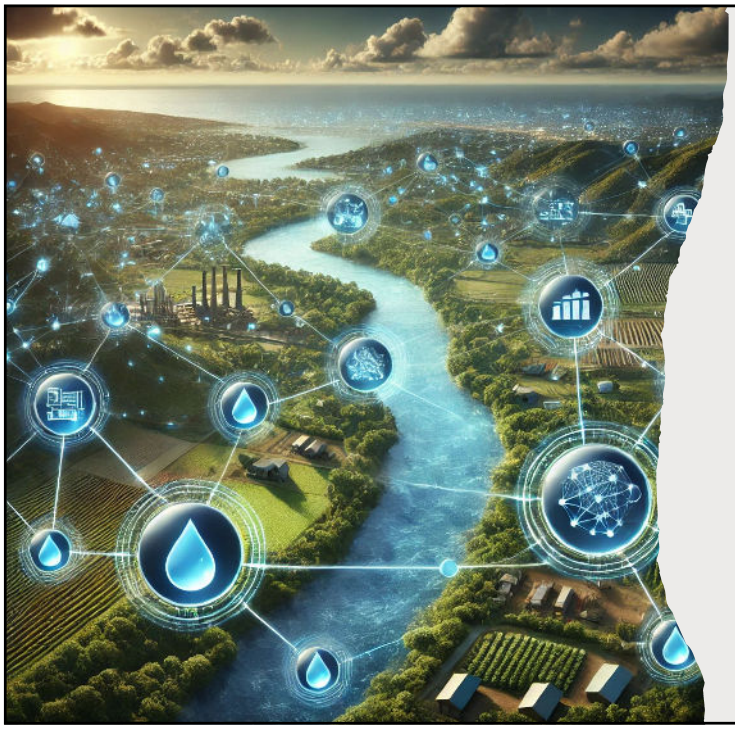
- 2021 and 2022 were two of the driest on record and had the lowest back-to-back allocations (5%) on the SWP.
- Metropolitan could not physically deliver its stored water to Calleguas and five other Member Agencies.
- Metropolitan's Emergency Water Conservation Program (June 2022-March 2023) mandated reduced demands for these Member Agencies only, requiring one-day-per-week outdoor watering in the Calleguas service area.

23

…And Drought Solutions

- Since 2022-23 Metropolitan has made:
  - Operational changes
  - Infrastructure improvements
- Additional infrastructure improvements underway

24



A New Model for Resilience

Calleguas's Board determined that its future will involve greater resilience through partnerships and regional collaboration to develop water supply, storage, conveyance, and programs.

25

Water Resources Implementation Strategy (WRIST)

- Build on history of extensive regional collaboration to enhance existing partnerships and forge new ones.
- Address long-term water supply reliability and resiliency along with outages.
- Characterize and evaluate portfolios of projects with a regional focus.
- Acknowledge risks and uncertainties and develop an adaptive management plan to address them.

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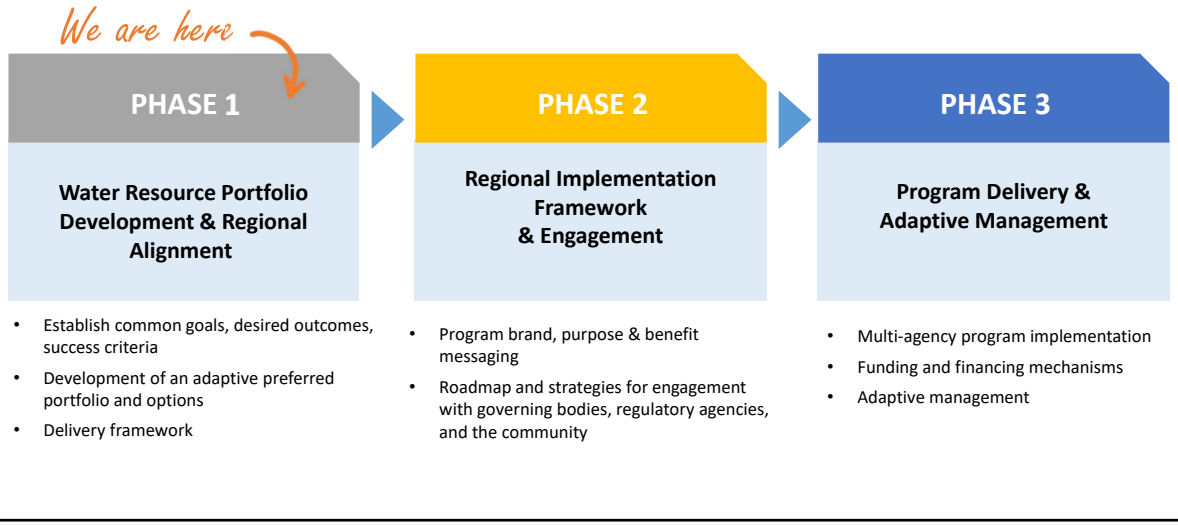
Phased Process



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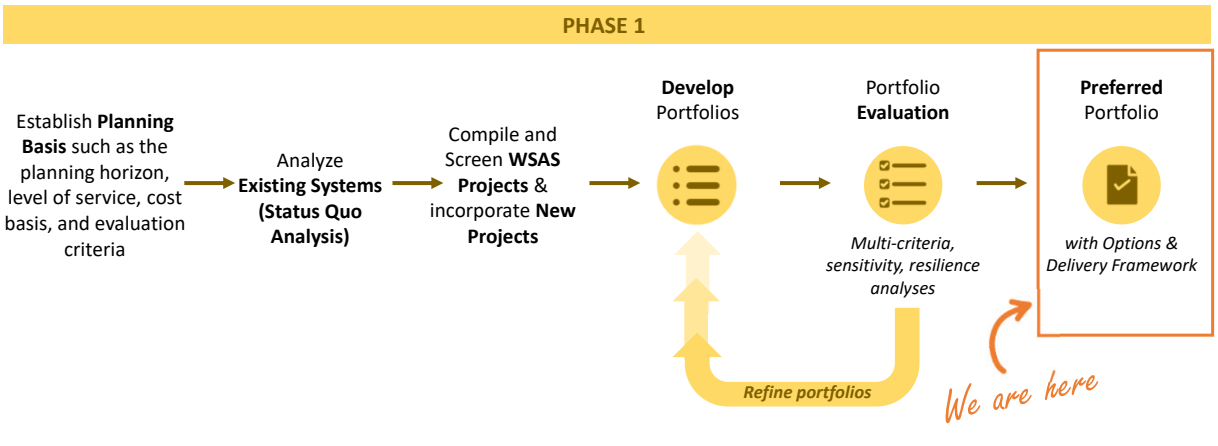
Water Resource Portfolio Development & Regional Alignment



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WRIST

Interviews

Summer 2023

Interim Work Sessions

March 2024

Partner Workshops

July 2023

November 2023

April 2024

October 2024

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Portfolio Findings

Investment in local supply projects provides greater reliability at a lower long-term cost relative to the Status Quo, while significantly reducing demand for imported water.

Investment in local supplies and local storage provides the greatest reliability and resilience but will require West to East Transmission to fully utilize all supplies and increases portfolio costs.

Drought storage projects provide increased reliability but have high unit costs due to the high cost of imported (stored) water and infrequent use.

Local projects can be adaptively phased to incrementally increase reliability while moderating cost impacts.

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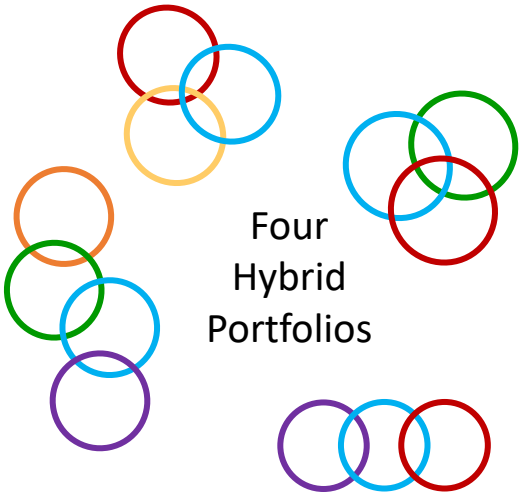
WRIST Portfolios

- Lowest Cost
- Local Supply & Control
- Imported Water Optimization
- Reliability & Resilience
- Adaptability Emphasis
- Groundwater Sustainability and Recycled Water Emphasis



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Draft Preferred Portfolio

Common to all Hybrid Portfolios

- Oxnard AWPF Expansion and IPR Project
- Northern Reach of Calleguas Creek Watershed Desalter Project
- Santa Rosa Valley Desalter/ Recharge
- West-East Transmission
- New Newbury Park Wells with Treatment
- Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits

Other Top Performing Projects from Hybrid Portfolios

- Additional ASR in Santa Paula Basin
- Oxnard Plain Program
- South Oxnard Plain Brackish Water Treatment Facility (UWCD Extraction Barrier Brackish Water Treatment Project with conveyance to Calleguas)
- External Groundwater Bank
- Expansion of Camrosa Non-Potable Water System

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Draft Preferred Portfolio and Options

Project	Risk	Optional Projects
Oxnard AWPF Expansion and IPR Project	Med	
Northern Reach of Calleguas Creek Watershed Desalter Project (NPV, Moorpark, Simi Desalter)	Med	
Santa Rosa Valley Desalter/ Recharge/ IPR	Low	
West-East Transmission	Low	
New Newbury Park Wells with Treatment	High	Los Robles Desalter
Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits	Med	
Oxnard Plain Program	High	Lake Casitas Storage
Additional ASR in Santa Paula Basin	Low	
South Oxnard Plain Brackish Water Treatment Facility	High	Ocean Desalination
External Groundwater Bank	Low	
Expansion of Camrosa Non-Potable Water System	Med	

