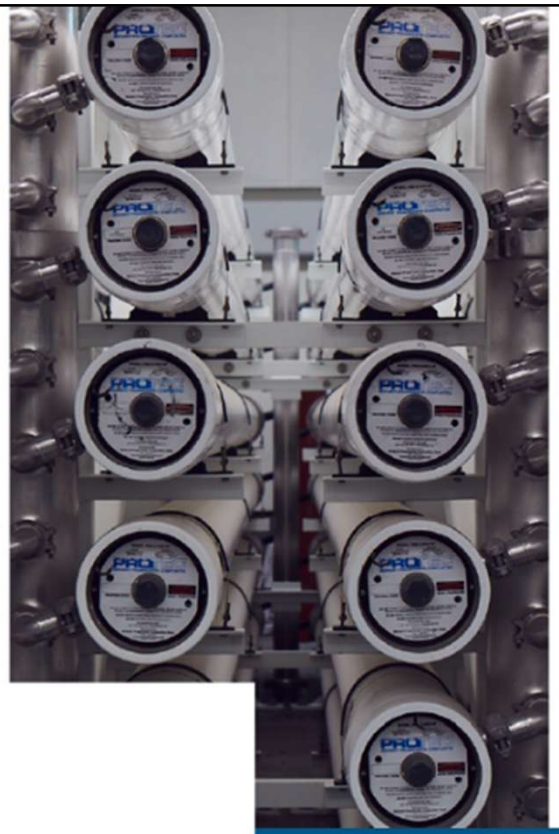
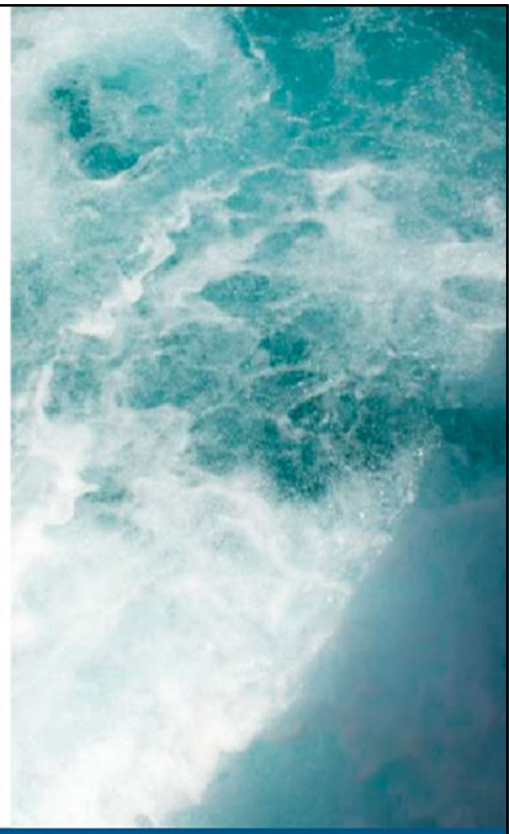


# Planning for a Resilient Water Future in Orange County

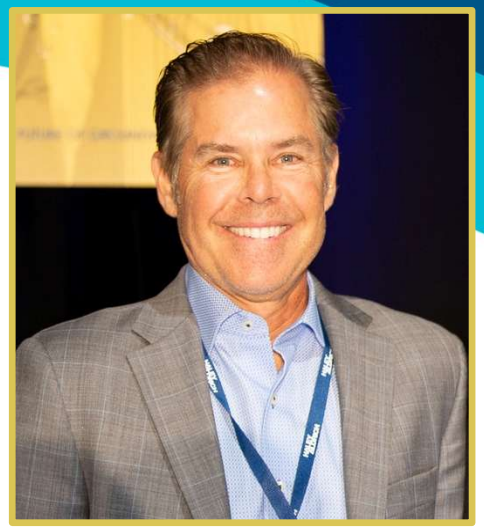
Thursday, May 29, 2025

# Before We Get Started

- Attendees are muted to reduce background noise
- Webinar is being recorded and will be published on OCWD's YouTube Channel
- Use the Q&A box to submit questions on today's topic
- Email info@ocwd.com for any follow-up questions

# Meet Our Speakers

Lisa Haney
Executive Director of Planning and Natural Resources
Orange County Water District



Adam Hutchinson, PG, CHG
Recharge Planning Manager
Orange County Water District

Paul E. Shoenberger, P.E.
General Manager
Mesa Water District

# OCWD Resilience Plan:
## Adaptive Strategies for Securing Abundant and Reliable Water Supplies

Lisa Haney, Executive Director of Planning and Natural Resources

Adam Hutchinson, Recharge Planning Manager

May 29, 2025

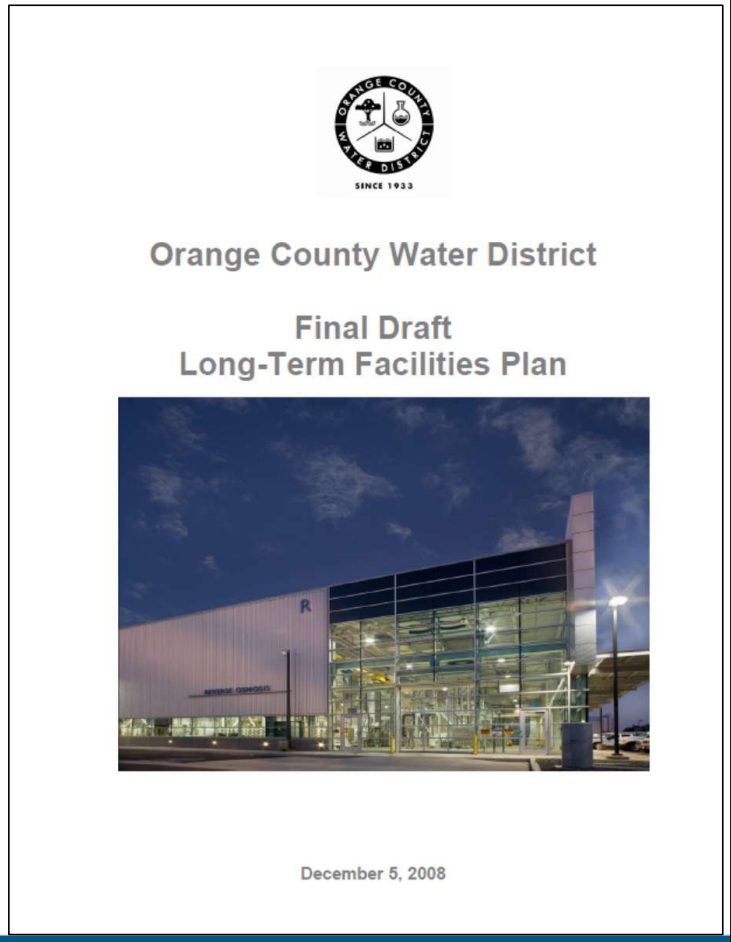
# A Long-term Facilities Plan was prepared in 2008 in response to annexation requests.

- 1st Long-term Facilities Plan (2008)
- 2nd Long-term Facilities Plan (2014)

Identify and evaluate potential projects to:

- Increase basin's sustainable yield in a cost-effective manner
- Protect and enhance groundwater quality
- Increase operational efficiency

Planning document to prioritize efforts for next 3 to 5 years



# Resilience Plan represents a new, holistic approach

Adaptive Strategies for Securing Abundant and Reliable Water Supplies

January 2025

- Focused on maintaining sustainable groundwater management and employing adaptive strategies to protect OCWD's assets
  - Moves away from facilities-based planning (e.g., Long-term Facilities Plan)
  - Does not bind or commit District to any potential project or study

# Defining Resilience

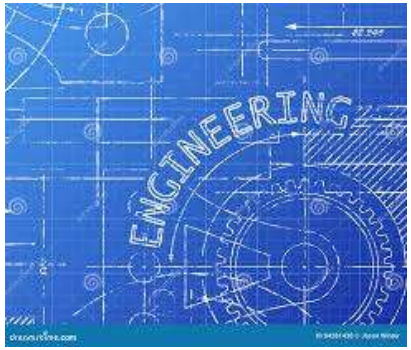
...is the ability to anticipate, recover, and adapt from disruptions and challenges to ensure sustainable, abundant and reliable high quality water supplies.

