

# Welcome



**Mark Monin**

Chair, WACO

Director, El Toro Water District



# WACO Meeting – November 1, 2024



I pledge allegiance to the flag  
of the United States of  
America, and to the republic  
for which it stands, one nation  
under God, indivisible, with  
liberty and justice for all.

# Reminders

- Meeting is being recorded
- Participants will be muted during the presentation
- Reports first, then our program speaker, followed by Q&A
- Agency spotlight
- Conclude with agency announcements if we have time



# MET Report



**Linda Ackerman**  
*MWDOC MET Director*



# CSDA Report



**California Special  
Districts Association**  
*Districts Stronger Together*



**Chris Palmer**  
*Senior Public Affairs  
Field Coordinator*



# ACWA Report

## Upcoming ACWA Events:

- December 3-5, ACWA Fall Conference, Palm Desert
- February 25-27, ACWA Washington D.C. Conference



***Cathy Green***  
*President, OCWD*  
*President, ACWA*



# Program

## “Roadmap for Direct Potable Reuse through the Pure Water Southern California Program”



***Paul Rochelle***  
*Water Quality Section  
Manager, Metropolitan Water  
District of Southern California*





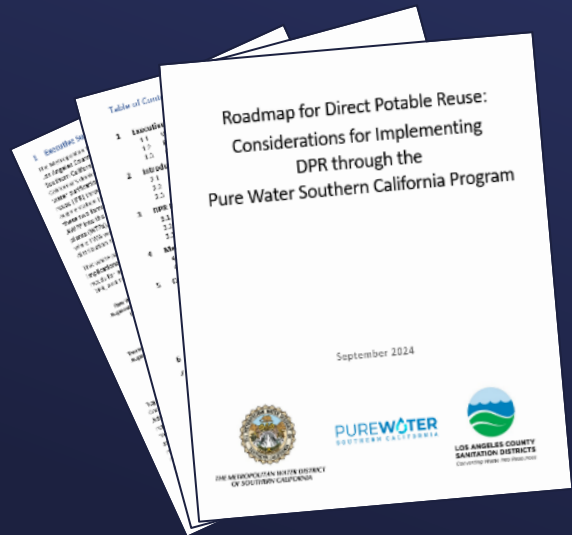
Water Advisory Committee of Orange County (WACO)

Roadmap for Direct Potable Reuse through  
the Pure Water Southern California Program

November 1, 2024



# Roadmap for Direct Potable Reuse



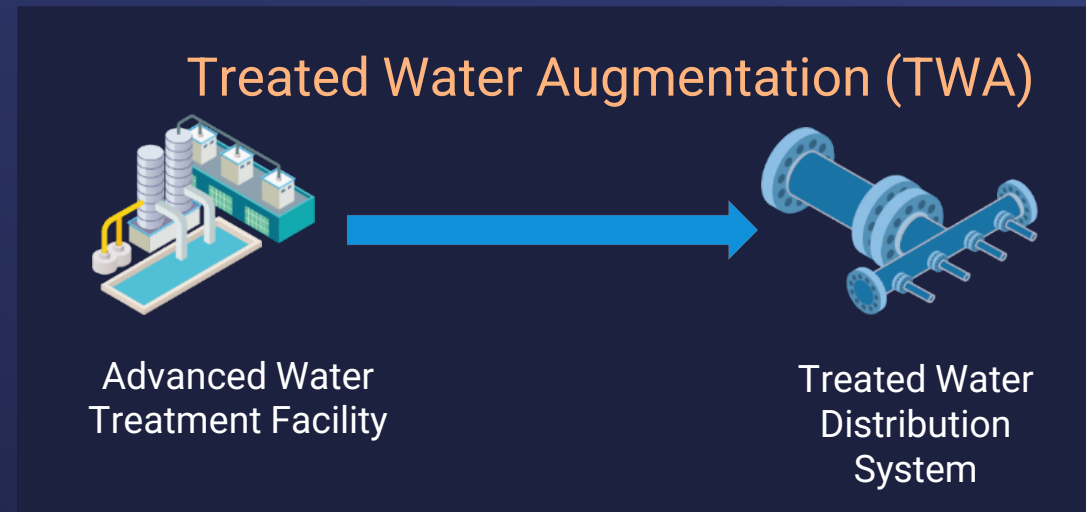
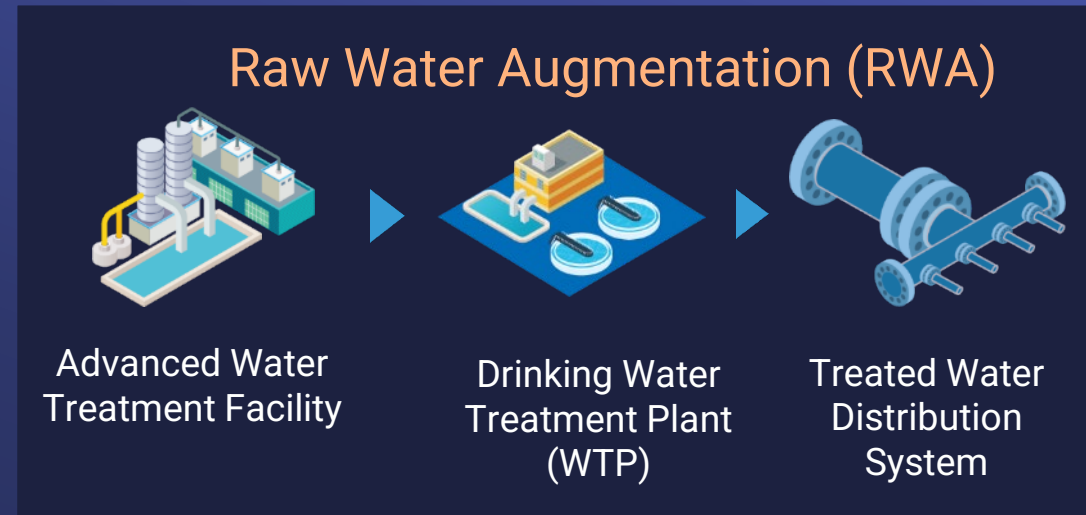
## Presentation Outline