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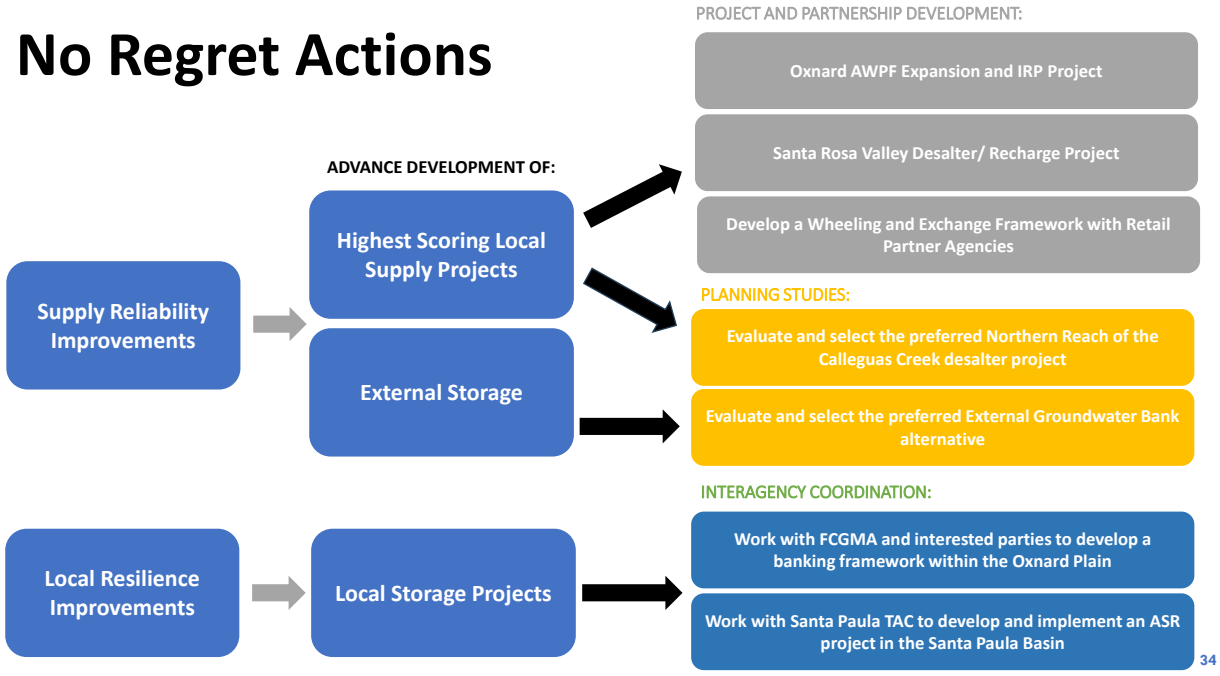
No Regret Actions



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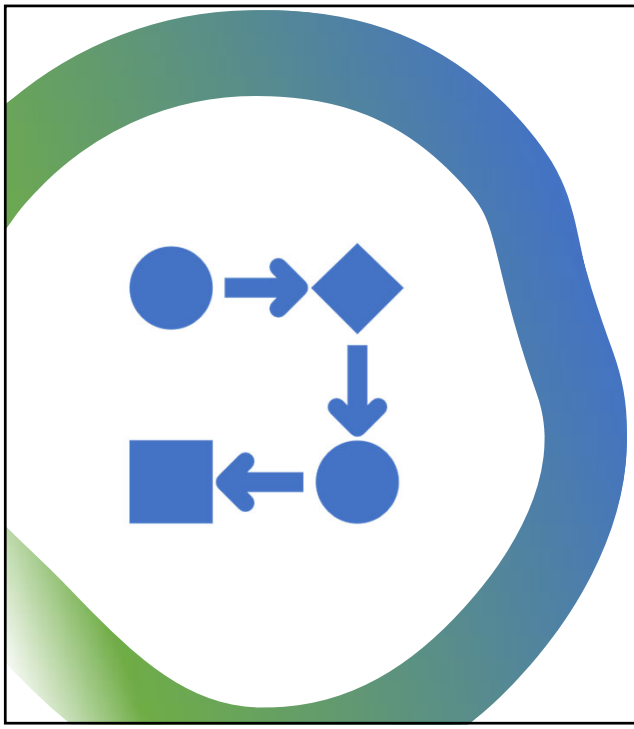

Adaptive Management Approach

- **Implement No Regret Actions first**
- **At future decision points, evaluate then-current conditions to determine:**
  - The need and timing of additional projects from the Preferred Portfolio.
  - Optional projects should Preferred Portfolio projects not come to fruition.

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Next Steps

Through 2024

Wrap up Phase 1 WRISt Report

2025

Initiate Phase 2:

- Engage Partners
- Further Develop Projects

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CALLEGUAS
MUNICIPAL WATER DISTRICT

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United Water
CONSERVATION DISTRICT
2024 Water
Sustainability
SUMMIT
Navigating the ESA:
Balancing Opportunities and Obstacles
October 17, 2024

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United Water CONSERVATION DISTRICT

Thank You to

Catalyst ENVIRONMENTAL SOLUTIONS

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GENERAL PUMP COMPANY
Over 72 Years of Water Well & Pump Service

GSI Water Solutions, Inc.

KJ Kennedy Jenks

nhc

Roscoe Moss Company

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Guest Speaker

Captain Daniel Brown
Commanding Officer
Naval Base Ventura County

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United Water Conservation District

2024 Water Sustainability Summit

EBB & Flow: The Extraction Barrier and Brackish (EBB) Water Treatment Project

Innovative and Collaborative Solutions to Seawater Intrusion and Drought Resilience Supply

Presenters:
Dr. Maryam Bral, PhD, PE, Chief Engineer
Robert Richardson, PE, Engineering Manager
Chris Coppinger, PG, CHG, Senior Hydrogeologist

October 17, 2024

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Benefits

- Seawater Intrusion Management
- Drought Resilience
- Groundwater Sustainability

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Seawater Intrusion in Upper Aquifer System (1963 through 2016)

Seawater Intrusion by 2019

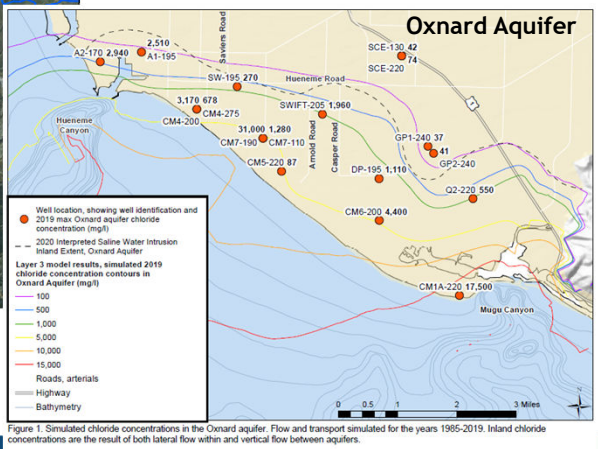
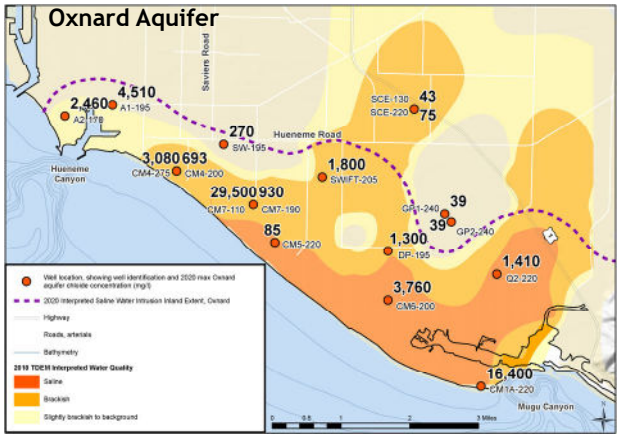
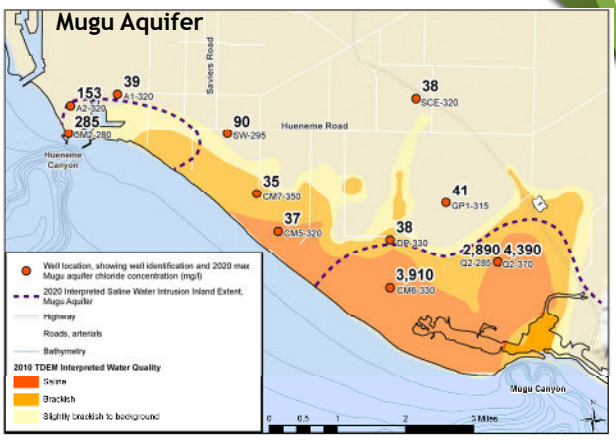


Figure 1. Simulated chloride concentrations in the Oxnard aquifer. Flow and transport simulated for the years 1985-2019. Inland chloride concentrations are the result of both lateral flow within and vertical flow between aquifers.