**ANTICIPATE** **RECOVER** **ADAPT**

ADAPTIVE STRATEGIES TO BUILD RESILIENCE

# Adaptability and Readiness Planning





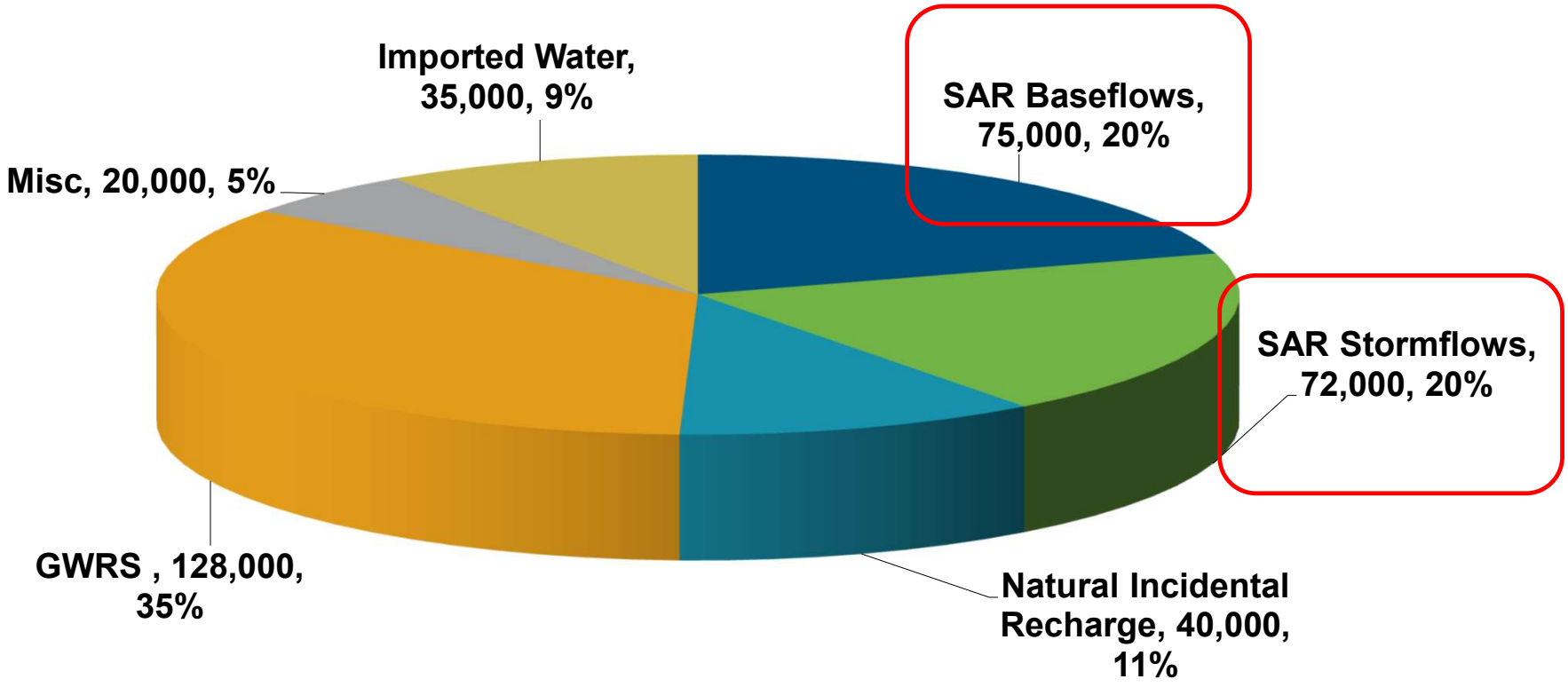

# Planning Horizon


- Alignment with Long-Term Planning
  - The 25-year planning horizon aligns with Urban Water Management Plan (UWMP) demand forecasts to ensure consistency and adaptability with regional water strategies.

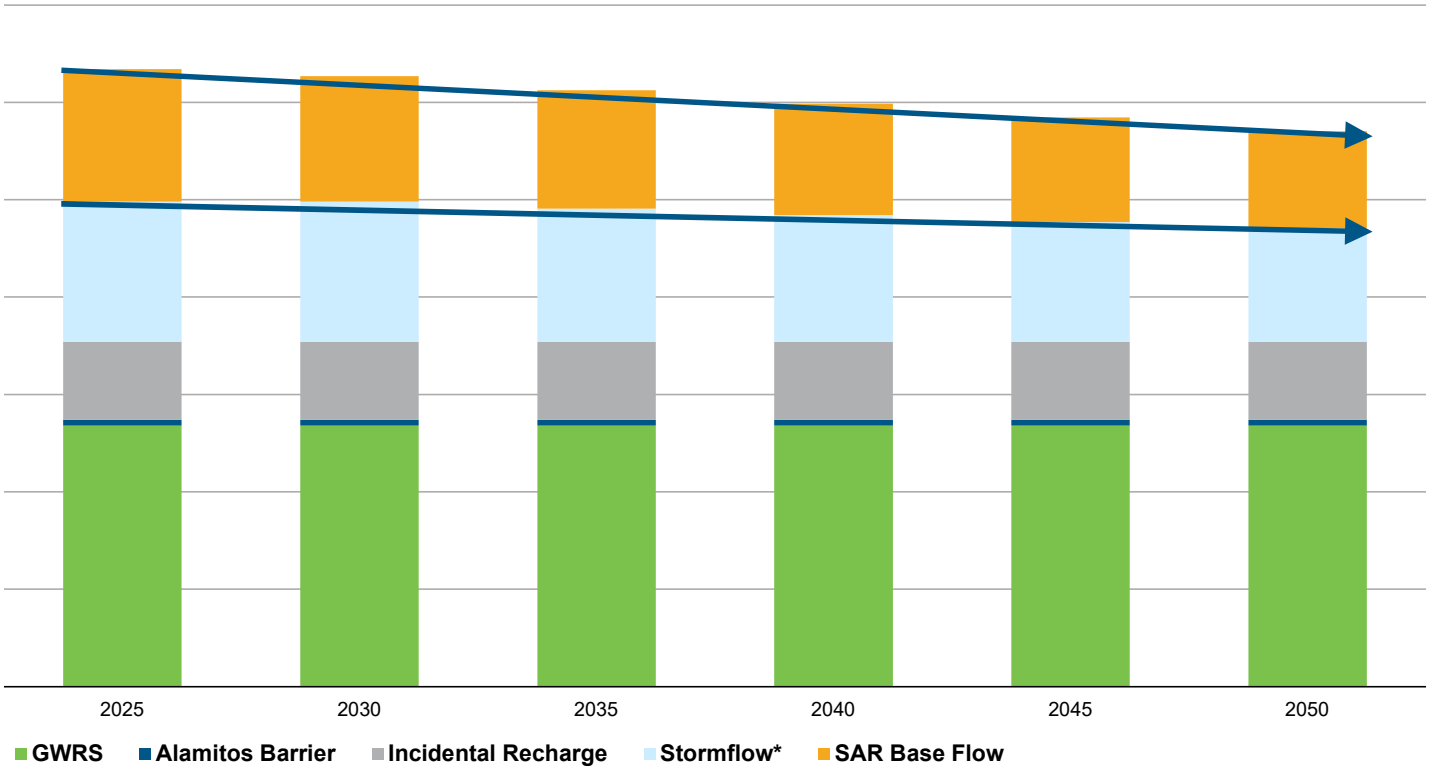

- Dynamic Priority Projects for a 5-Year Focus
  - Priority projects are identified for the next five years to allow flexibility and adaptability to changing conditions, regulatory requirements, and stakeholder needs.


- Diverse Project Stages
  - Projects span various stages, from early Feasibility Studies to fully developed conceptual plans, ensuring a balanced approach to immediate needs and long-term goals.

# OCWD has a diverse water supply portfolio.



# Total water supply to the basin is projected to decline due to reduced stormflow and SAR base flow.

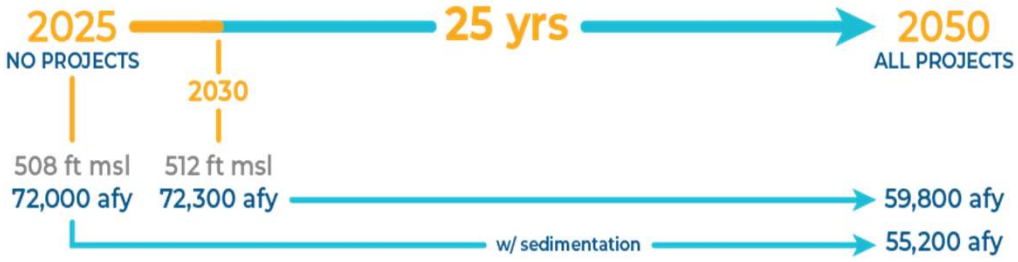


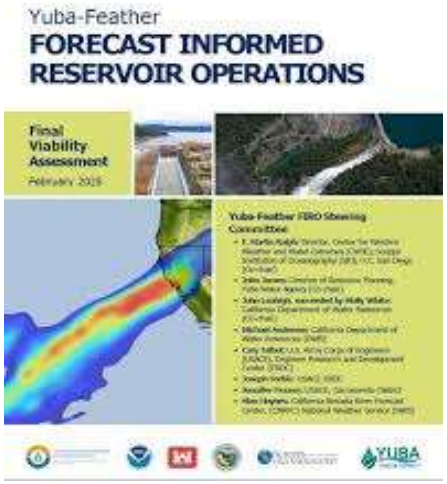

Total Groundwater Supply

*Assumes sedimentation is taking place in Prado Dam Water Conservation Pool.