- Evolution of DPR in the PWSC program
- Regulatory requirements and implications
- Other DPR initiatives
- Metropolitan's research approach
- Benefits and challenges with DPR
- Next steps

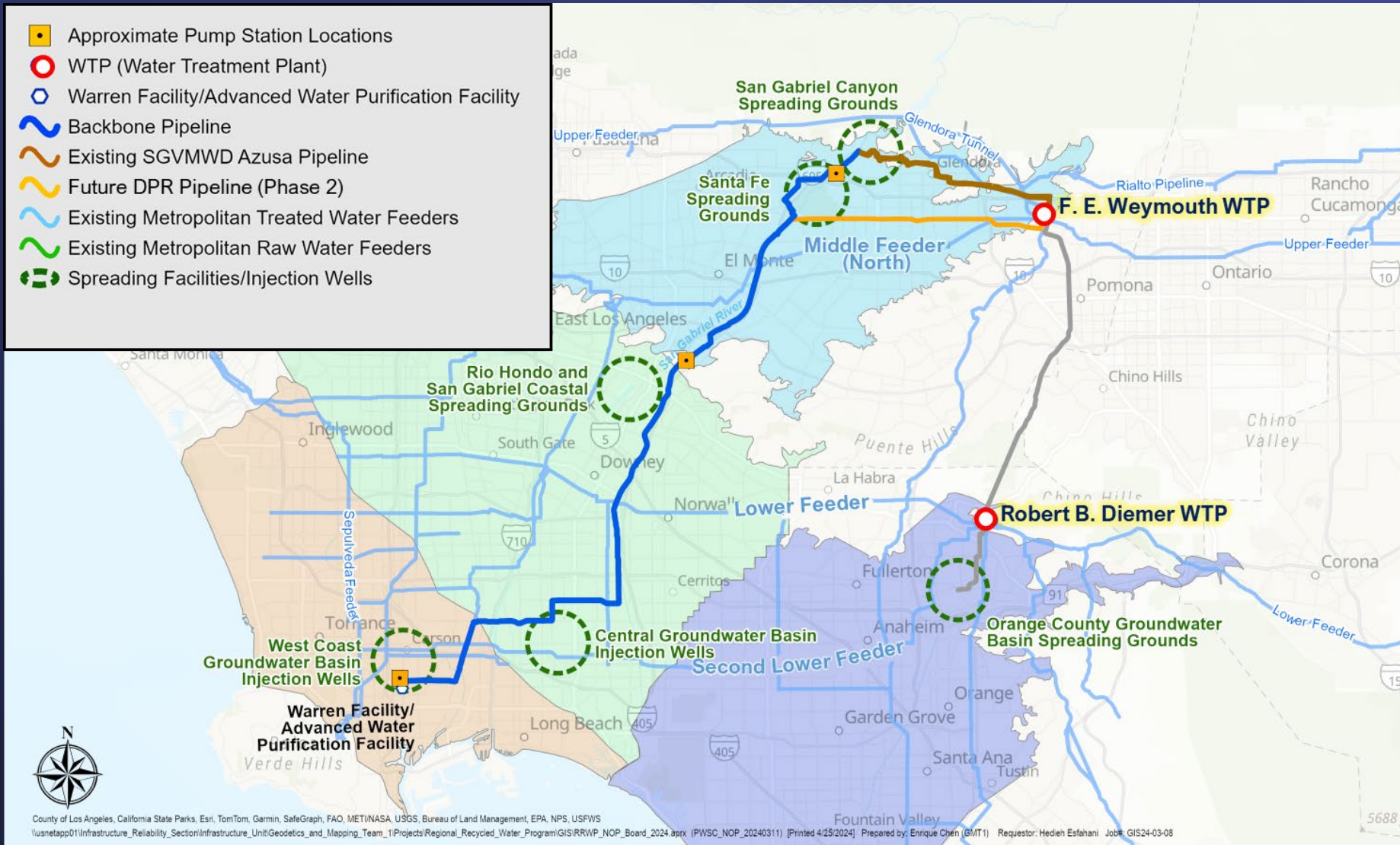


# Regulatory Pathway and Applicability of DPR to PWSC

- State Water Board DPR regulatory development
  - Mandated by SB918 and SB322
  - 2016-2019: Feasibility and framework documents
  - Initially focused on RWA
- Regulations approved by Office of Administrative Law (August 6, 2024)
  - Went into effect October 1, 2024
  - Regulations provide opportunity to consider implementing TWA



# DPR through Raw Water Augmentation



DPR water would enter the treated water system through the **Weymouth and Diemer Plants**

# DPR through Treated Water Augmentation



DPR water would enter the treated water system through tie-ins with treated water feeders

# DPR Regulations 2024

DPR responsible agency  
(DiPRRA)

Must possess the  
necessary technical,  
managerial, and financial  
capacity

## Extensive Treatment Requirements

- *Validate treatment processes* can achieve high levels of pathogen and chemical contaminant removal
- *Identify surrogates* that can be *continuously monitored* to confirm robust treatment is occurring