43

Seawater Intrusion in UAS by 2020





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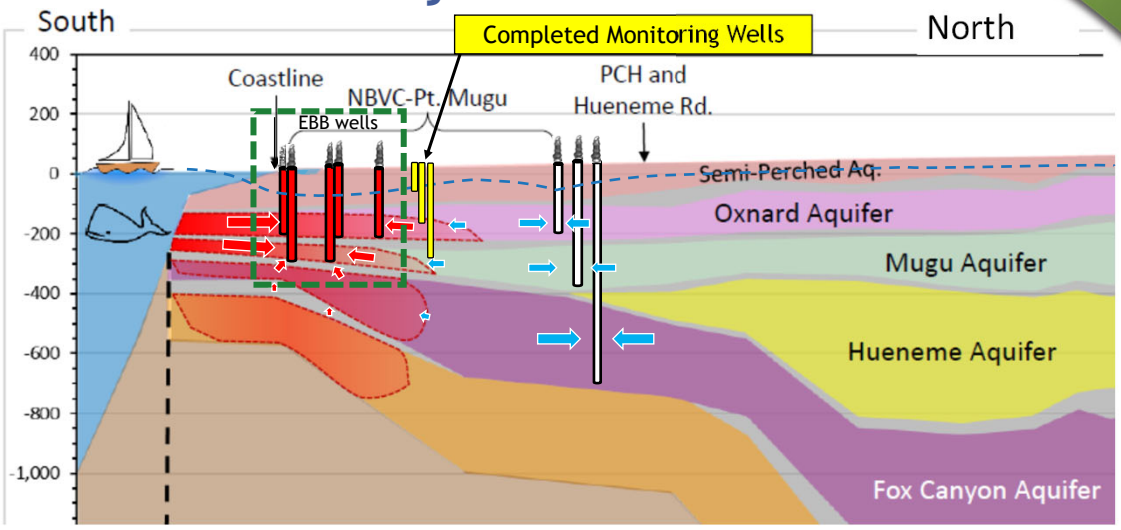
WHY Extraction Barrier and Brackish Water Treatment Project?



Cross-Sectional View (closeup)

45

45

Progress Update Since 2023 Summit

Does Anyone Still Think the EBB Water Project is "Pie in the Sky?"
No More!

- **Execution of a Memorandum of Agreement (U.S. Navy & United)**
  November 9, 2023
- **Extension of US Navy License Agreements**
  February 2023-2025
- **Design and Construction of New Monitoring Wells**
  2023-2024
- **Submittal of the Outgrant Easement Letter Request**
  October 2023
- **On-going Field Investigations & Assessments (Geotechnical Exploration, Surveys)**
  2023-2024
- **Advancement of Design and CEQA/NEPA Permitting**
  2022-2025
- **Execution of the SWRCB Prop 1 Round 3 Grant Agreement**
  June 2024

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Slide 46

RR0 Animate each bullet update so they come in the order shown.
Robert Richardson, 2024-10-14T21:51:07.551

Memorandum of Agreement

Phase 1

United Water CONSERVATION DISTRICT

DEPARTMENT OF THE NAVY
COMMANDER NAVY REGION SOUTHWEST
750 PACIFIC HIGHWAY
SAN DIEGO CA 92132-0058

UWCD
25 Oct 23

N69232-20231016-12760
CNRSW
4535
9 Nov2023

MEMORANDUM OF AGREEMENT
BETWEEN
COMMANDER, NAVY REGION SOUTHWEST
AND
UNITED WATER CONSERVATION DISTRICT

Subj: EXTRACTION BARRIER AND BRACKISH WATER TREATMENT PROJECT AT NAVAL BASE VENTURA COUNTY, PHASE 1

Ref: (a) Extraction Barrier and Brackish Water Treatment Project Feasibility Study – Groundwater Modeling, UWCD 2021 December
(b) Department of the Navy Chief Sustainability Officer Serial Two: Water Security (March 21, 2023)
(c) US Government License N6247323RP00048

SUBJ: EXTRACTION BARRIER AND BRACKISH WATER TREATMENT PROJECT AT NAVAL BASE VENTURA COUNTY

IN WITNESS WHEREOF, the Parties have entered into this Agreement as of on the later of the two date(s) indicated below:

MAURICIO GUARDADO
UWCD General Manager

B. N. ROSEN
Rear Admiral, U.S. Navy
Commander, Navy Region Southwest

Ventura County, California.

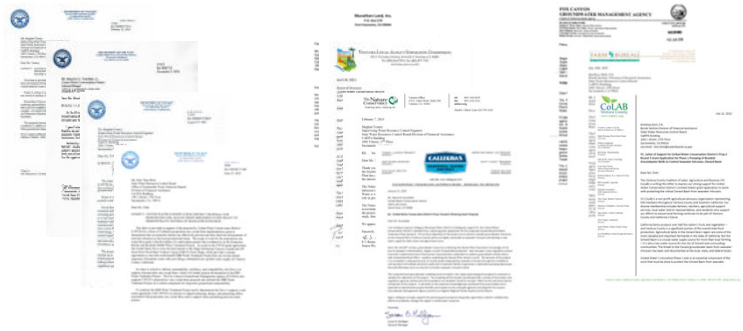
2. Background. Seawater intrusion has been recognized since the early 1900s as a major impact to Ventura County groundwater production aquifers and resulted in NBVC and other coastal groundwater pumpers moving water production inland. The local aquifers are now classified by

47

47

RR0

Regional Support? You Bet!



NBVC and Navy Region SW Support

Stakeholders and Regulators Support

RR1

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Slide 48

RR0 Is there better logos?
Robert Richardson, 2024-10-14T21:50:44.788

RR1 Is there better logos?
Robert Richardson, 2024-10-14T21:50:54.010

EBB Recognition by the State? Done!

Desalination (Brackish and Seawater) Resource Management Strategy

Draft Memorandum

CALIFORNIA WATER PLAN UPDATE 2023

April 2024

Figure 4 Planned Desalination Projects Expected to be Online by 2040

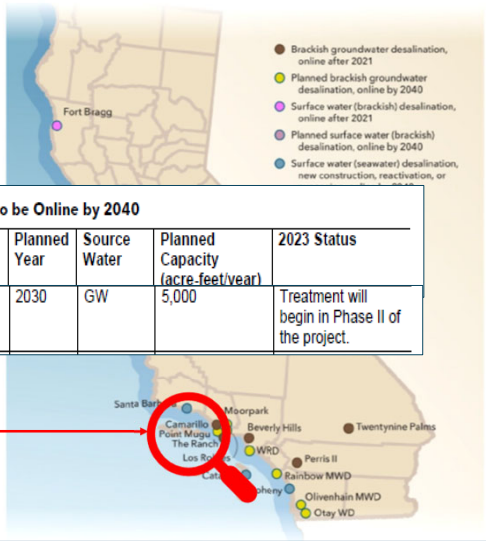


Table 1 California Desalination Facilities Expected to be Online by 2040

Agency	Facility	County	Planned Year	Source Water	Planned Capacity (acre-feet/year)	2023 Status
United Water Conservation District	Point Mugu	Ventura	2030	GW	5,000	Treatment will begin in Phase II of the project.

49

Increasing Sustainable Yield? Absolutely!

50

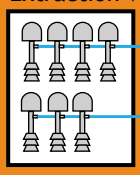
HOW - Project Implementation

☑ Feasibility Study

☑ Monitoring Wells

Phase 1

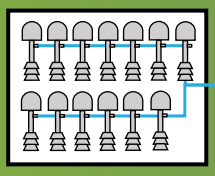
Extraction Wellfield CURRENT



3,500 AFY or 3.1 MGD

Discharge to Mugu Lagoon

Phase 2



Capacity TBD

Treatment

Concentrate

Salinity Management Pipeline

CALLEGUAS MUNICIPAL WATER DISTRICT

Product Water Distribution

NBVC Point Mugu; and Oxnard Plain Users

Current Estimated Project Costs

Phase 1	Phase 2
$51.3 M	$360 M

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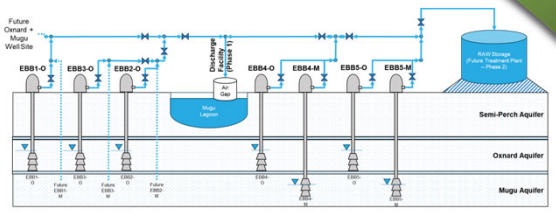
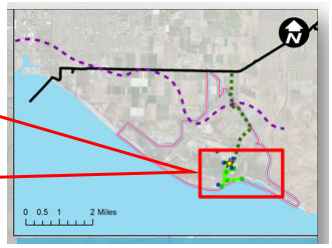
DESIGN & CONSTRUCTION

EBB Water - Phase 1



HYDRAULIC PROFILE
NTS



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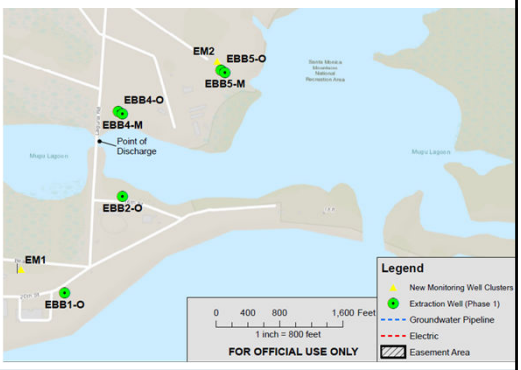
DESIGN & CONSTRUCTION

EBB Water Phase 1 – Monitoring Wells



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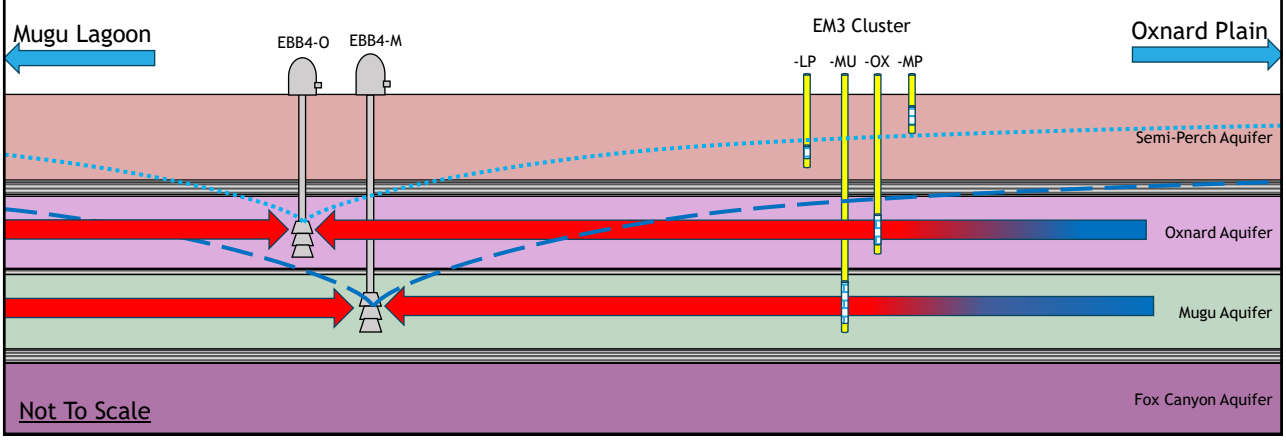
Monitoring Wells Located Upgradient of Planned Extraction Wells



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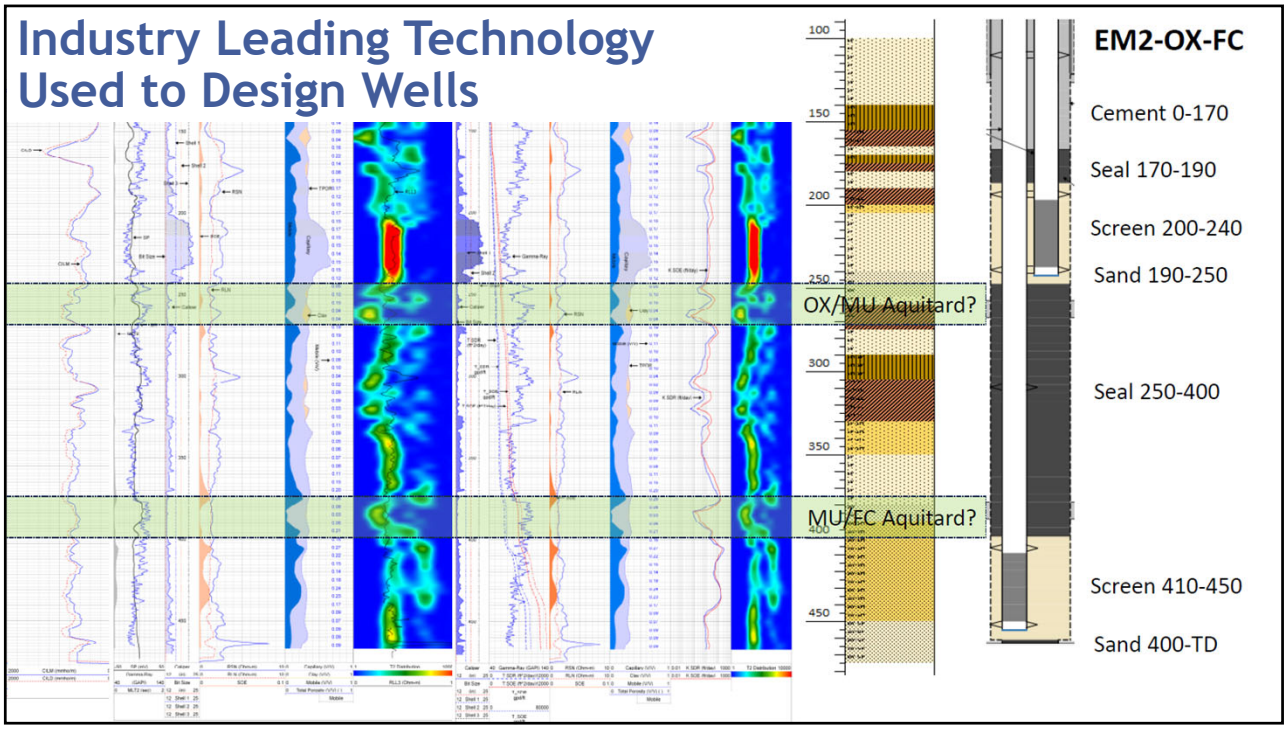
Industry Leading Technology Used to Design Wells



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Construction of the EBB Monitoring Wells is Complete

56

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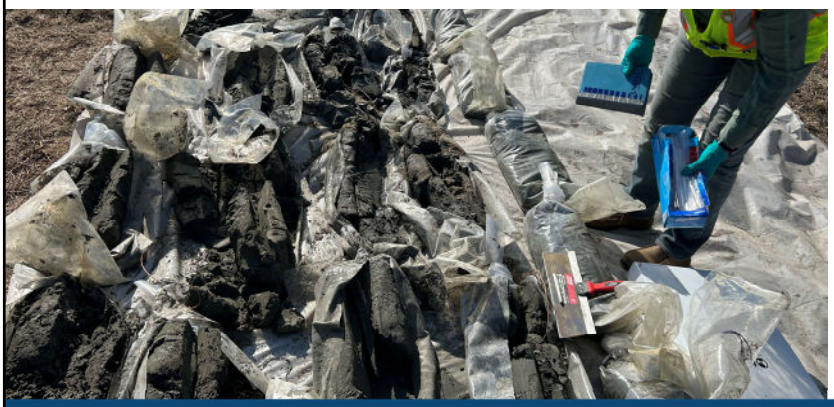
Extraction Well Site Field Investigations



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Additional Design-Related Field Investigations

Bathymetry Study

Sheer Vane Study

Topographic Survey

Velocity Survey

Geotechnical Exploration

Electrical Survey

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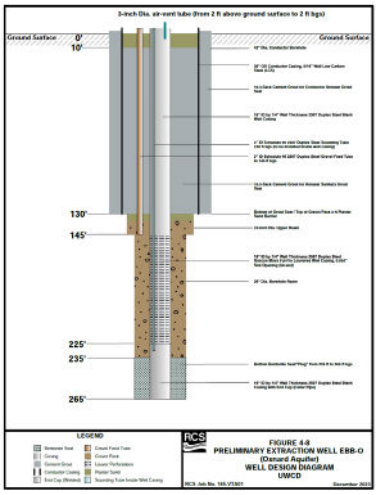
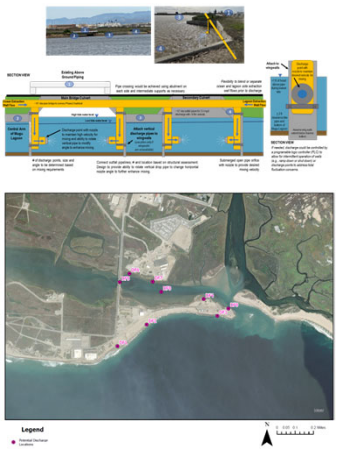
Phase 1 Design Progress



Extraction Well Design

Pipelines



Discharge Facility

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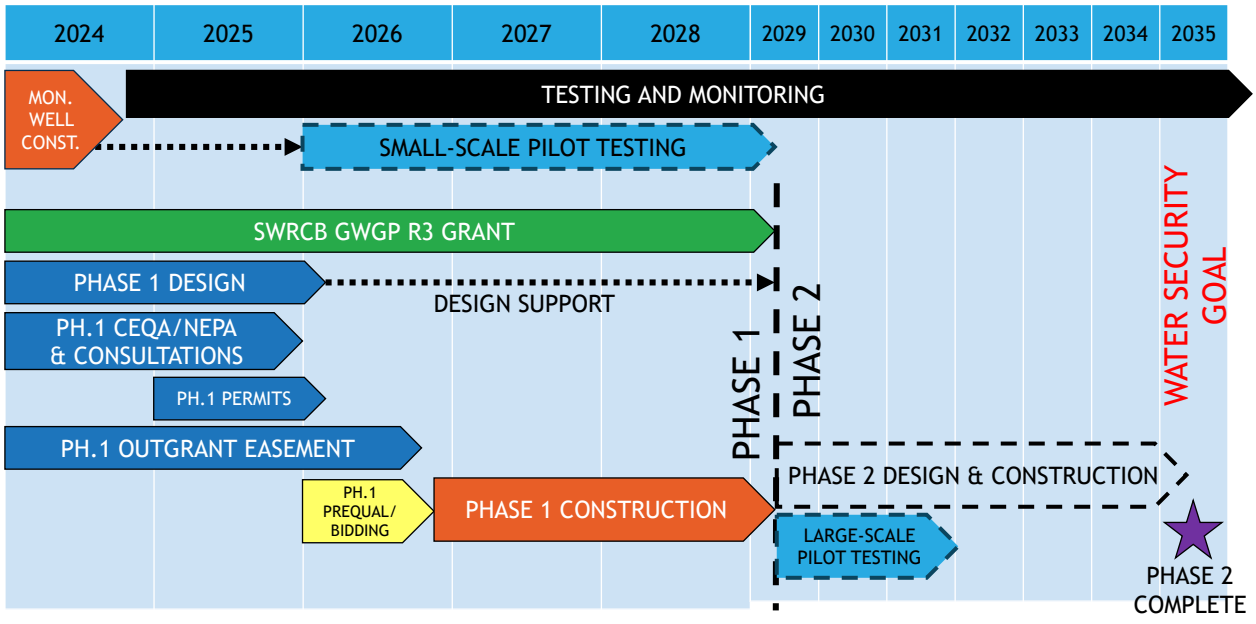
Phase 1 & 2 Timeline (Estimated)