# Storm water recharge will increase in the short term with higher water conservation pools at Prado Dam but decline over time due to upstream projects and sedimentation.

- Water Conservation Pool at Prado Dam
  - Elevation 508 ft in 2025
  - Elevation 512 ft in 2030
- Impact of sedimentation grows over time

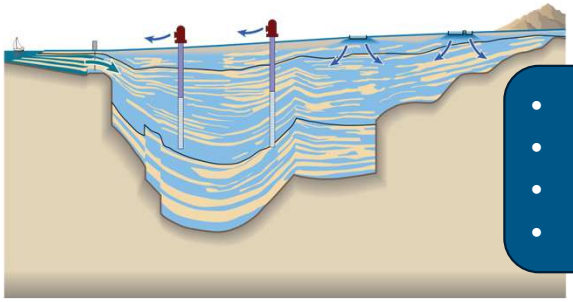




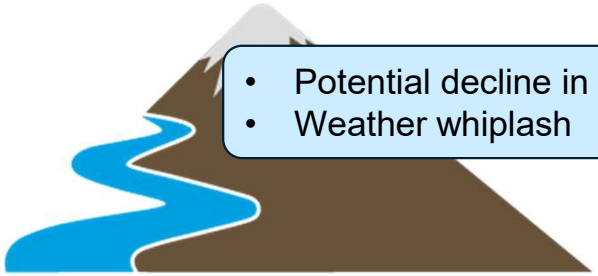

# Resilience Opportunities

# Challenges to Key Assets



- Seawater intrusion
- Water quality (PFAS, VOCs)
- Optimizing recharge facilities
- Future water demands

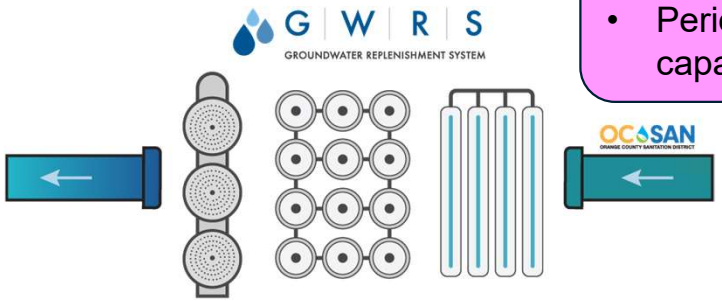
**Groundwater Basin**



- Potential decline in SAR base flows
- Weather whiplash

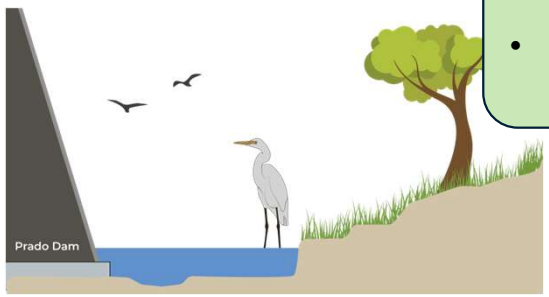
**Santa Ana River**

- Potential decline in wastewater supply
- Periodic gaps in recharge capacity




**Groundwater Replenishment System**

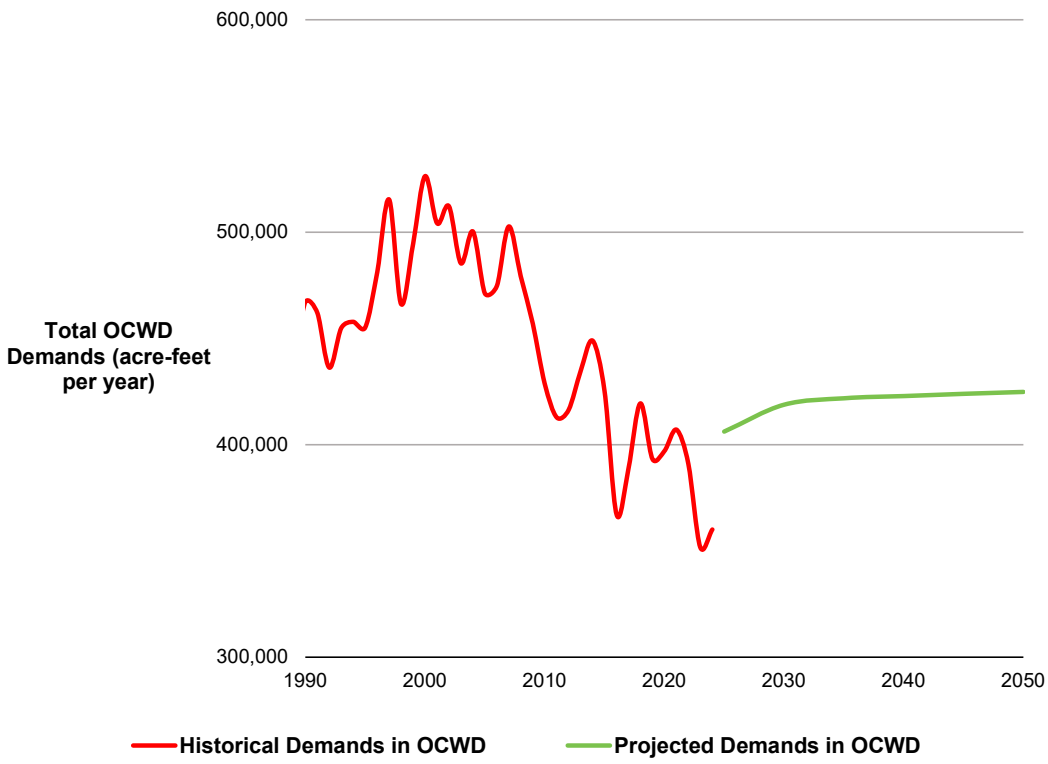
- Sedimentation at Prado Dam
- Maintaining habitat health




**Natural Resources**

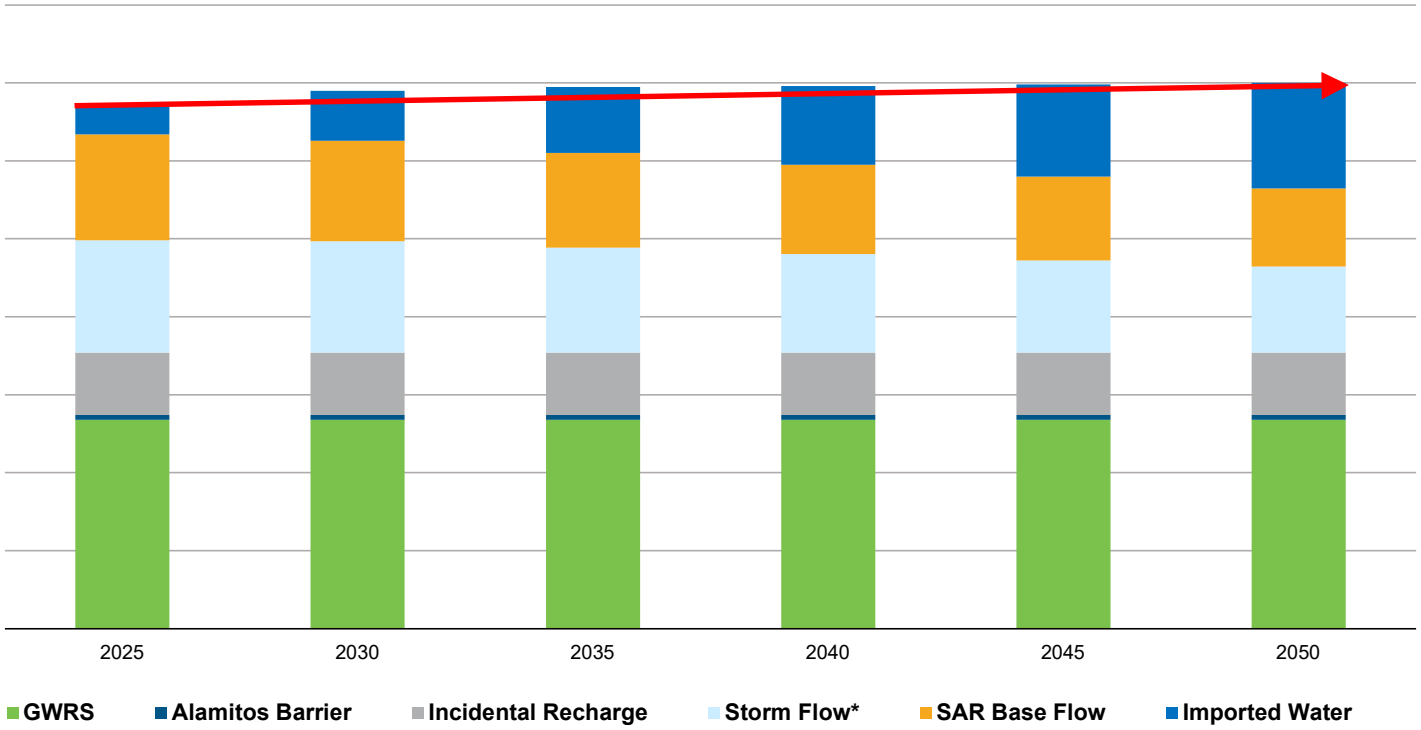
# Total demands within OCWD is projected to increase 4% by 2050.