- *Establish a unified SCADA system* across all facilities to continuously communicate sufficient treatment



*More treatment validation and performance monitoring than existing surface water treatment regulations*

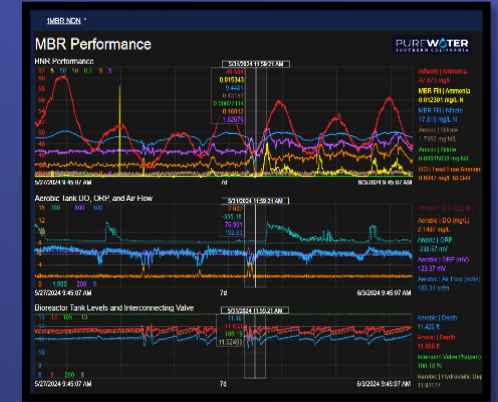
# DPR Regulations 2024

## Plans & Programs Required

- Joint Plan
- Water Safety Plan
- Source Control Program
- Early Warning Program
- Operations Plan
- Monitoring Plan
- Corrosion Control & Stabilization Plan

## Automated System Responses

- *Rapidly evaluate large amounts of real-time monitoring data*
- *Develop meaningful correlations and trending tools for data and water quality*
- *Automatically divert or halt flow to avoid water quality threats, and operate across agencies if needed*










*More stringent process monitoring required than existing surface water treatment regulations*

# More Stringent Operator Certification

## DPR Regulations 2024



	Treatment Location <i>(Operational Responsibility)</i>		
	 <b>Warren Facility + MBR</b> <i>(LACSD)</i>	 <b>AWT Facility</b> <i>(Metropolitan)</i>	 <b>Weymouth or Diemer Plant</b> <i>for RWA Only</i> <i>(Metropolitan)</i>
Chief Shift			
Chief Shift	<i>For oversight of the entire treatment train</i>		