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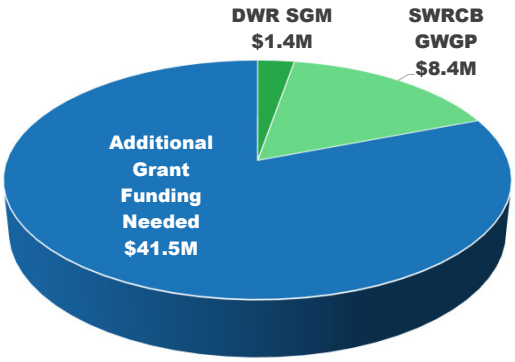
Phase 1 Project Cost



Total Cost (Phase 1): $51.3M

Grant Applications (not awarded)	
OLDCC DCIP FY23 & FY24	$20M
USBR Pitch to Pilot FY24	$300K

Grant Funding

Secured:

Potential:

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Public Outreach

LAFCO
March 2023

2024 CalDesal Conference
February 2024

ACE24 Conference
June 2024

FCGMA Regular Board Meeting
July 2024

Regional Defense Partnership
September 2024

Oxnard Council Water Workshop
September 2024

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EBB in Media

$300M drought-busting water treatment facility in works at Naval Base Ventura County

Brian J. Varela
Ventura County Star

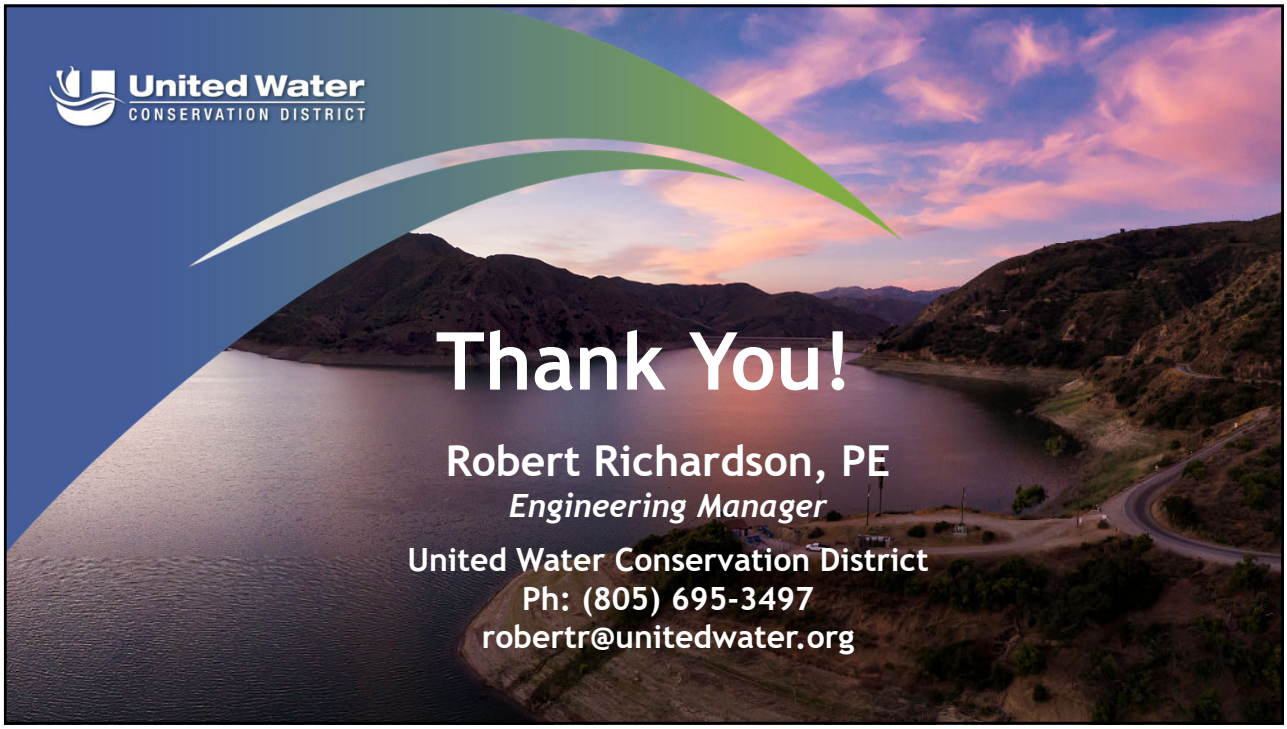
Published 7:01 a.m. PT Oct. 28, 2023 | Updated 7:01 a.m. PT Oct. 28, 2023

Ventura County FOLLOW 25 Followers

Water treatment center for Ventura County at Point Mugu

Benefits

- Seawater Intrusion Management
- Drought Resilience
- Groundwater Sustainability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Thank You!
Robert Richardson, PE
Engineering Manager
United Water Conservation District
Ph: (805) 695-3497
robertr@unitedwater.org

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2024 Water
Sustainability
SUMMIT
Leading the Charge: Legislative Leadership
October 17, 2024

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2024 Water
Sustainability
SUMMIT
Financing the Future:
How Do We Get There?
Presented by:
Brian H. Zahn, Chief Financial Officer
October 17, 2024

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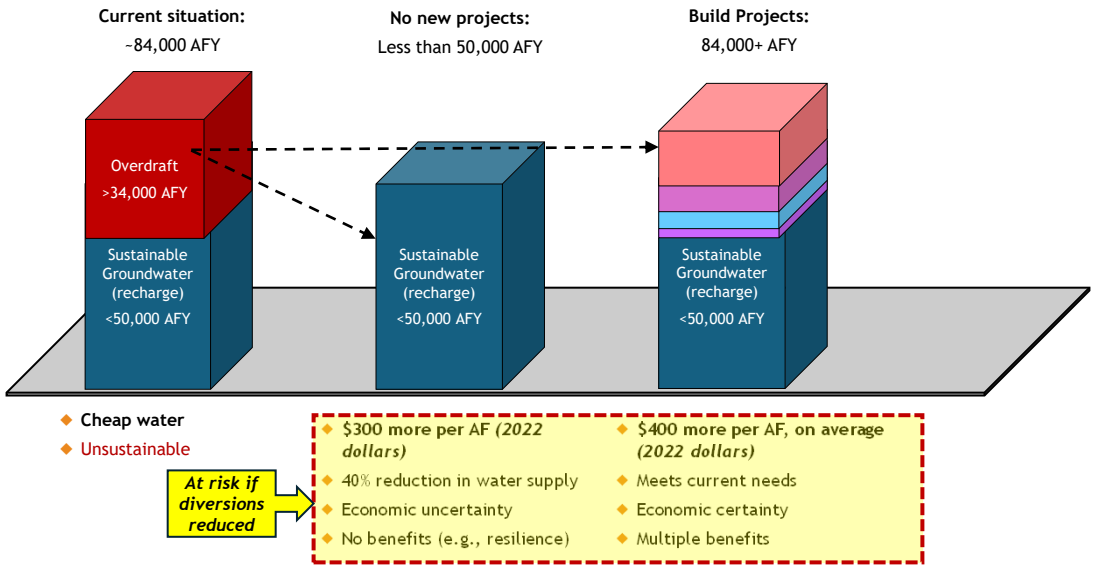
Challenges Facing the Region (2020 GSP)



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CIP Projects FY2026 – FY2039

(In millions)

CIP Costs	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	Total
Regulatory Projects	$ 19.3	$ 34.7	$ 136.6	$ 206.6	$ 145.6	$ 22.6	$ 14.6	$ 19.0	$ 3.7	$ 1.5	$ 1.5	$ 1.5	$ 1.5	$ 1.5	$ 610.1
Other Projects	$ 20.4	$ 29.0	$ 46.4	$ 20.6	$ 5.6	$ 22.8	$ 88.7	$ 193.1	$ 140.4	$ 31.5	$ 30.0	$ 24.0	$ 5.0	$ 5.0	$ 662.5
Total	**$ 39.7**	**$ 63.6**	**$ 183.0**	**$ 227.1**	**$ 151.2**	**$ 45.4**	**$ 103.3**	**$ 212.1**	**$ 144.1**	**$ 33.0**	**$ 31.5**	**$ 25.5**	**$ 6.5**	**$ 6.5**	**$ 1,272.5**

Projects Include:

- Santa Felicia Dam
- Freeman Diversion Expansion
- Extraction Barrier Brackish Water Treatment
- Saticoy Well Replacement