- Based on 2020 MWDOC Study
- MWDOC will have revised demands in 2025
  - May need to update Resilience Plan with revised demands



# To maintain groundwater pumping, imported water purchases will need to increase over time to offset reduced supplies and increased demands.

**Projected Sources of Supply**



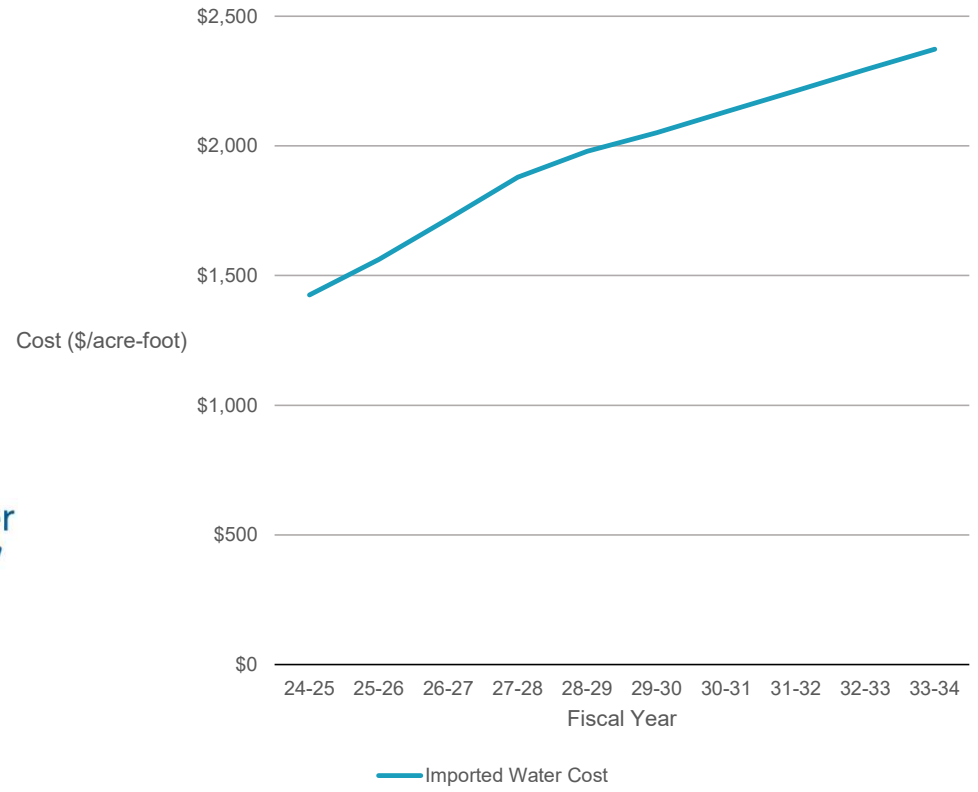



*Assumes sedimentation is taking place in Prado Dam Water Conservation Pool.

# The cost of imported water is projected to increase by nearly 70 percent over the next decade.

- Resilience Plan projects that affect water supply use imported water cost as a key metric in decision making

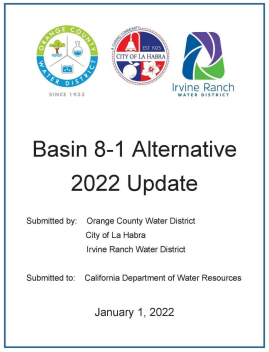
"A key metric in decision making is how the cost of water from a project compares to the cost of imported water."



# Resilience Plan Development Process

- Recharge Enhancement Working Group (REWG)
- Strategic Planning Group

- Demand Projections (25 yrs)
- Supply Projections
- Other




- Project/Studies
- Internal Workshops
- Ranking

## Resilience Plan

- 25 Year Horizon
- Priority Projects: 5-year Focus

Grants

Implementation

- Engineer's Report
- Project Approval by BOD
- CEQA
- Design/Construction

# To address challenges, an array of projects, studies, programs, and concepts were evaluated by staff and management to identify top 16 projects.

| Category | Project/Concept |
|---|---|
| Basin Management | PFAS Treatment |
| Basin Management | Groundwater Basin Operating Range Expansion Study |
| Basin Management | South Basin Groundwater Protection Project (SBGPP) |
| Basin Management | Sunset Gap Barrier Project |
| Basin Management | Talbert Barrier Injection Well Replacement and Optimization |
| Basin Management | Capacity |
| Basin Management | Predictive Evaluation of Ecological Response in Prado Basin |
| Basin Management | OCWD Prado Basin and Wetlands Strategic Plan |
| Basin Management | West Orange County Enhanced Pumping |
| Basin Management | Arundo Removal Strategic Plan |
| Basin Management | South Orange County Storage |
| Water Supply | Injection Wells at ARTIC and Ball Road Basin |
| Water Supply | GWRS Burris Basin Turnout |
| Water Supply | Recharge of GWRS Water Using Horizontal Collector Well |
| Water Supply | Permitting to place GWRS water in more locations |
| Water Supply | Diversions from SARI to OCSD Plant #1 |
| Water Supply | Subsurface Recharge of GWRS water |
| Water Supply | Demonstration Scale Test of Flow Reversal RO to Enhance GWRS Recovery via Retrofit of One RO Unit |
| Water Supply | FIRO at Prado Dam |
| Water Supply | New Basin Storage Above Prado |
| Water Supply | Purchase Upper Watershed Wastewater |
| Water Supply | Urban Runoff Diversion to OCSD |
| Water Supply | Field-Scale Demonstration Test of In-Situ Removal of PFAS During Groundwater Recharge |
| Water Supply | Regional Stormwater Infiltration Facilities |
| Water Supply | FIRO at Villa Park Dam, Irvine Lake, Carbon Canyon Dam |
| Water Supply | Recovery of ET Loss in Prado Basin |
| Water Supply | Brackish Water Desalination |
| Water Supply | Capturing Stormwater Runoff in Chantilly and Other Storm Drains |
| Water Supply | Capture of Carbon Canyon Diversion Flood Flows |
| Water Supply | Off-Stream Stormwater Storage (Aliso Canyon Dam) |
| Water Supply | Applying FIRO Tools at Corona Airport |
| Water Supply | Local capture of stormwater to recharge system |
| Recharge Facilities | Warner System Rehabilitation |
| Recharge Facilities | Anaheim Lake Recharge Basin Rehabilitation |
| Recharge Facilities | Desilting Santa Ana River Flows |
| Recharge Facilities | Prado Basin Sediment Management Regional Strategic Plan |
| Recharge Facilities | Purchase Land for New Basins |
| Recharge Facilities | Remove Conveyance Bottlenecks |
| Recharge Facilities | Expand Recharge Basin Footprints |
| Recharge Facilities | SAR Enhanced Recharge between Five Coves & Lincoln Ave |
| Recharge Facilities | Recharge in Lower Santiago Creek |
| Recharge Facilities | Increased Use of Carbon Creek System Recharge Facilities |
| Recharge Facilities | New River View Basin & New Lincoln Nursery Basin |
| Recharge Facilities | Increased Lower SAR Recharge (below Ball Road) |
| Recharge Facilities | Turnout to SAR at Fletcher Channel-Riverview Basin Pipeline |
| Op. Improvements | Increased Warner to Anaheim Lake Pipeline Capacity |
| Op. Improvements | Zero Emission Vehicle Charging Infrastructure |
| Op. Improvements | Mobile Sand Wash Plant |
| Op. Improvements | Santiago Pipeline Connection to SAR |
| Op. Improvements | Energy Supply Resilience |
| Op. Improvements | GAP Treatment Plant & Other Modifications |
| Op. Improvements | Research |