*\*Contingent on testing*

### Legend

-  T5
-  AWT5
-  ≥ T3
-  ≥ AWT3



# DPR Regulations 2024



## More Stringent Operator Certification

- A Chief & Shift *Treatment Operator* at each location
- A Chief & Shift *Treatment Operator* to oversee all locations
- A Chief & Shift *AWT Operator* at the AWT Facility and potentially at the Weymouth and Diemer plants
- Collaboration with LACSD on operator development
  - Shared operations at the Napolitano Center
  - Future workforce development center in Carson

**Treatment Locations**  
(Operational Responsibility)



**Warren Facility + MBR**  
(LACSD)



**AWT Facility**  
(Metropolitan)



**Weymouth or Diemer Plant**  
for RWA Only  
(Metropolitan)



# Collaboration with Others Pursuing DPR Projects

- Several other California agencies interested in DPR, including:

- LADWP (Pure Water Los Angeles)
- City of San Diego (Pure Water San Diego)
- City of Santa Monica
- Moulton Niguel Water District (OASIS)
- Santa Clara Valley Water District

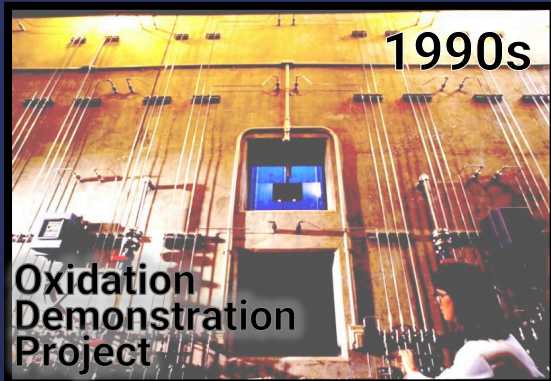


- Initiatives through industry associations for knowledge sharing in research or planning, such as WaterReuse California's Reuse Implementation Needs Workshop



- Only one DPR (RWA) project currently operating in the U.S.

# Key Components of the DPR Research Approach



**Workshops**  
Formulate process trains

**Literature Reviews**  
Identify key knowledge gaps

**Bench-Scale Testing**  
Perform screening studies

**Pilot & Demonstration Testing**  
Validate and assess long-term performance



- DPR research will be similar to prior Metropolitan programs to investigate alternative treatment processes
  - Extensive research on ozone prior to implementation
  - IPR research began in 2010 and demonstration testing started in 2019

# Role of Demonstration Testing

- Confirm treatment processes and generate data required for regulatory permitting
- Optimize design criteria and operational strategies
- Characterize source water, concentrate, residuals
- Inform future interagency operations agreement
- Develop workforce and operational readiness
- Provide venue for public engagement and dialogue



Performance Verification and Optimization with Monitoring



Emissions Characterization



Operations Training



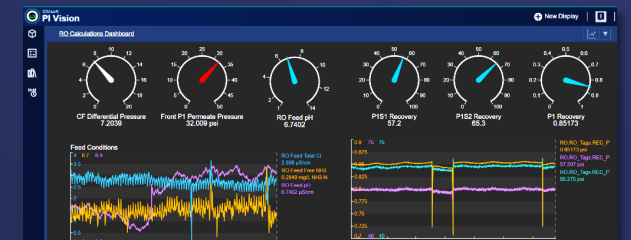
RO Concentrate Characterization



RO Element Installation

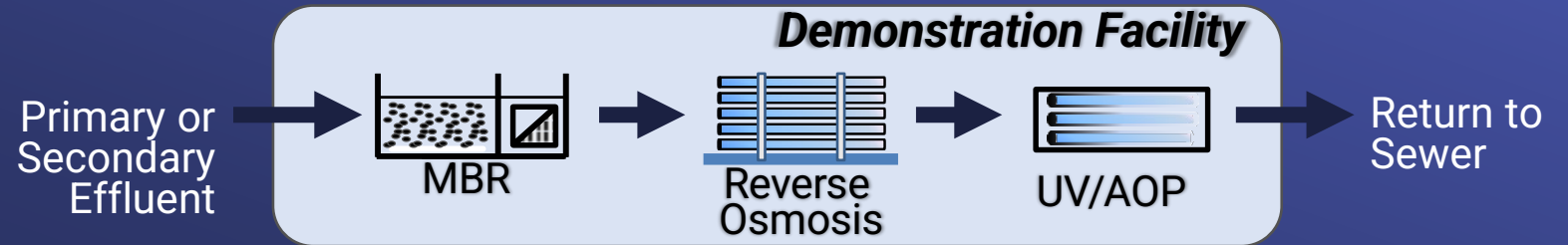


Public Tours



Operational Strategy Development

# Napolitano Center Demonstration Testing To-Date



Year	Effluent Feedwater	Operating Condition	
		MBR	RO
2019-2020	Secondary	NdN (Post-anoxic) Tertiary	Single-Pass (9:4)
2020-2021	Secondary	N-Only Tertiary	Double-Pass (9:4, 2:1)
2022-2023	Primary	NdN Secondary	Single-Pass (8:4)
2023-Present	Secondary	NdN (Pre-anoxic) Tertiary	Single-Pass (6:3)

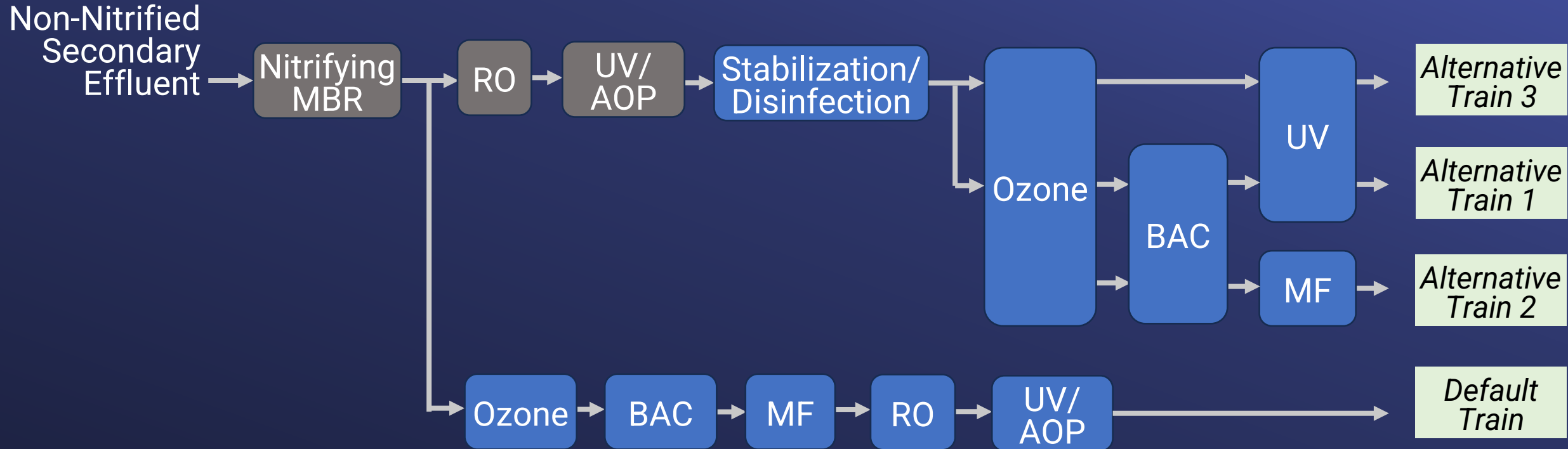
NdN = Nitrification-Denitrification

N-Only = Nitrification-Only



- Testing to-date has focused on IPR requirements
- Additional treatment processes to be added to the Napolitano Center
- Future testing will focus on DPR requirements

# DPR Pilot/Demonstration Testing – Currently Planned Additions to the Napolitano Center



## Legend

- Existing Process for IPR Evaluations
- Planned Process for DPR Evaluations

## Benefits and Challenges of RWA



- ✓ Capitalizes on additional conveyance **detention time** and optimal **hydraulic distribution and blending** points
- ✓ May help **safeguard from unknown contaminants** with additional treatment above regulatory requirements
- ✓ Draws on **long history of operations**, expertise, protocols, monitoring and response
- ? New raw source water to the WTPs, requiring treatment efficacy evaluations
- ? More rigorous requirements for operations, monitoring, and reporting on existing WTPs
- ? Unknown regulatory pathway for “satellite” treatment at higher RWA blends (above 10 percent)

## Benefits and Challenges of TWA



- ✓ Potential for **less conveyance** infrastructure with connections to existing feeders
- ✓ **Less energy** needed for pumping
- ✓ **No impact to existing WTP compliance** requirements
- ? Increased control measures to compensate for shorter response time within the AWT facility
- ? Hydraulics evaluations for the treated water system
- ? Blending studies to manage water quality in the treated water system
- ? Indirect impacts to WTPs and other distribution system areas with lower demands/longer detention times

# Water Quality and Technical Research

## Recommended Next Steps

- Develop a comprehensive DPR Research Plan for RWA and TWA
- Conduct bench-, pilot-, and demonstration-scale DPR testing
- Collaborate with LACSD on enhanced source control, treatment, and monitoring
- Conduct technical and conceptual studies for TWA development
- Rehabilitate the demonstration facility at Weymouth for DPR testing capabilities





## Partnerships and Outreach

- Establish partnerships with leading research institutions and industry experts on DPR
- Develop a program for online monitoring for DPR
- Continue engaging with regulators and ISAP to refine approach for regulatory approval
- Develop a comprehensive DPR communication and outreach strategy

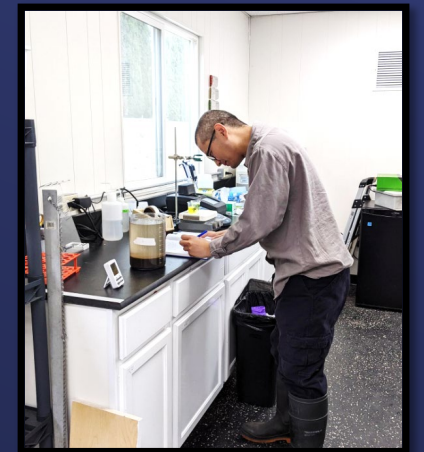
### Recommended Next Steps



## Operational and Workforce Readiness

- Assess and develop a plan to meet operational, staffing, training, and certification needs for DPR
- Collaborate with LACSD on coordinated operations of a DPR treatment train
- Develop a pathway for reliable operations, monitoring, and SCADA control systems for DPR
- Develop frameworks for key plans required for DPR implementation

### Recommended Next Steps



# DPR A New Source of Water



## Summary

- Technical studies needed to develop DPR concepts and inform rephasing efforts
- As we explore the integration of DPR as a new source of supply, Metropolitan is committed to:
  - Comprehensive planning
  - Rigorous research and development
  - Strategic partnerships
  - Ensuring successful implementation if the PWSC program is approved
- Return to Metropolitan's Board for periodic progress updates



# Questions

**To ask a question, please use the chat box or use the raise hand feature.**



# Agency Spotlight

## El Toro Water District



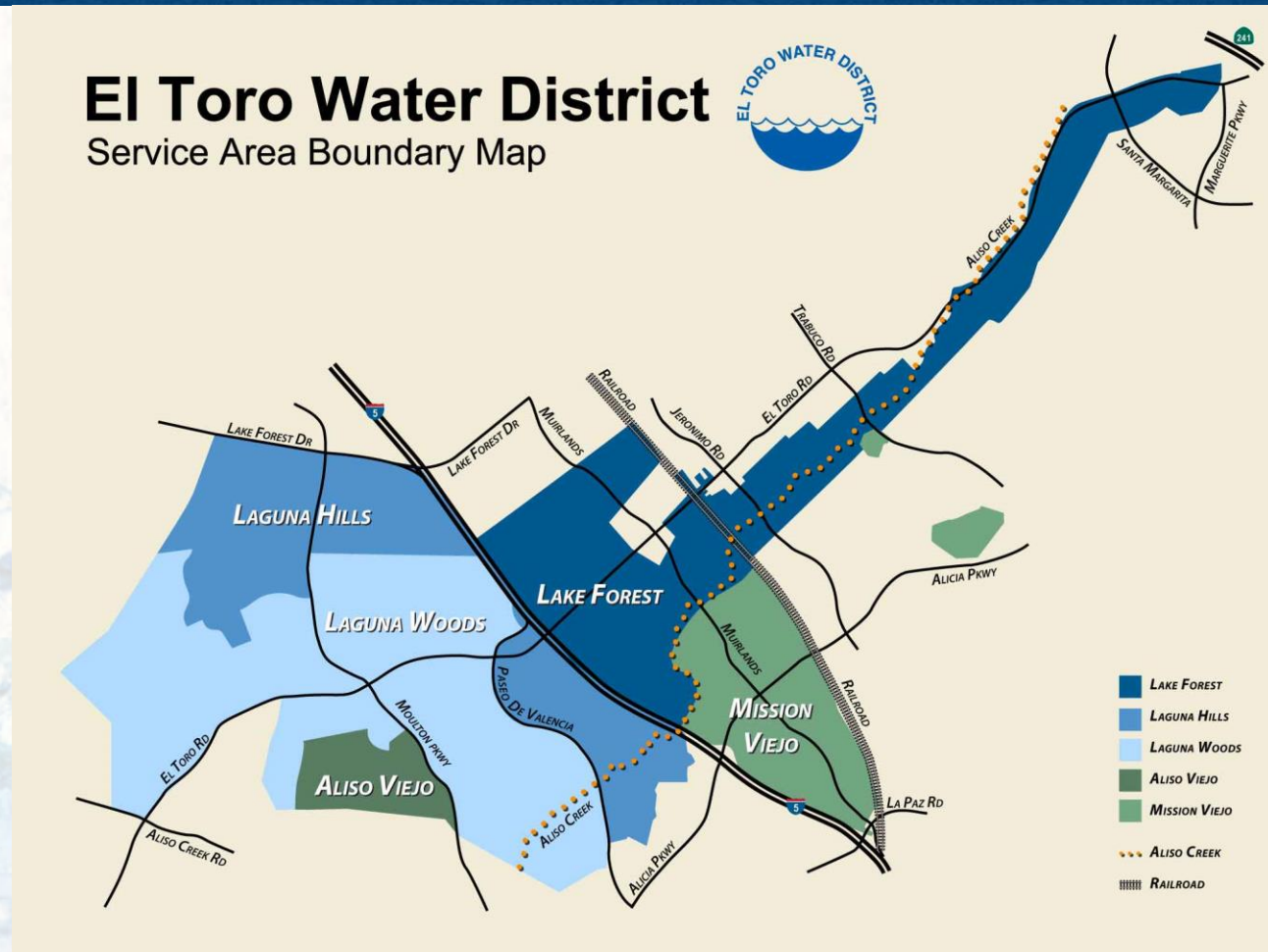
# **WATER ADVISORY COMMITTEE OF ORANGE COUNTY AGENCY SPOTLIGHT**

**El Toro Water District  
Dennis Cafferty, General Manager**



# ETWD Background

- **Founded in 1960**
- **Serves over 50,000 customers**
- **Nearly 10,000 Service Connections**
- **Serves portions of the cities of Lake Forest, Laguna Hills, Mission Viejo and Aliso Viejo and all of the City of Laguna Woods**
- **Approximately 8.5 Square Miles**
- **58 employees**





# ETWD Services

- **Potable Water**
  - **Water distribution system that includes over 170 miles of water pipelines**
  - **9 Water Pump Stations**
  - **6 Water Storage Reservoirs**



# ETWD Services

- **Potable Water**
  - **Water distribution system that includes over 170 miles of water pipelines**
  - **9 Water Pump Stations**
  - **6 Water Storage Reservoirs**
  - **Water Use Efficiency Outreach Program**



# ETWD Services

- Potable Water
- Wastewater Collection & Treatment
  - Maintain 158 miles of sewer collection pipelines
  - 11 Sewer Pump Stations
  - 6 MGD Water Recycling Plant



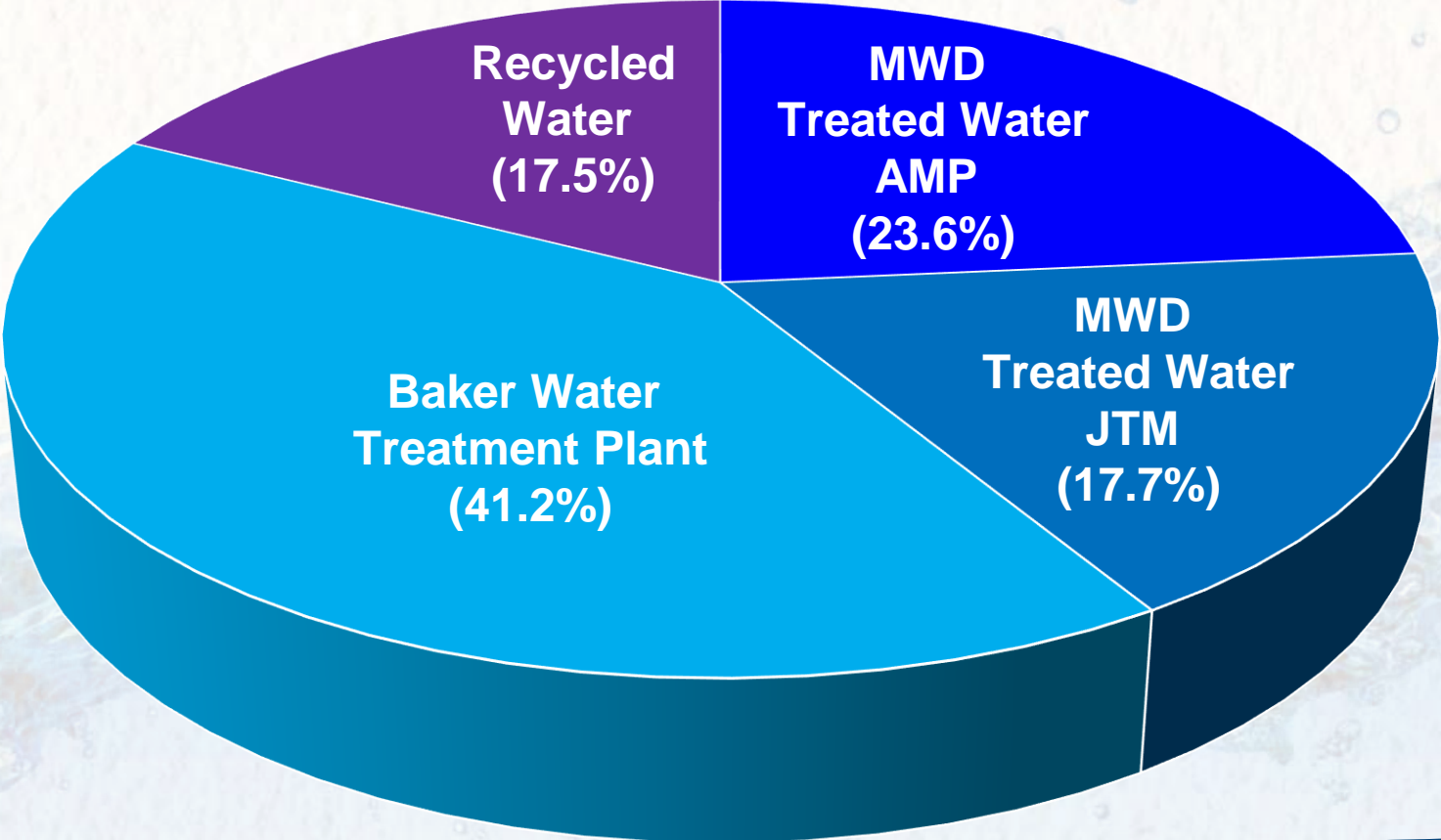
# ETWD Services

- Potable Water
- Wastewater Collection & Treatment
- Recycled Water
  - Tertiary Treatment Plant
  - Recycled Water Pump Station
  - 25 miles of recycled water pipelines

**ETWD's Water Recycling Projects have reduced potable water demand by over 400 million gallons per year**



# ETWD Water Supply



# Regional Collaboration

- 💧 R-6 Reservoir
- 💧 Baker Water Treatment Plant
- 💧 Baker Water Conveyance
- 💧 Joint Regional Water Supply System
- 💧 Water Interconnections
- 💧 Sewer Interconnections
- 💧 Shared Services
- 💧 AMP Shutdown
- 💧 MWDOC
- 💧 On-Going Collaboration



# El Toro Reservoir

- **275 million gallons**
- **Covered and Lined Reservoir**
- **Emergency Supply for all ETWD customers**
- **Shared capacity with SMWD & MNWD**



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- Cover/Liner Replacement Project





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# Challenges

- **Rising Costs**
- **Aging Infrastructure**
  - **Reliability**
- **Regulatory Requirements**
  - **AB 1572**
  - **Making Conservation as a California Way of Life**
  - **Advanced Clean Fleets Rule**



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# **WATER ADVISORY COMMITTEE OF ORANGE COUNTY AGENCY SPOTLIGHT**

**El Toro Water District  
Dennis Cafferty, General Manager**



# Announcements

**Have something to share?**



A large graphic of a blue water splash or wave, with a bright light source at the top left creating a shimmering effect. The water is in motion, splashing upwards and to the right.

# Thank you

**Next WACO meeting:**

Friday, December 13, 2024 at 7:30am via Zoom

**Next WACO planning meeting:**

Tuesday, November 19, 2024 at 7:30am via Zoom