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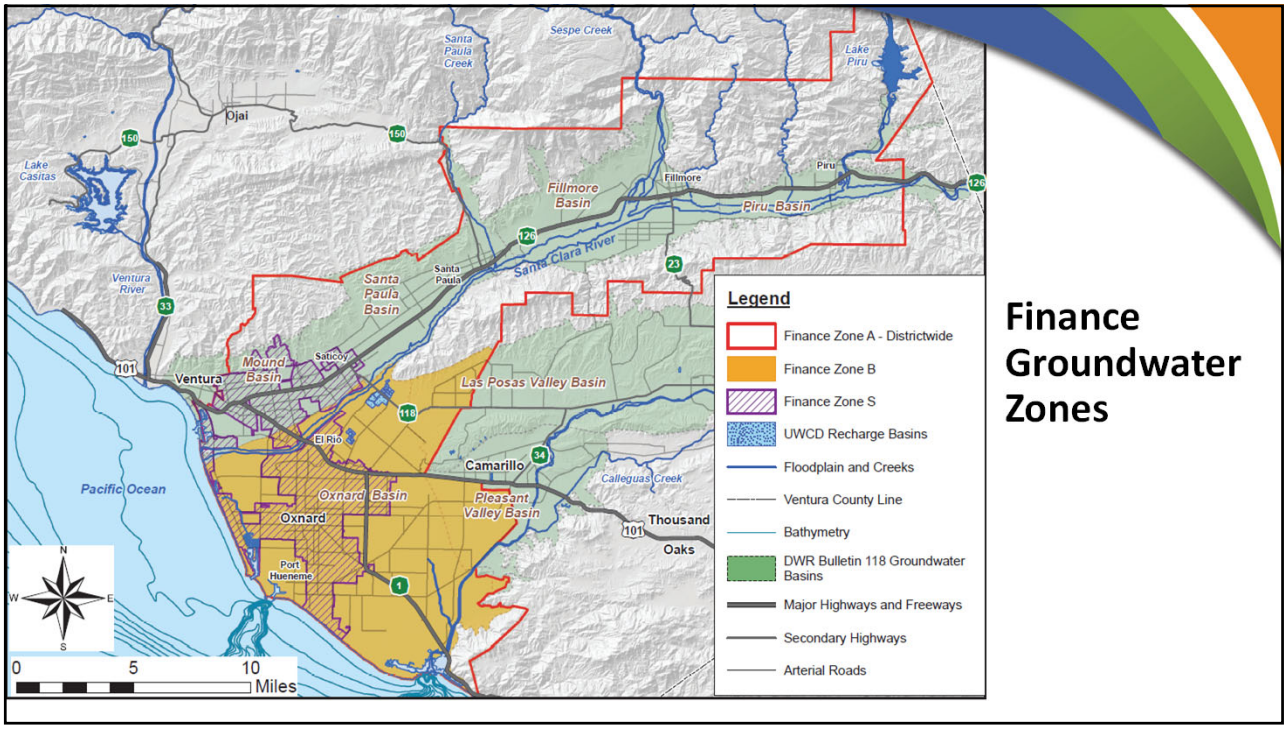

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Zone A (General Water Conservation) Assumptions

- Revenue and Expenses trended from 2024 and 2025 budget
- Taxes and Other Revenue held flat
- Personnel Costs increase 4% per year
- Operational expenses reduced a total of 7% over 2 years and then increased 1% per year
- Capital spend decreased a total of 30% over 4 years and then increased 3% per year
- WIFIA loan adds $7.6M per year for 30 years starting in 2030-31 (potential for 5-year deferment)
- $250M Bonds allocated to Zone A Projects
- Santa Felicia Dam and EBB costs are included as Zone A costs for the entire District
- EBB adds $16.4M per year for Operational costs to maintain and operate the facility 2034-35

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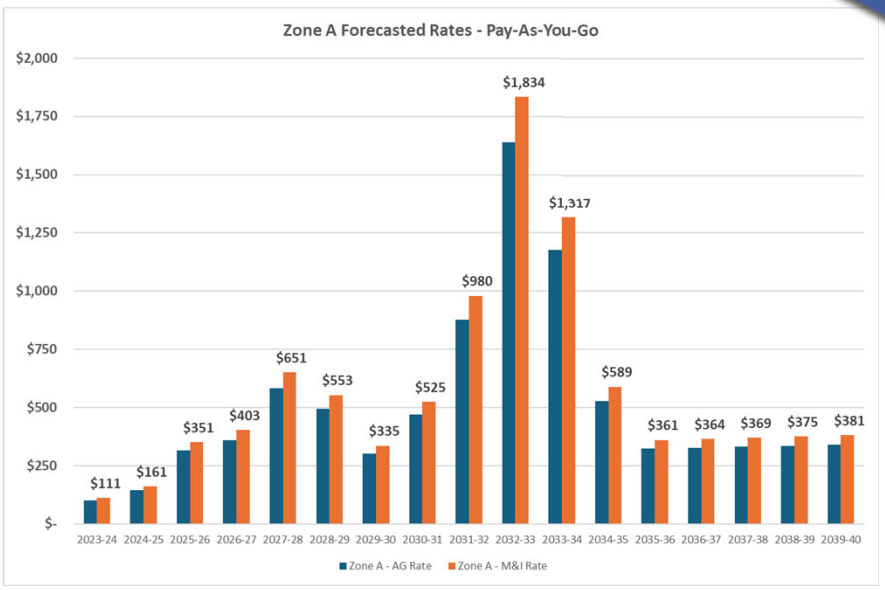
Zone A – Pay-As-You-Go



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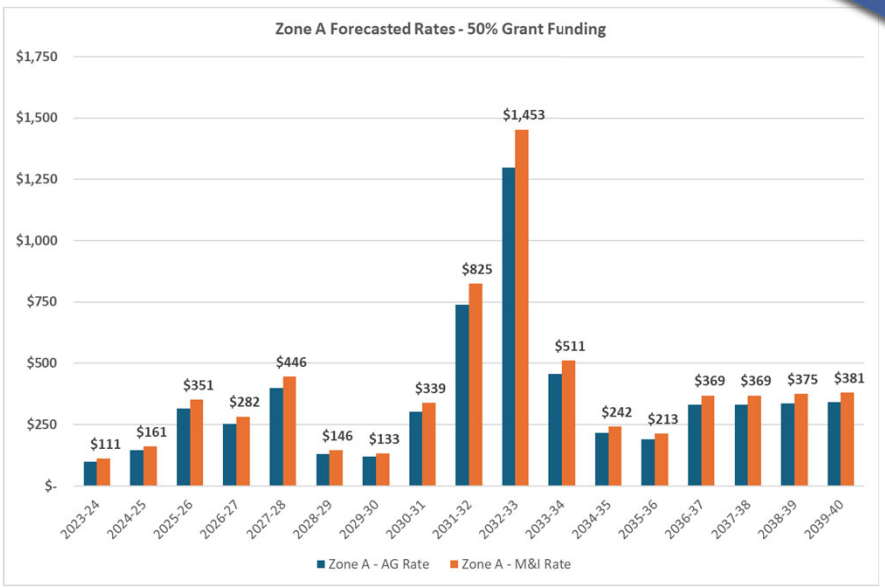
Zone A - 50% Grant Funding



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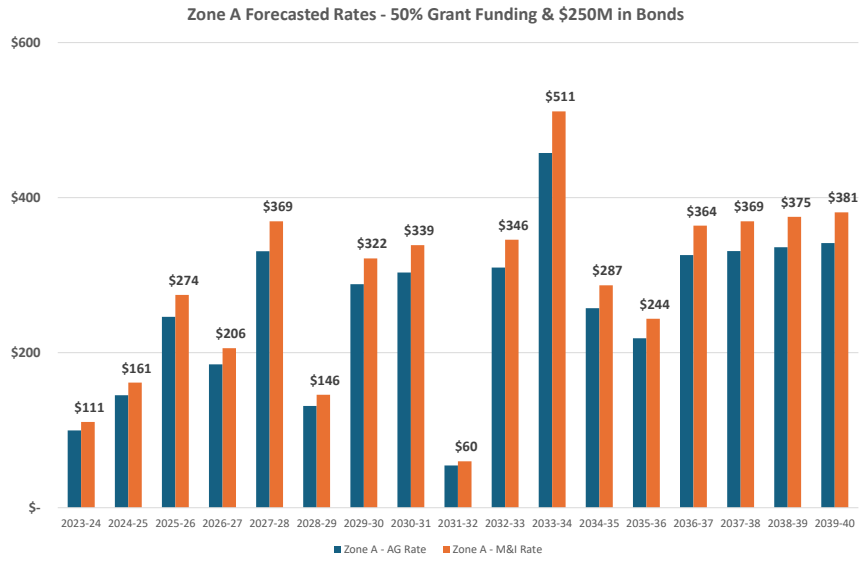
Zone A - 50% Grants & $250M Bonds



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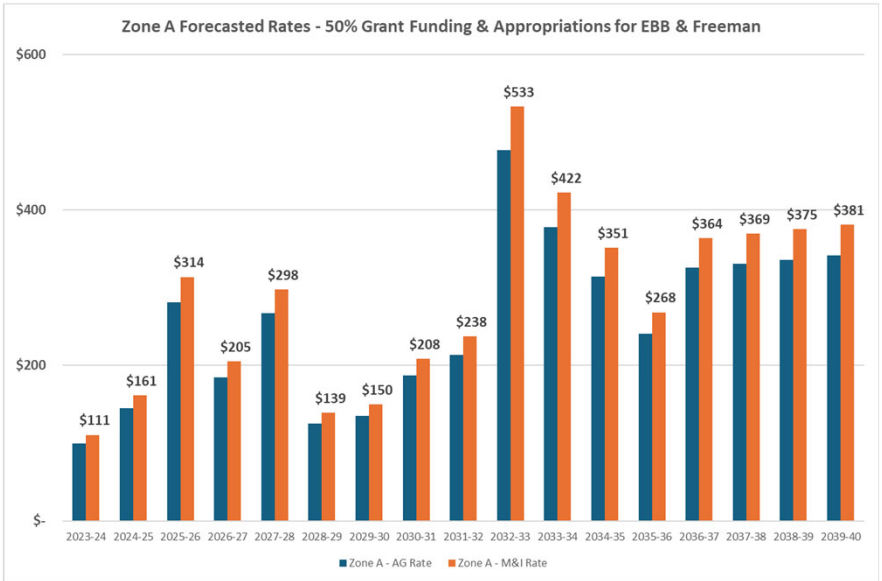
Zone A – 50% Grant Funding & Appropriations