52 Projects/Concepts

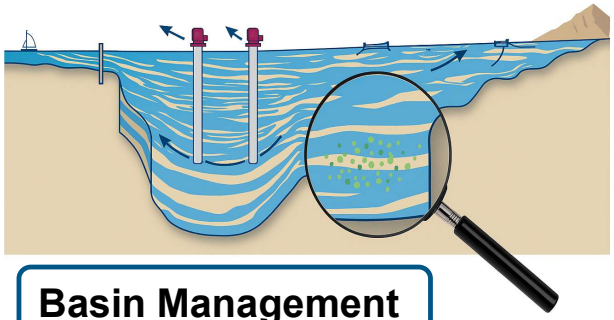
## Categories

- Basin Management
- Water Supply
- Recharge Facilities
- Operational Improvements

## 16 Priority Projects/Concepts

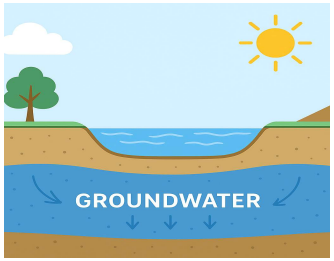
| Proj No. | Category | Project Name |
|---|---|---|
| 1 | Basin Management | PFAS Treatment Project |
| 2 | Basin Management | Sunset Gap Barrier Project |
| 3 | Basin Management | Groundwater Basin Operating Range Expansion Study |
| 4 | Basin Management | South Basin Groundwater Protection Project (SBGPP) |
| 5 | Basin Management | Talbert Barrier Injection Well Replacement and Optimization |
| 6 | Water Supply | **GWRS Supply Augmentation (Includes 3 projects below)** |
| 6a | | *Diversions from SARI to OCSD Plant #1* |
| 6b | | *Urban Runoff Diversion to OCSD* |
| 6c | | *GWRS Recovery via Retrofit of One RO Unit* |
| 7 | Water Supply | Brackish Water Desalination Study |
| 8 | Water Supply | **Increasing Stormwater Capture** |
| 8a | | *Incorporate FIRO into Prado Water Control Manual* |
| 8b | | *Prado Dam Habitat Assessment Tool Development* |
| 8c | | *Local Stormwater Capture to Recharge System* |
| 9 | Water Supply | Prado Basin Sediment Management Regional Strategic Plan |
| 10 | Recharge Facilities | **GWRS Recharge Optimization (Includes 7 projects below)** |
| 10a | | *Injection Wells at ARTIC and Ball Road Basin* |
| 10b | | *GWRS Burris Basin Turnout* |
| 10c | | *Recharge of GWRS Water Using Horizontal Collector Well* |
| 10d | | *Permitting Locations for Additional GWRS Recharge* |
| 10e | | *Supplying Sunset Gap with GWRS water* |
| 10f | | *Subsurface Recharge of GWRS water* |
| 10g | | *Purchase Land for New GWRS Recharge Basins* |
| 11 | Recharge Facilities | Desilting Santa Ana River Flows |
| 12 | Recharge Facilities | Anaheim Lake Recharge Basin Rehabilitation |
| 13 | Recharge Facilities | Recharge in Lower Santiago Creek |
| 14 | Op. Improvements | Warner System Optimization |
| 15 | Op. Improvements | Recharge Conveyance Optimization |
| 16 | Op. Improvements | Zero Emission Vehicle Charging Infrastructure |

# How resilience fits into the four project categories:



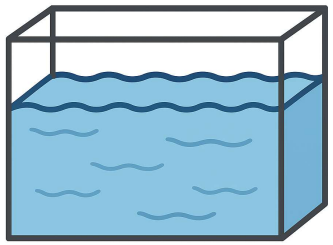
Protect groundwater quality and optimize groundwater basin operations.

**Basin Management**




Maintain and improve capacity of recharge facilities.

**Recharge Facilities**



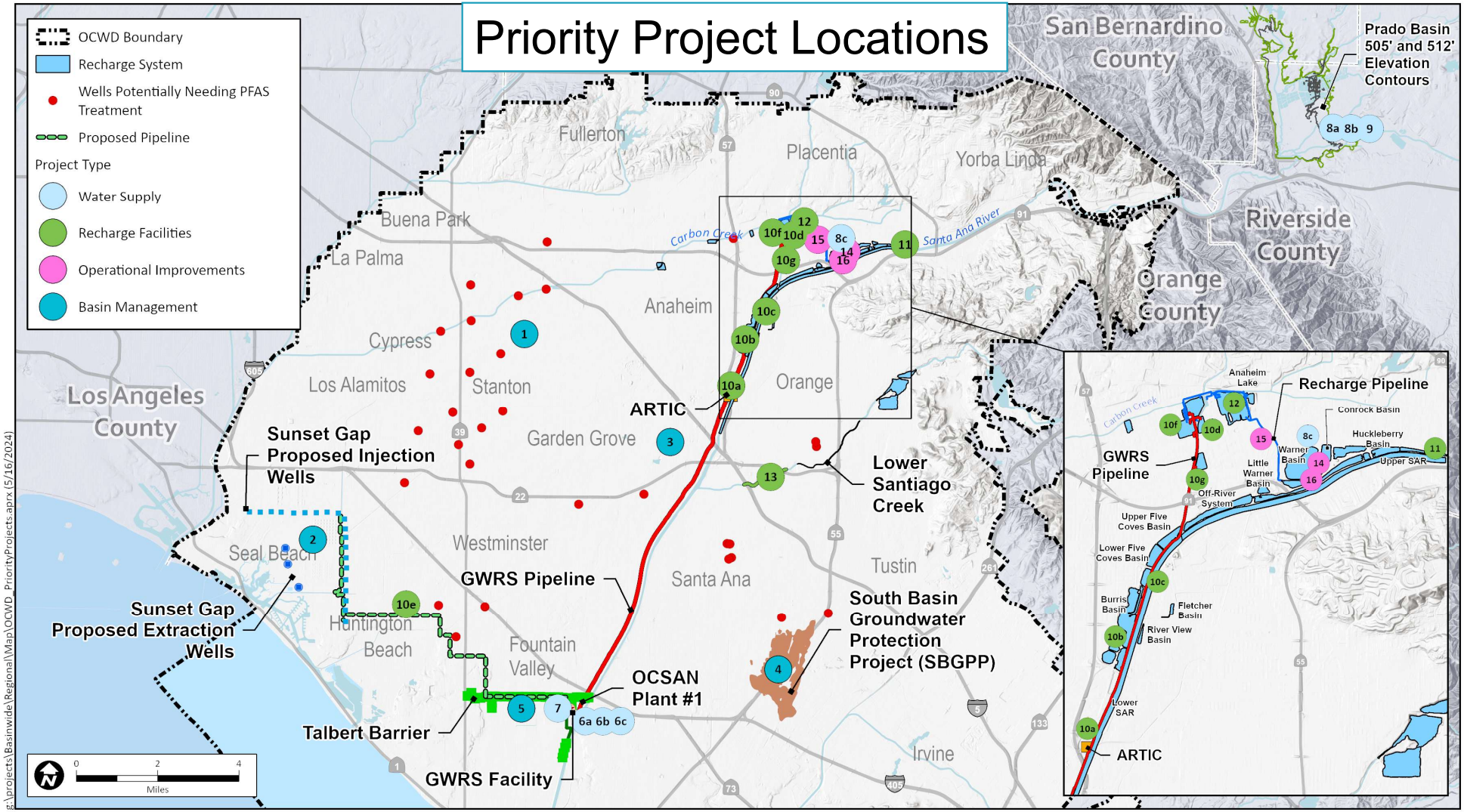
Protect and expand water supplies, such as stormwater.

**Water Supply**

Upgrade infrastructure as needed and comply with regulations.

**Operational Improvements**

# Priority Project Locations



# The OC Basin is being managed sustainably.

- Sustainable Groundwater Management Act (SGMA) requires basins to be managed sustainably.
- A plan was prepared that showed DWR that the OC Groundwater Basin was being managed sustainably.
- DWR approved “Alternative” Plan in 2017
- Plan to be updated every 5 years

- Need to **<u>continually</u>** show DWR that basin is being managed sustainably


ORANGE COUNTY WATER DISTRICT SINCE 1933

CITY OF LA HABRA EST. 1925

Irvine Ranch WATER DISTRICT

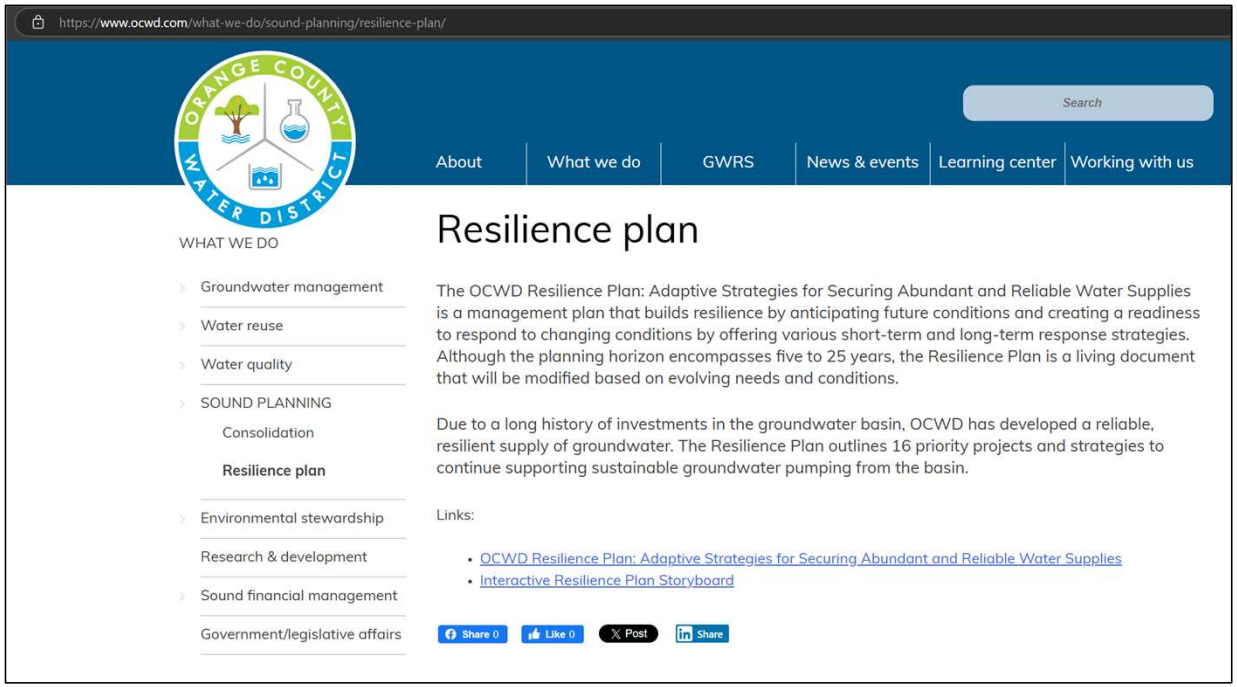
## Basin 8-1 Alternative 2022 Update

Submitted by: Orange County Water District
City of La Habra
Irvine Ranch Water District

Submitted to: California Department of Water Resources

January 1, 2022

# The Resilience Plan and Storyboard are on OCWD's website.




https://www.ocwd.com/what-we-do/sound-planning/resilience-plan

MesaWater DISTRICT®

# MESA WATER DISTRICT – 100% LOCAL AND RESILIENT

May 29, 2025

# Strategic Goals

1. Provide an abundant, local, reliable and safe water supply.
2. Perpetually renew and improve our infrastructure.
3. Be financially responsible and transparent.
4. Increase public awareness of Mesa Water.
5. Attract, develop and retain skilled employees.
6. Provide excellent customer service.
7. Actively participate in regional and statewide water issues.



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# Steps to Resiliency for our Customers


- Mesa Water Reliability Facility (MWRF)
- Infrastructure
- Financial Resiliency
- LocalSIP



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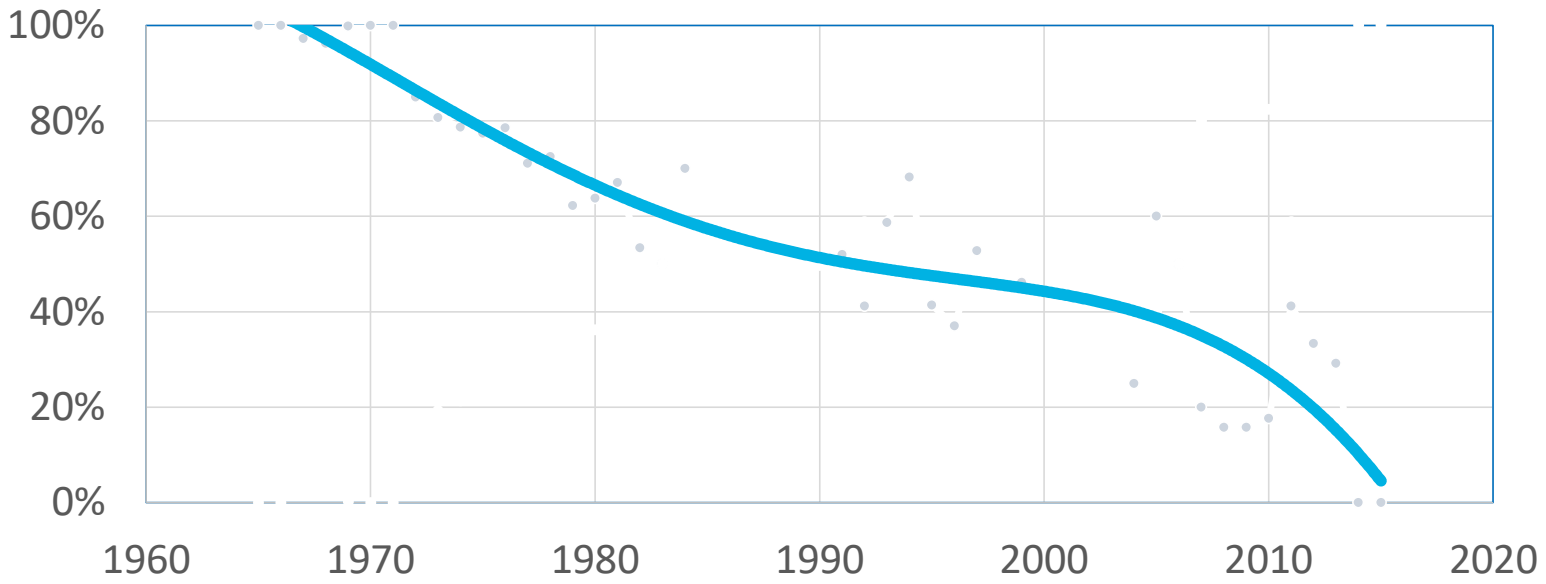
# Imported Water Use (1965-Present)



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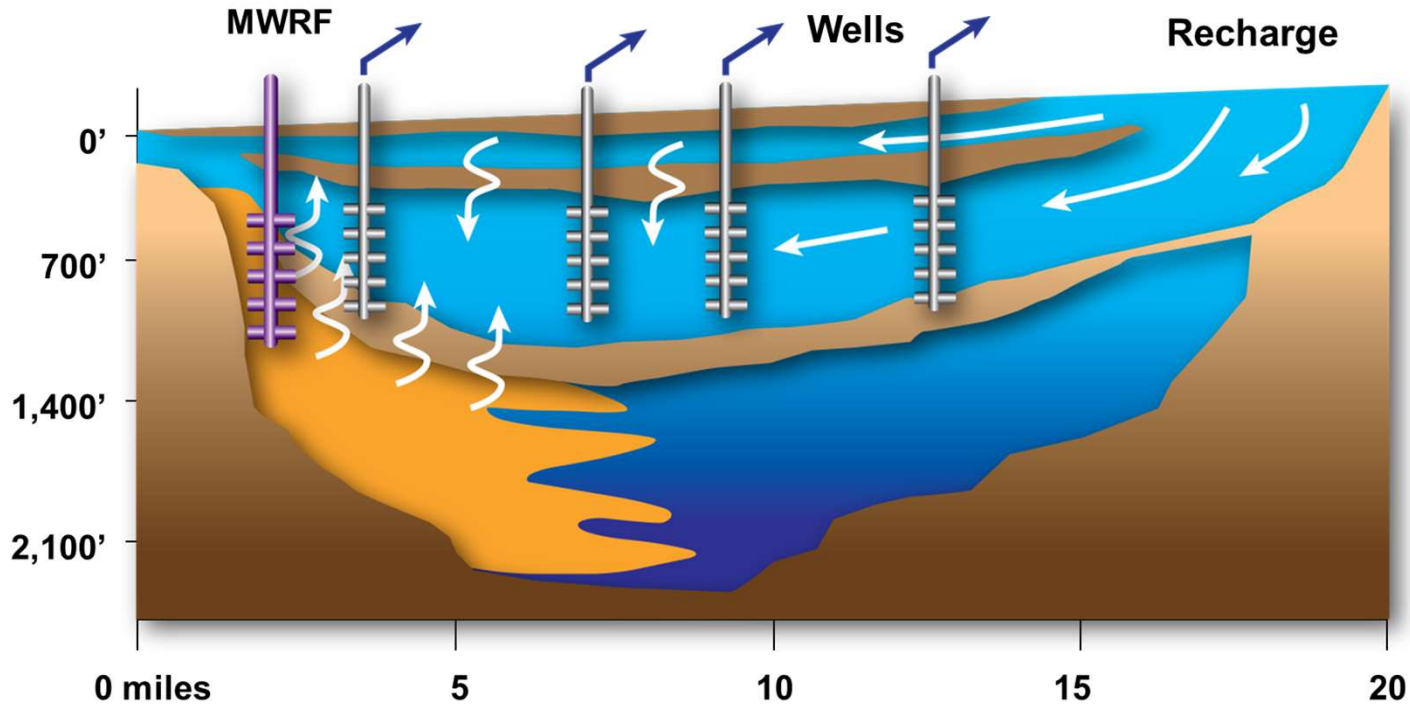
# Orange County Groundwater Basin Cross-Section