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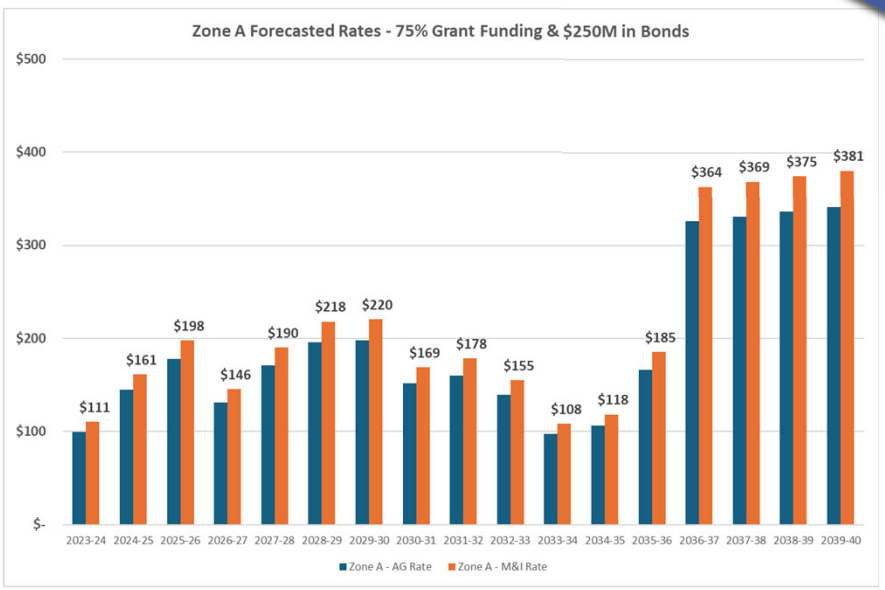
Zone A - 75% Grants & $250M Bonds



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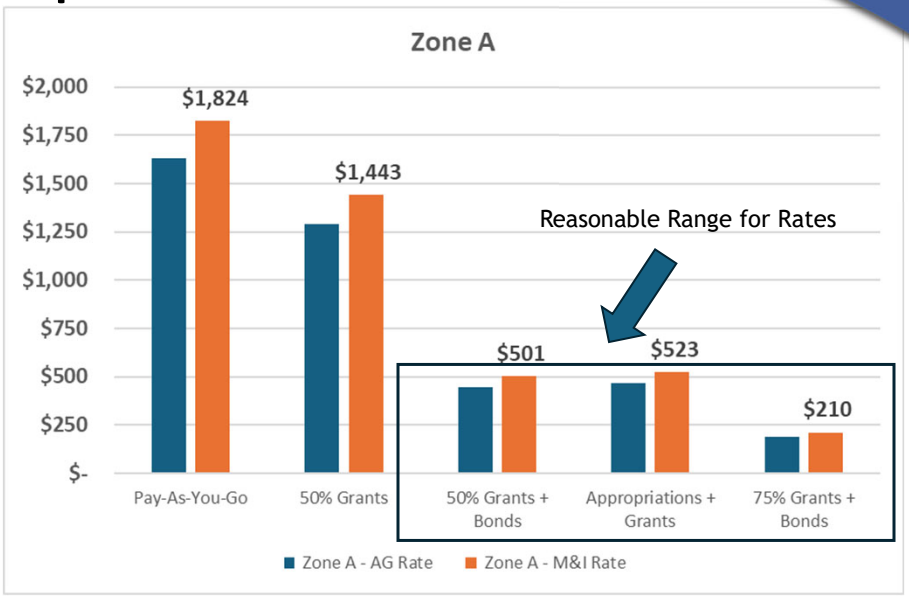
Zone A – Options



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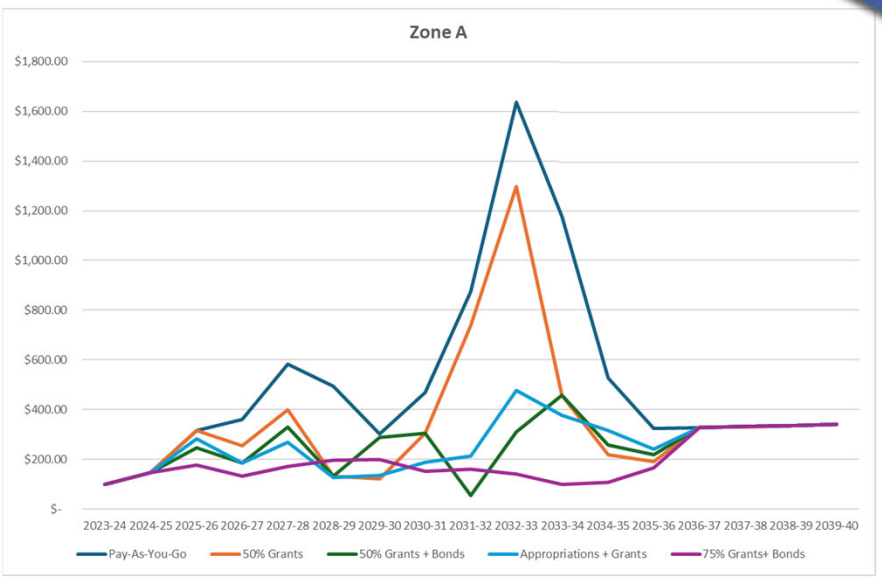
Zone A – FY2032-33



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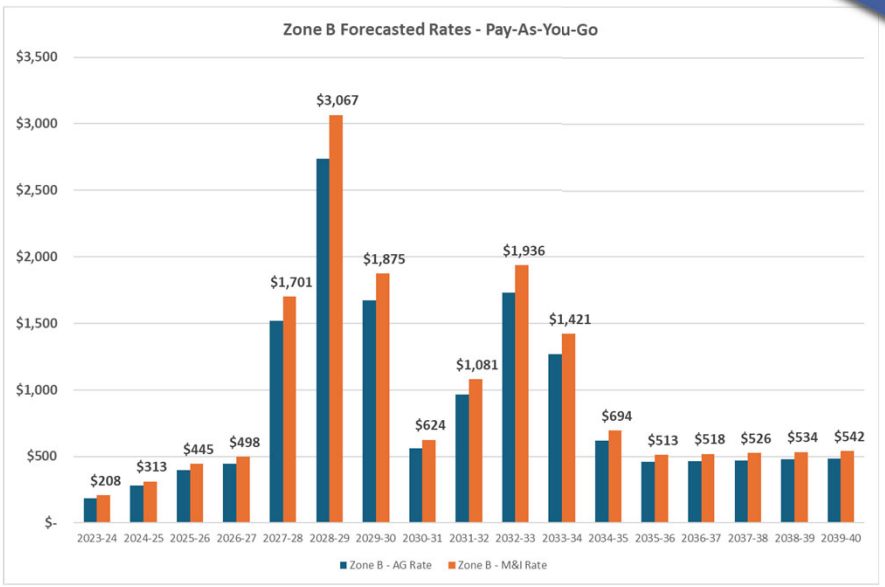
Zone B (Freeman Diversion) Assumptions

- Revenue and Expenses trended from 2024 and 2025 budget
- Other Revenue held flat
- Personnel Costs increase 4% per year
- Operational expenses increased 1% per year
- Capital spend increased 1% per year
- CIP spend held to approximately $1.5M for non-construction years
- Operational costs increase $3.2M annually for environmental conservation efforts and operational costs of Multiple Species Habitat Conservation Plan (MSHCP)
- $100M Bonds allocated to Zone B Projects
- Zone B rates represent the full cost for Zone B

80

Zone B – Pay-As-You-Go



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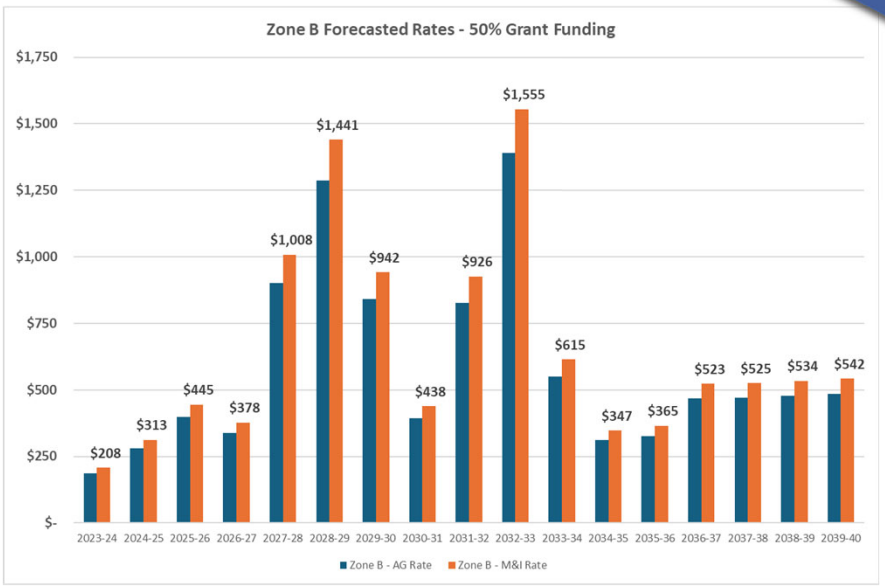
Zone B - 50% Grant Funding



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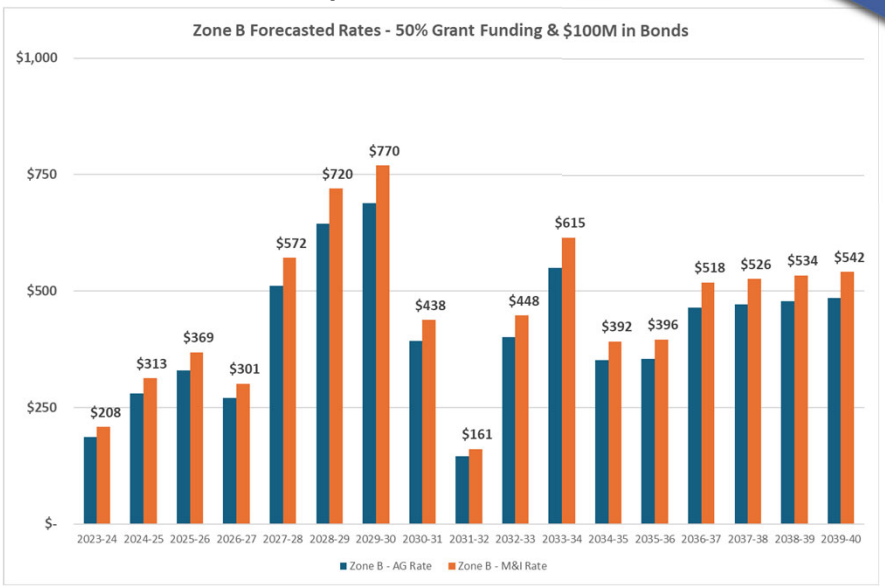
Zone B - 50% Grants & $100M Bonds



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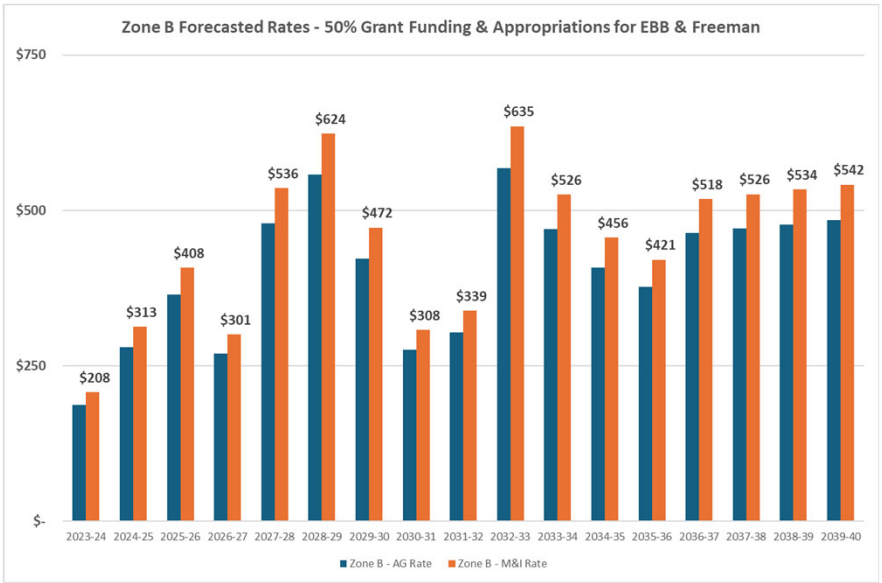
Zone B - 50% Grant Funding & Appropriations



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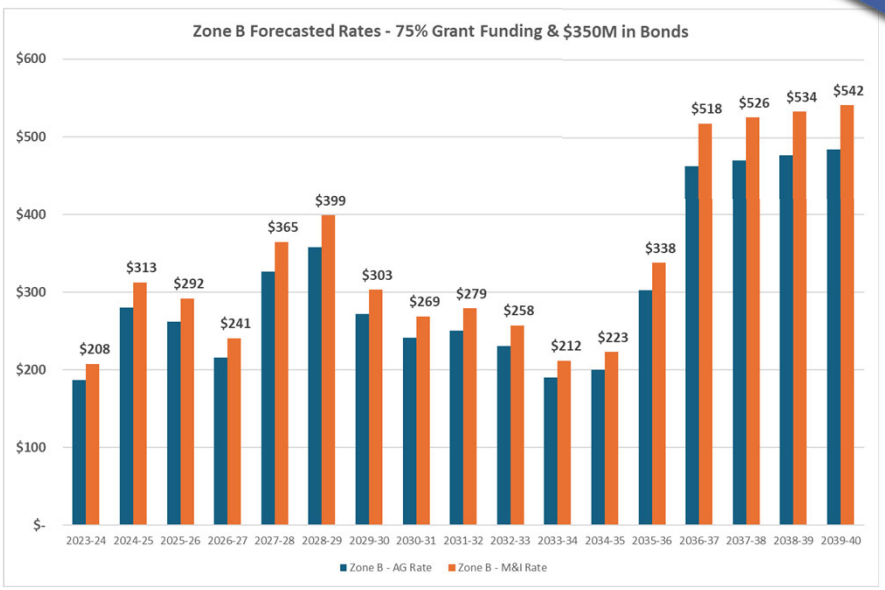
Zone B - 75% Grants & $100M Bonds



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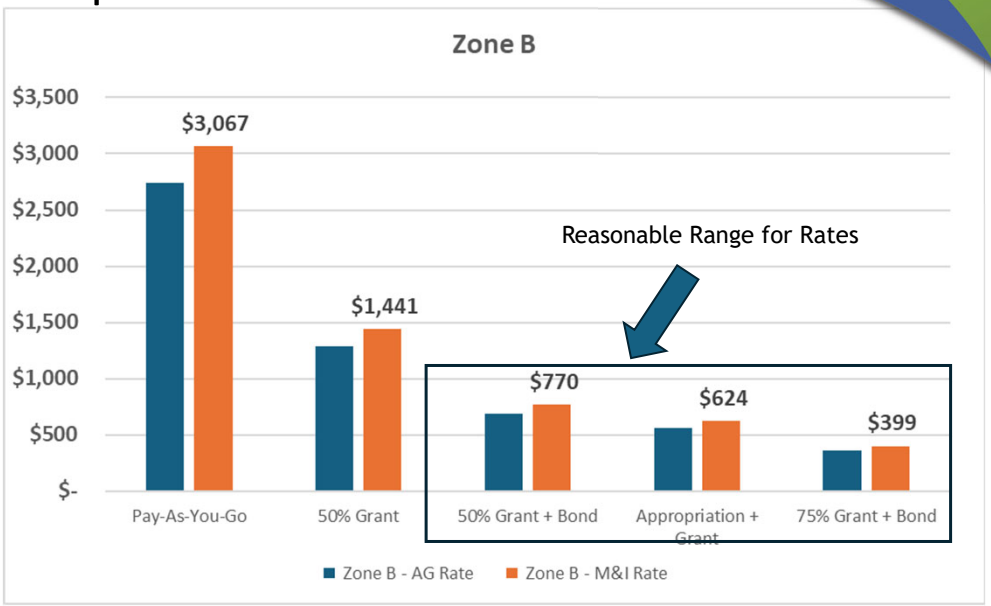
Zone B – Options



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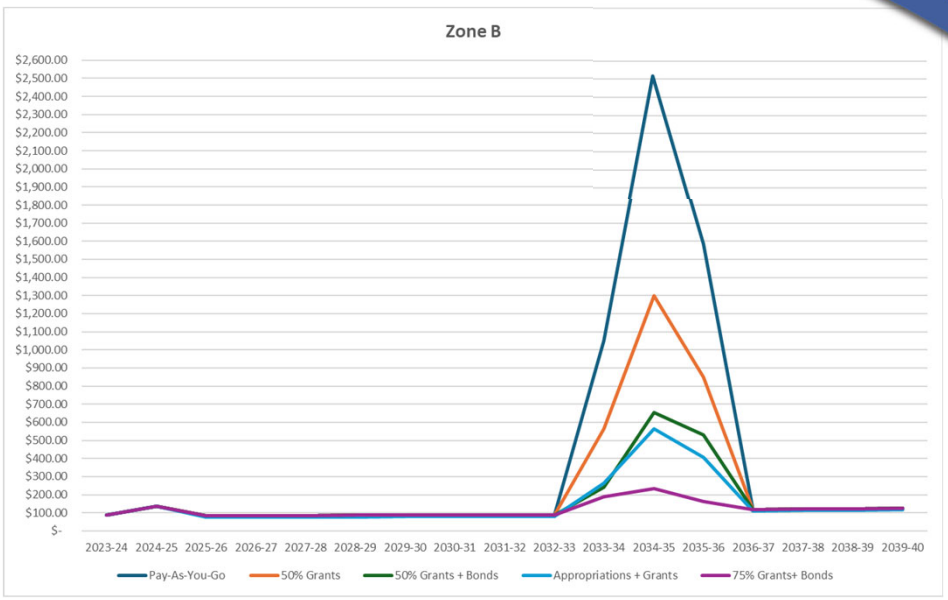
Zone B – FY2032-33



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Brian H. Zahn
Chief Financial Officer
United Water Conservation District
brianz@unitedwater.org

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