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# Mesa Water Reliability Facility (MWRF)





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Benefits of Local Water:
• Regional water quality
• 100% local and reliable, not dependent on imported water
• Less costly
• Less energy use, lower carbon footprint

# Two New Groundwater Wells

- The new wells are Mesa Water's largest producing wells – each pumping approximately **4,000** gallons per minute.
- Added more than **50%** to the community's water supply.
- The district now has **nine** wells to pump water to serve the community.




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# Facilities, Water Supply & Infrastructure Maintenance




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# Backup Systems




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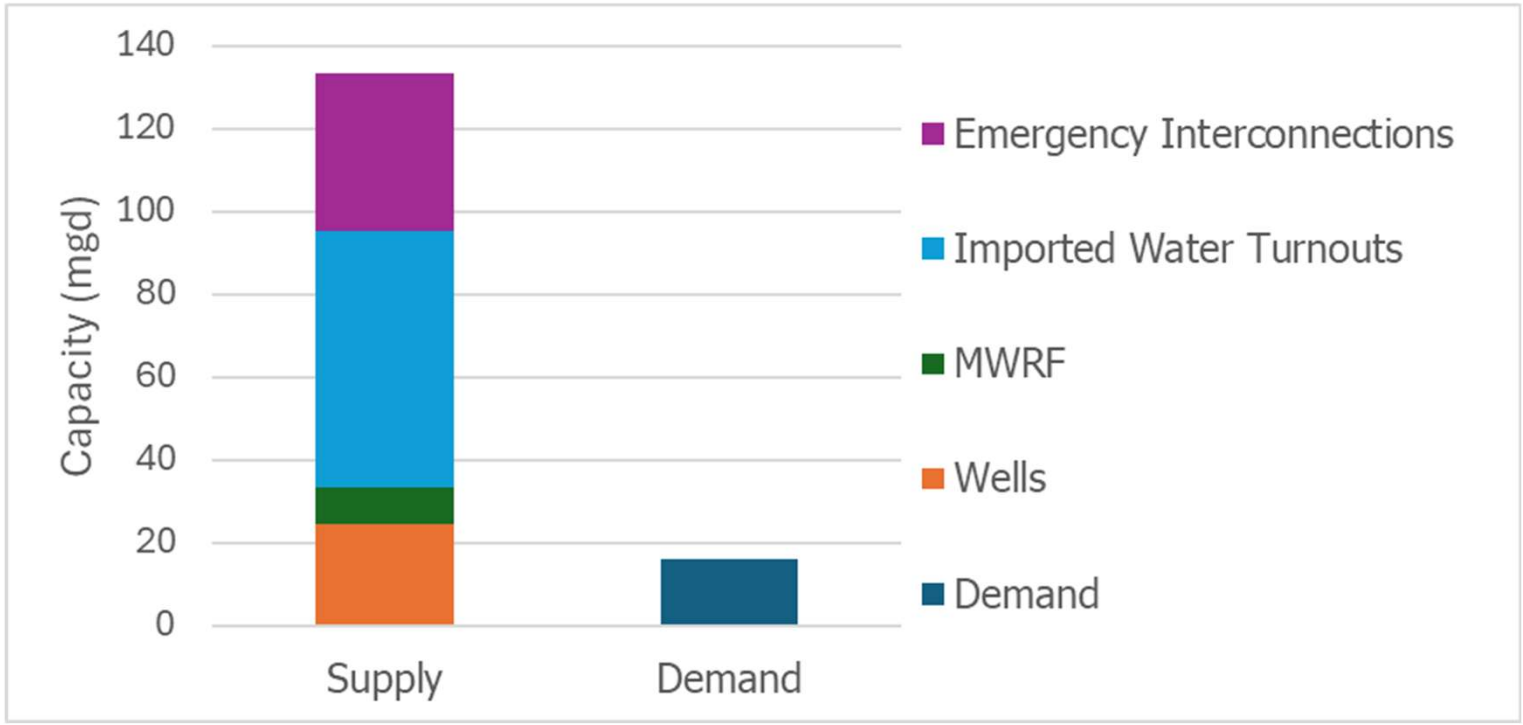
# Total Supply vs. Average Daily Demand



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# Financial Resiliency




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# Financial Resiliency

- Understand the risk you face
  - Water Service is a capital-intensive product
  - Many assets are buried underground
  - Asset registry lists tend to be outdated
  - Financial model where cost and revenue structures are mirrored
- Develop mitigation strategies
  - Reserves
  - Understand core water sales
  - Increase the fixed revenue streams
- Communicate your challenges and strategies to stakeholders
  - Allocate ample time and energy to this




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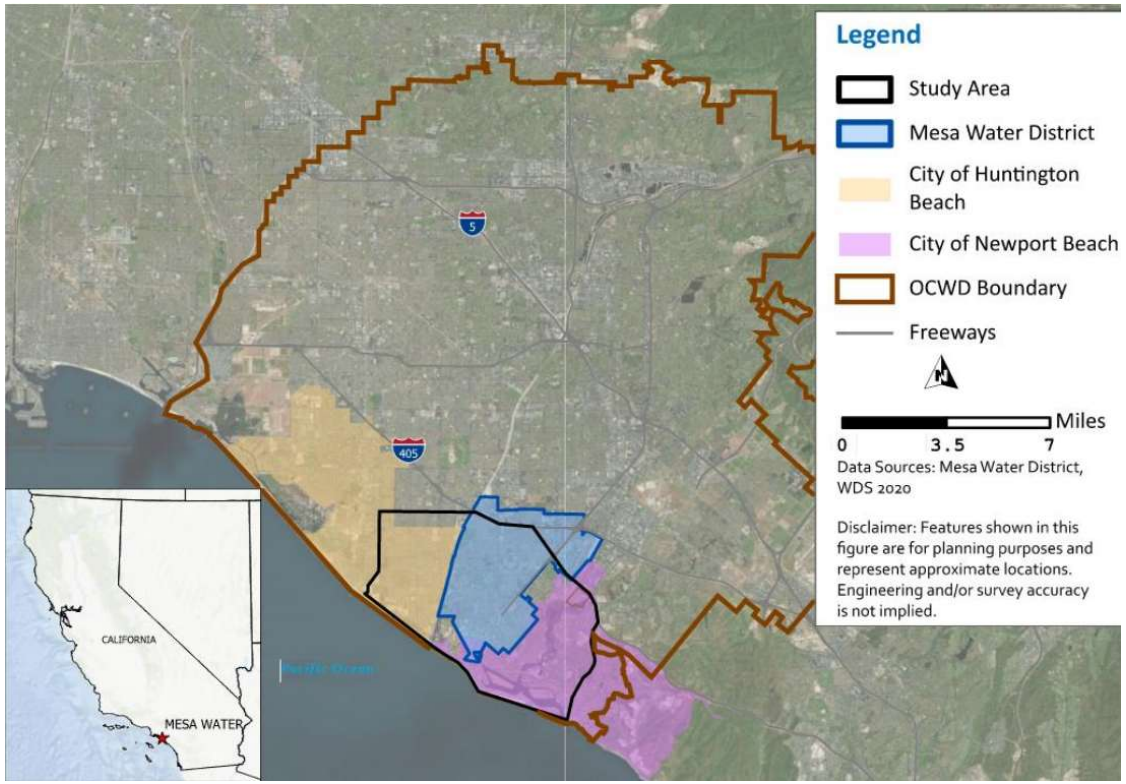
# New Local Water Supply Feasibility Study: "Local SIP"

- Received $250,000 WaterSMART Grant from US Bureau of Reclamation
- Participating agencies include Mesa Water District, Orange County Water District, City of Newport Beach and City of Huntington Beach
- Potential 5-8 mgd brackish groundwater desalination plant
- Local groundwater south of the Injection Barrier



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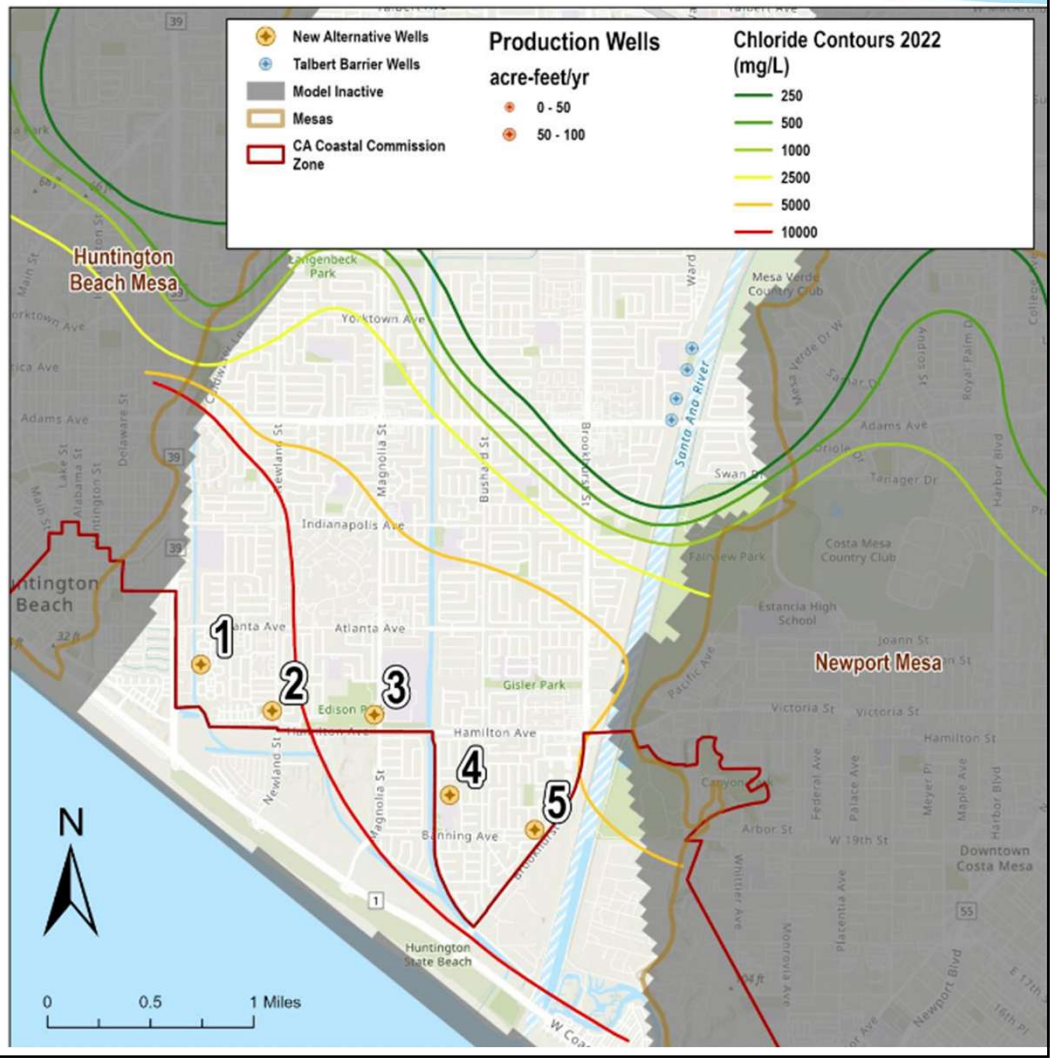
# Simulated Well Locations

- Evenly distributed well from Atlanta Ave. to Brookhurst
- Close to coastal zone
- Wells screened in Talbert Aquifer



# Groundwater Modeling Results

- 70 – 80% of water from ocean
- 20 – 30% from OC Basin/Barrier
- 9,000 mg/L Chloride (18,000 mg/L)
- 4 to 8 mgd well production (2 to 5 mgd product water)



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# QUESTIONS?

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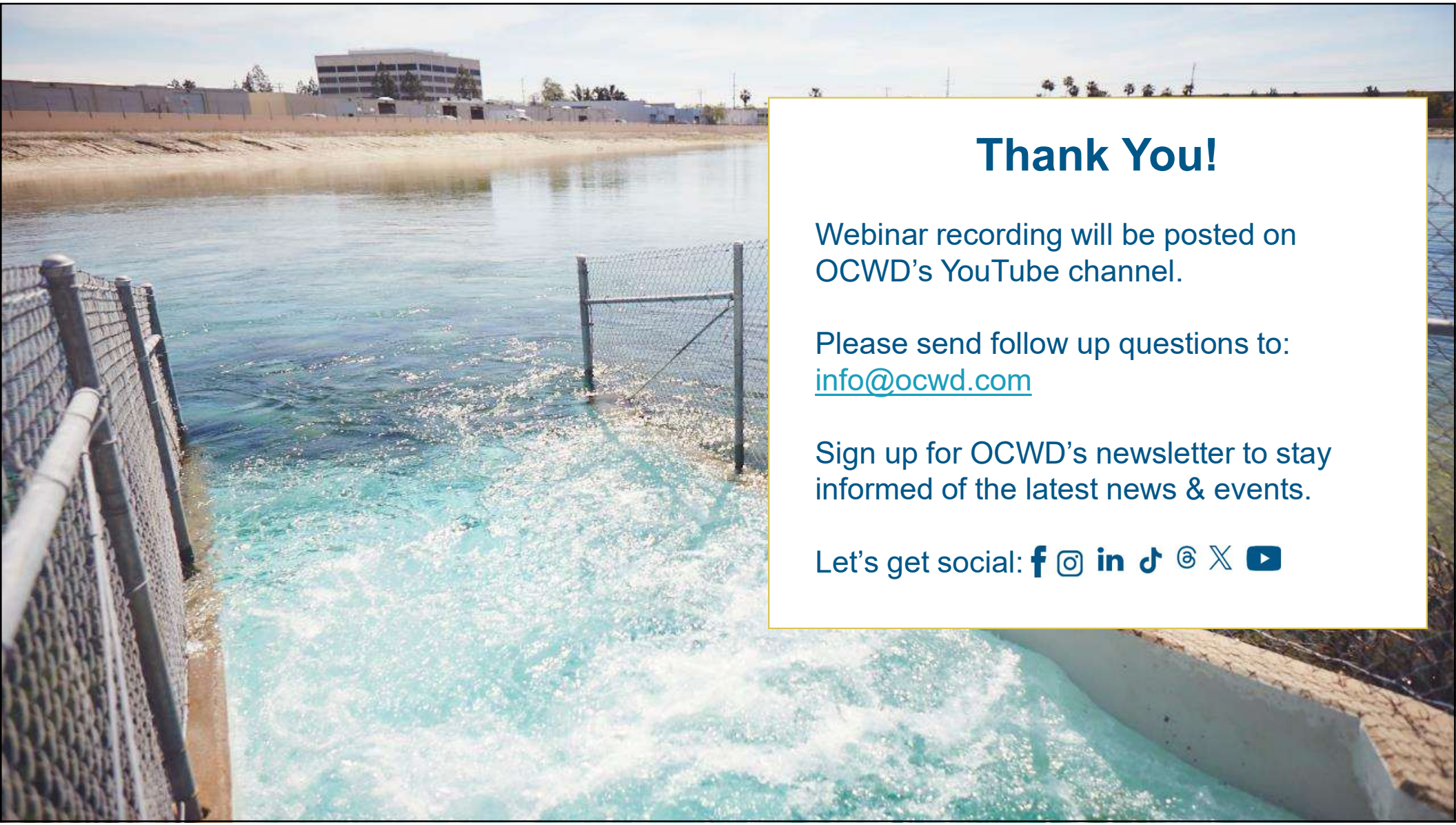
# THANK YOU!

# Questions?

Use the Q&A box to submit your question



# Thank You!

Webinar recording will be posted on OCWD's YouTube channel.

Please send follow up questions to: info@ocwd.com

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Let's get social: