



Southern California  
Water Dialogue

## Update on the Proposed Regional Recycled Water Program: A New Source of Water for Southern California

**Deven Upadhyay, Metropolitan**  
**Martha Tremblay, LA Co Sanitation Districts**

OCTOBER 28, 2020

# Southern California Water Dialogue Co-chairs

CONNER EVERTS

*Executive Director*

*Southern California Watershed Alliance*

DEE ZINKE

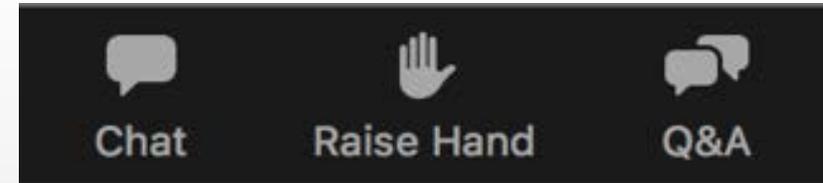
*Assistant General Manager, External Affairs*

*The Metropolitan Water District of Southern California*

# Southern California Water Dialogue Steering Committee

- MARK STADLER  
*San Diego County Water Authority*
- RICH ATWATER  
*Foothill Municipal Water District*
- ZITA YU  
*Parsons*
- RITA KAMPALATH  
*LA County Chief Sustainability Office*
- FERNANDO PALUDI  
*Trabuco Canyon Water District*
- KEITH COOLIDGE  
*Delta Stewardship Council*
- PEER SWAN  
*Irvine Ranch Water District*
- FRED O'CALLAGHAN  
*JPL/NASA (Retired)*
- RYAN SHAW  
*Western Municipal Water District*
- CHARLEY WILSON  
*Southern California Water Coalition*
- MARTHA CAMACHO RODRIQUEZ  
*Central Basin Municipal Water District*
- E.J. CALDWELL  
*West Basin Municipal Water District*
- KATHY CALDWELL  
*So Cal Water Dialogue, Coordinator*

# Webinar Ground Rules



- **Technical Difficulties:** Use chat feature to let us know
- **Asking a Question:** Use Q/A feature, type in question, state if you want to ask it live, and click send. Questions addressed after presentation.
- **Poor Connection:** Move closer to your wireless router and turn off other services using bandwidth (e.g. Netflix)
- **Audio Muted:** Attendee audio on mute by default
- **Timetable:** Presentation runs apx. 45 minutes followed by Q/A session

# How to Ask A Question



On the bottom of your screen, click “Q&A”

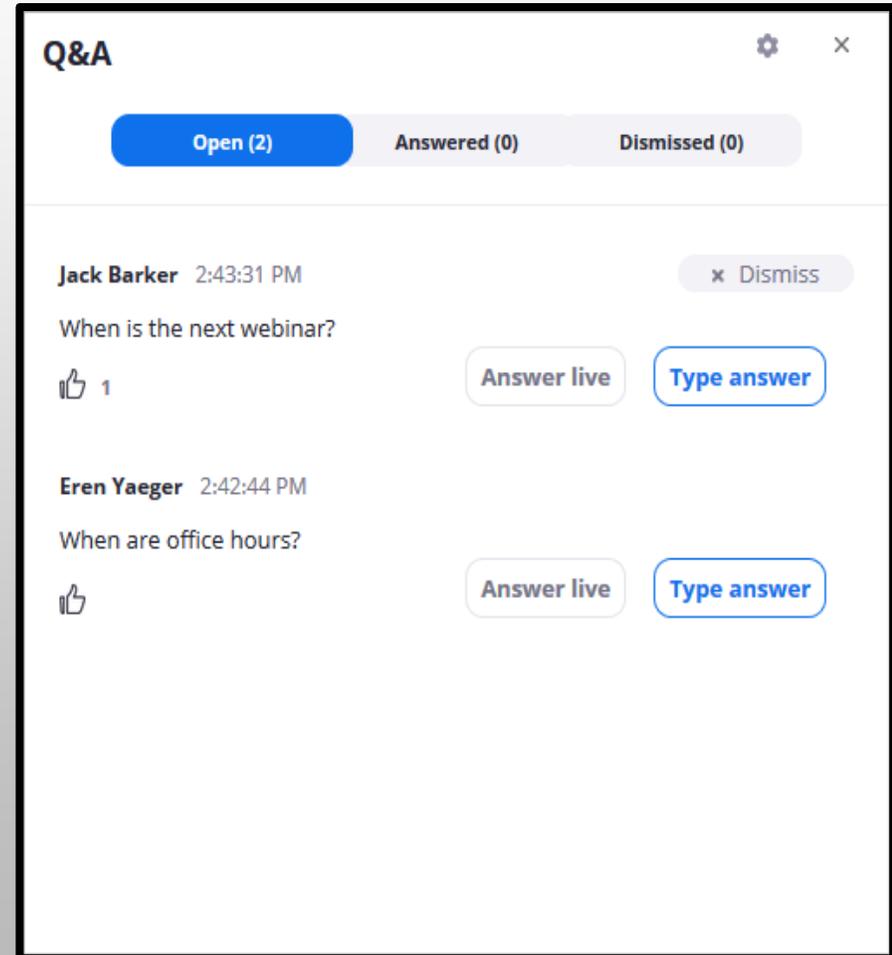
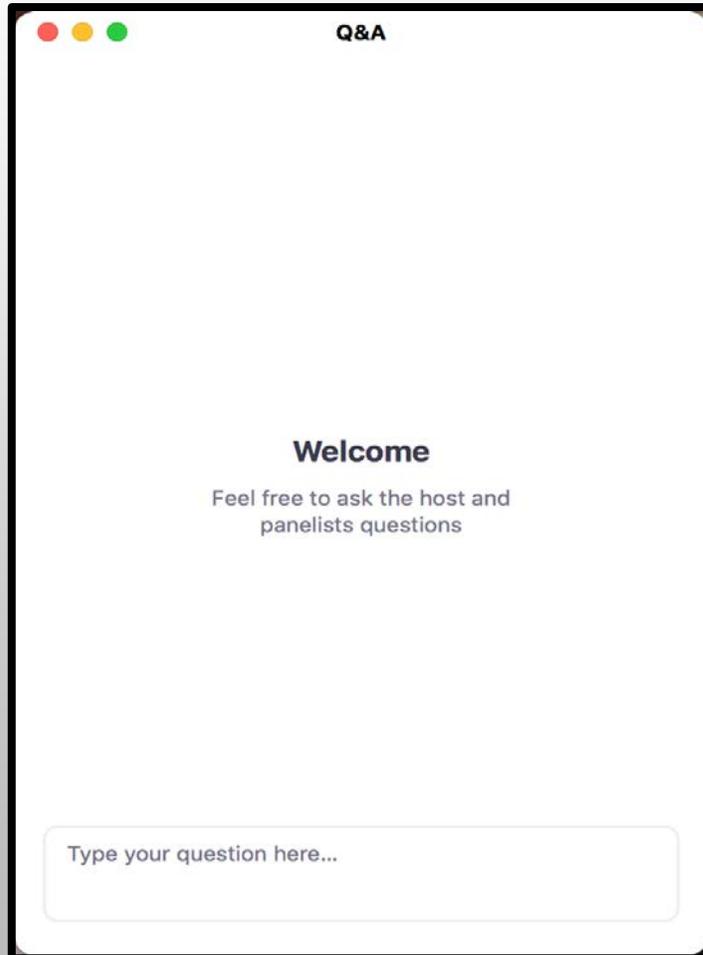




Type in question, indicate if you want to ask live, then click send



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# Agenda

- Announcements and Introductions
- Introduction of Speakers
- Presentation
- Dialogue (Q/A)
- Concluding remarks

# Speakers

**Deven Upadhyay**  
Assistant GM and COO, Metropolitan



**Martha Tremblay**  
Dept. Head, Technical Services, LACSD



October 28, 2020



# UPDATE: REGIONAL RECYCLED WATER PROGRAM

Deven Upadhyay  
Assistant GM/  
Chief Operating Officer

Martha Tremblay  
Department Head,  
Technical Services



**LOS ANGELES COUNTY  
SANITATION DISTRICTS**  
*Converting Waste Into Resources*

# A NEW SOURCE OF WATER FOR SOUTHERN CALIFORNIA

## *Presentation Overview*



Metropolitan  
and LACSD:  
Regional  
Agency  
Partners



An In-Depth  
Look: Regional  
Recycled Water  
Program



Advanced  
Purification Center:  
New Treatment  
Process, Water  
Quality Protection  
and Direct Potable  
Reuse



Next  
Steps

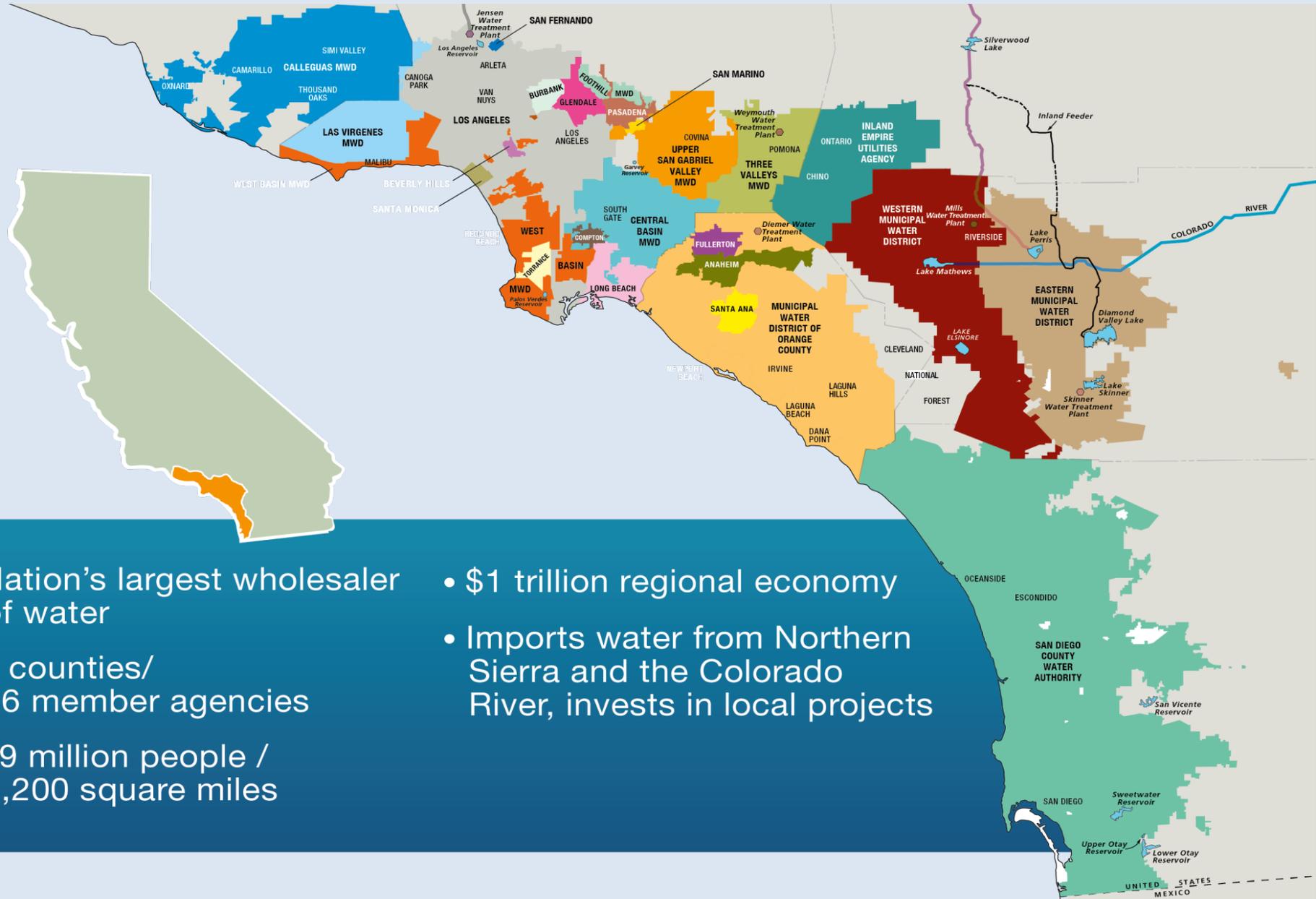




Regional Agency Partners

**METROPOLITAN AND LACSD**

# METROPOLITAN OVERVIEW



- Nation's largest wholesaler of water
- 6 counties/ 26 member agencies
- 19 million people / 5,200 square miles
- \$1 trillion regional economy
- Imports water from Northern Sierra and the Colorado River, invests in local projects



# PROGRAM PARTNER

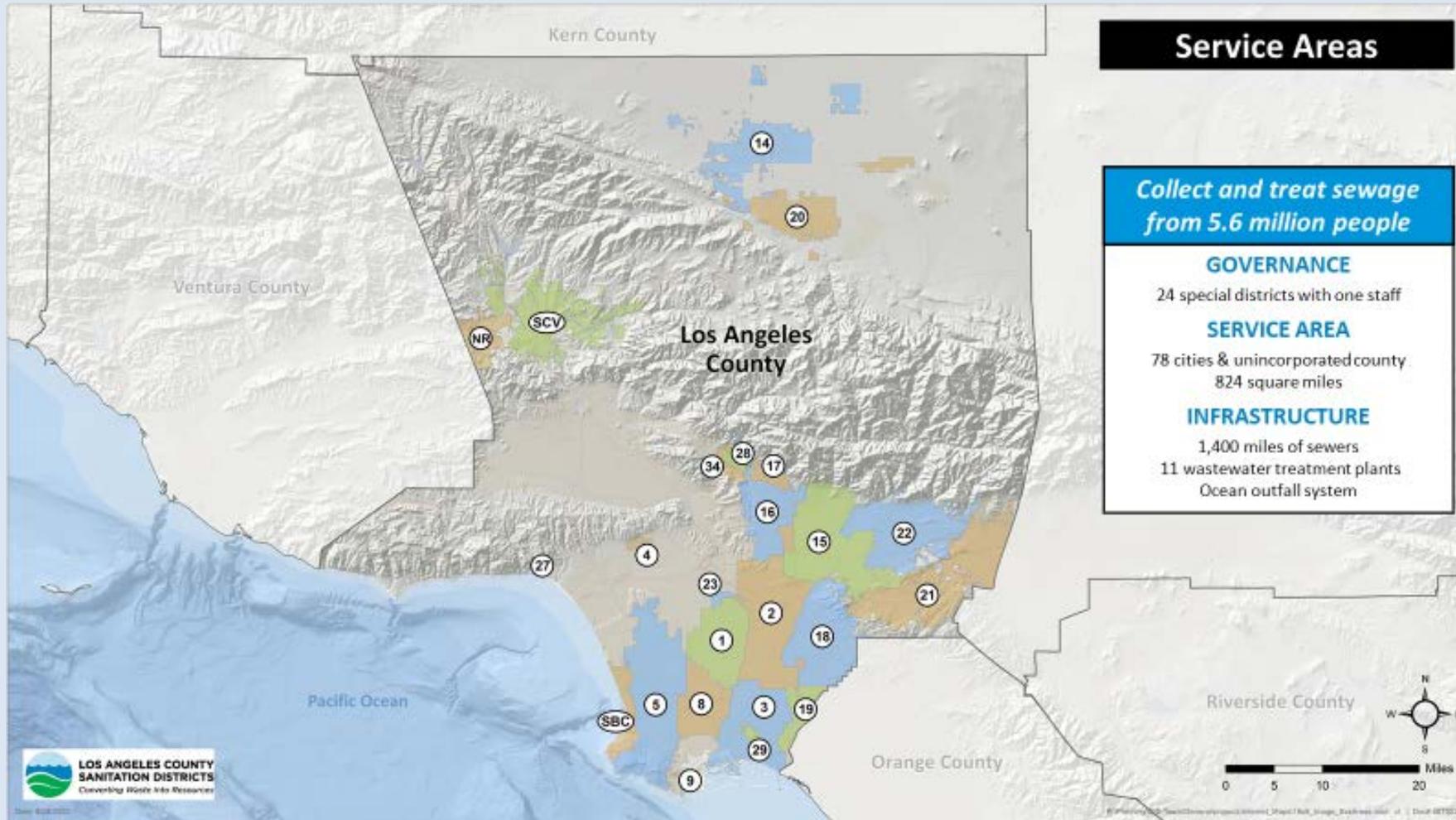


**LOS ANGELES COUNTY  
SANITATION DISTRICTS**  
*Converting Waste Into Resources*

A partnership that began with initial technical studies in 2009 and continues to progress.



# LOS ANGELES COUNTY SANITATION DISTRICTS



# JOINT OUTFALL SYSTEM

*Main sewer system serving over 5 million people*



# JOINT WATER POLLUTION CONTROL PLANT



# NEW ADVANCED WATER TREATMENT PLANT SITE



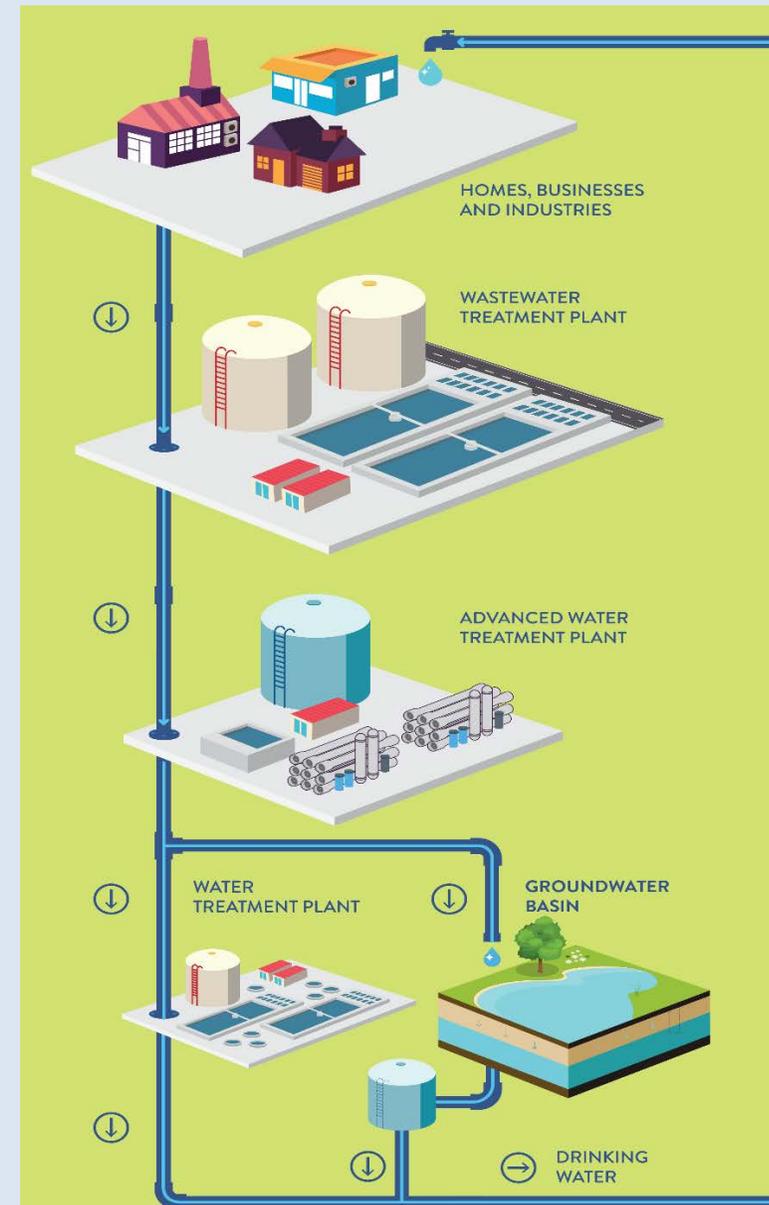


A New Source of Water for Southern California

# REGIONAL RECYCLED WATER PROGRAM

# REGIONAL RECYCLED WATER PROGRAM

- Development of a new regional water source
  - Replenish groundwater basins
  - Provide water to industries
  - Connect to Metropolitan's water treatment plants



# REGIONAL RECYCLED WATER PROGRAM

*In numbers*



Up to 150 million  
gallons per day or  
168,000 acre-feet  
per year



Enough water  
for over 500,000  
homes



One of the  
largest programs  
of its kind in  
world



# PROGRAM BENEFITS



## Earthquake

Prepares the Southland for the event of a catastrophic earthquake by increasing local water supplies.



## Drought

Produces a drought-proof source of water, readily available rain or shine.



## Groundwater

Replenishes groundwater basins, which provide 30% of Southern CA's water supply and have seen levels drop to historic lows in recent years.



## Economy

Helps meet needs of region's growing economy and population at a cost comparable to other local water resources.



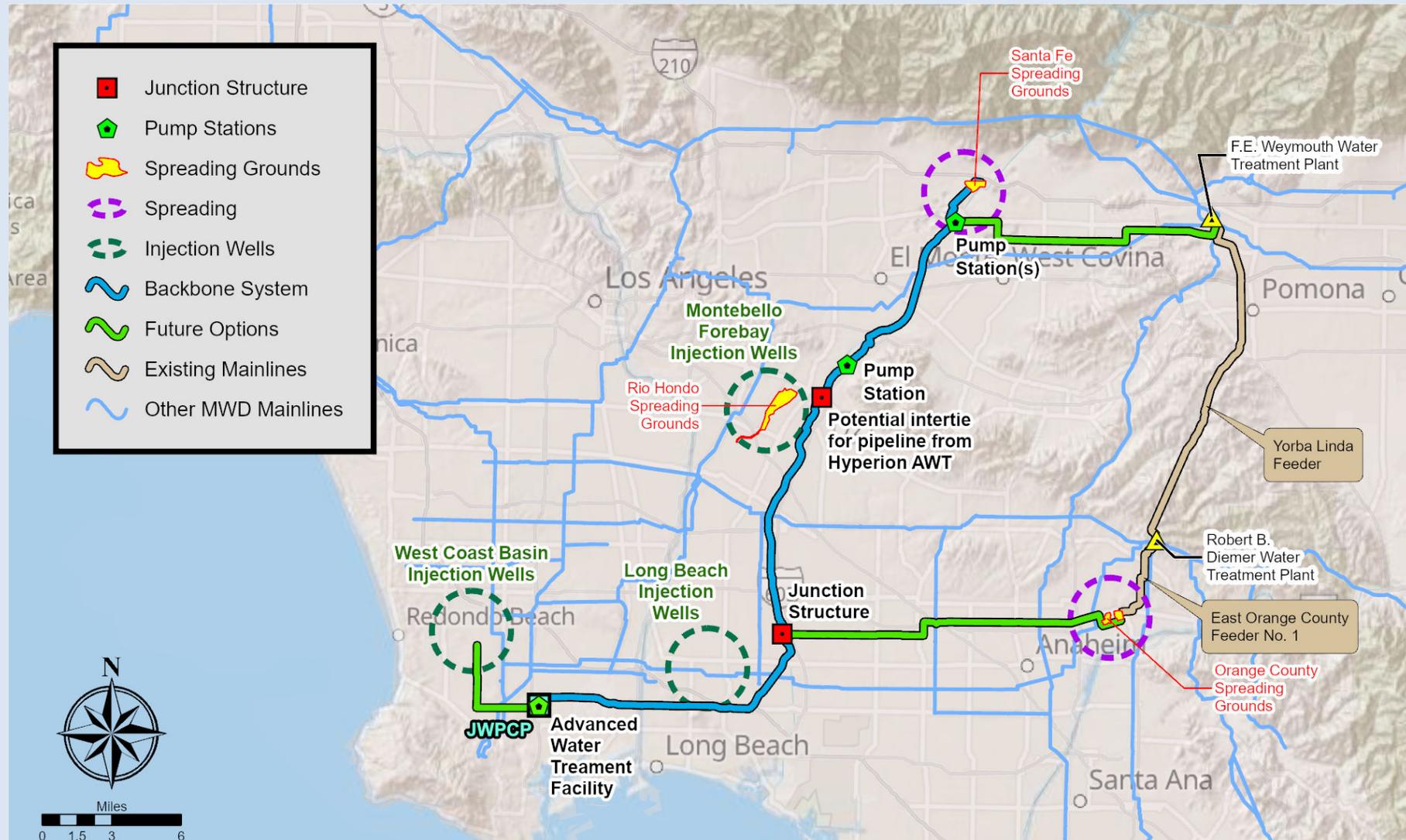
## Wastewater

Uses region's largest untapped source of wastewater, currently sent to the ocean.



# REGIONAL RECYCLED WATER PROGRAM

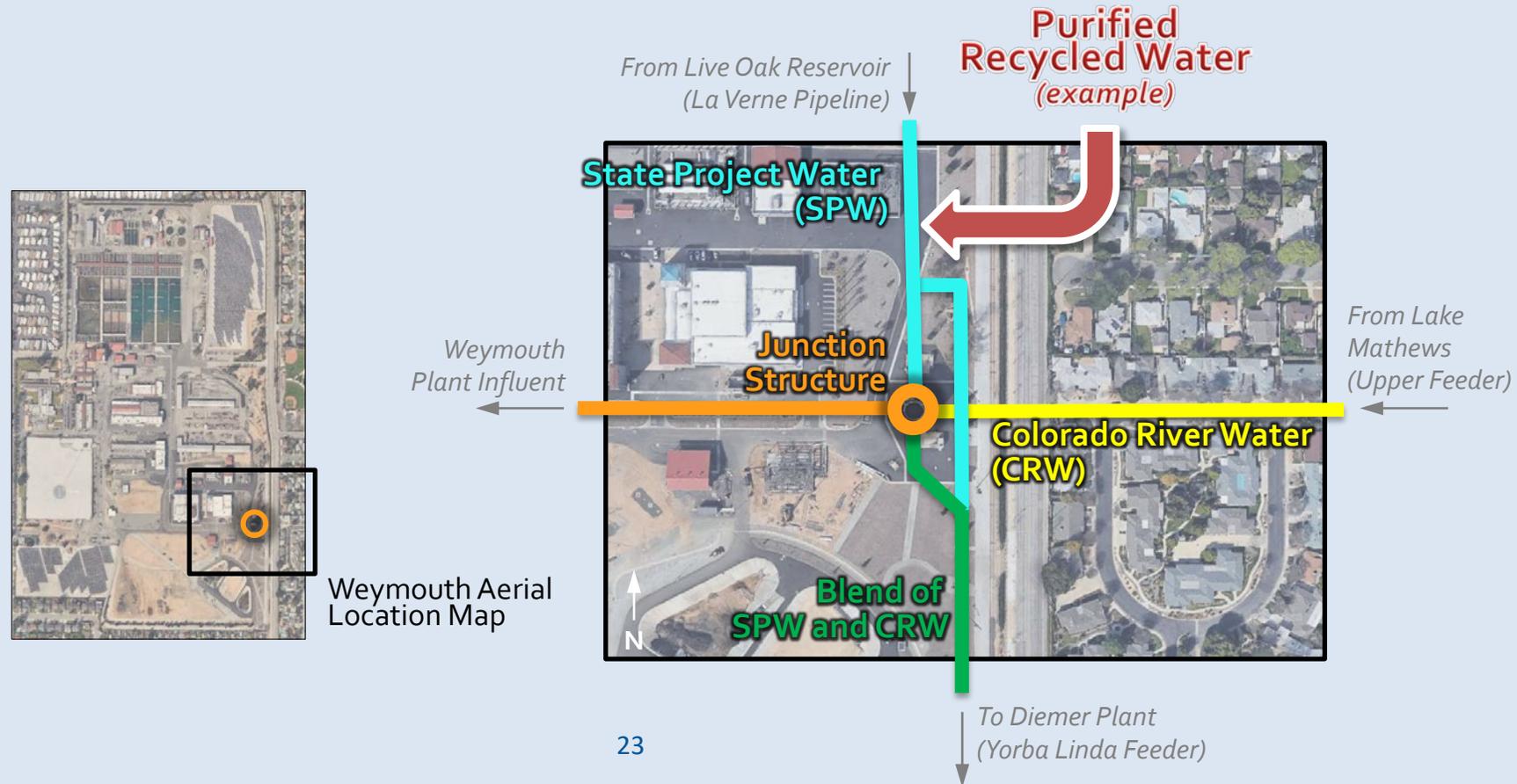
## Potential Full-Scale Program



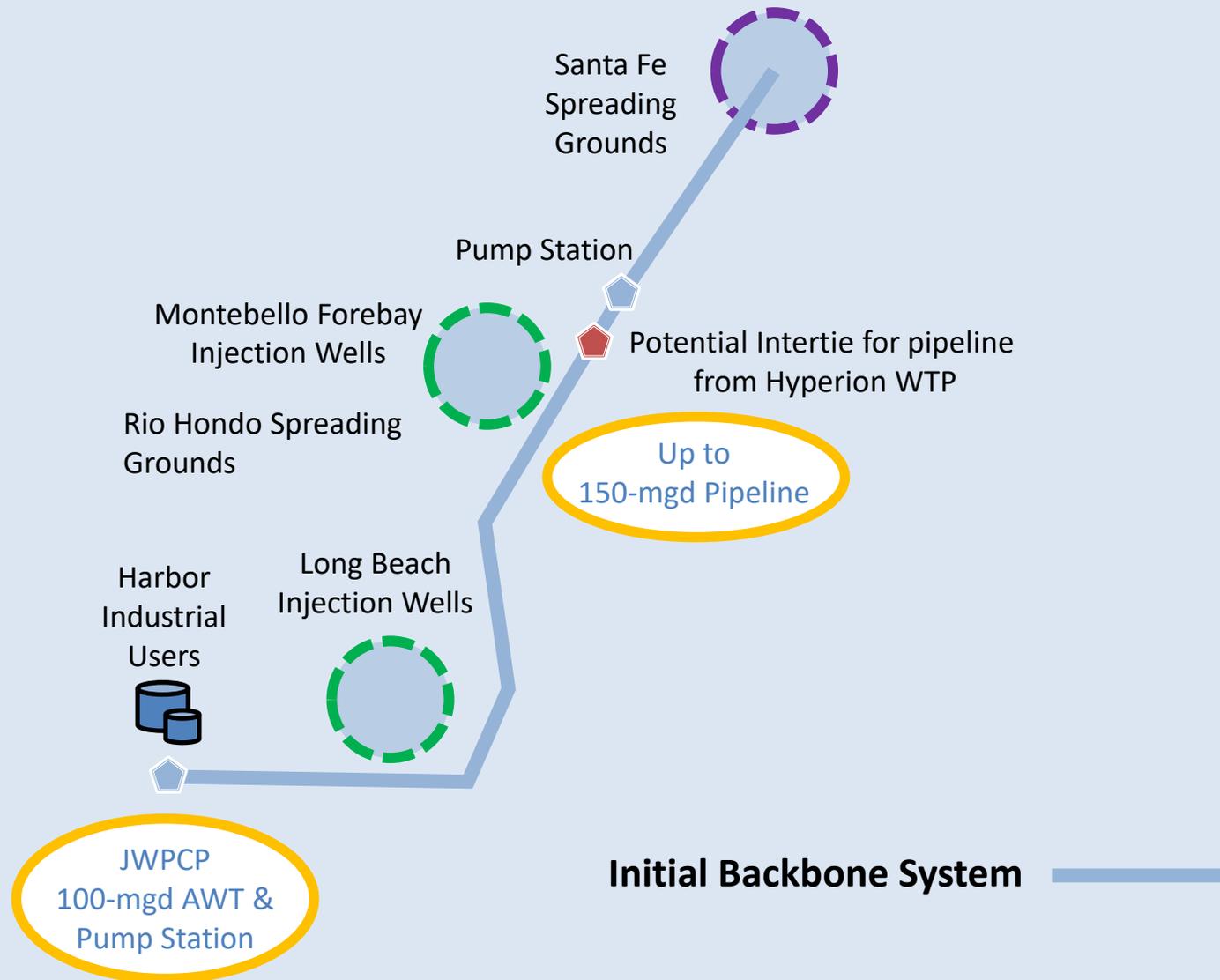
# BLENDING WATER SUPPLIES

## AT WEYMOUTH

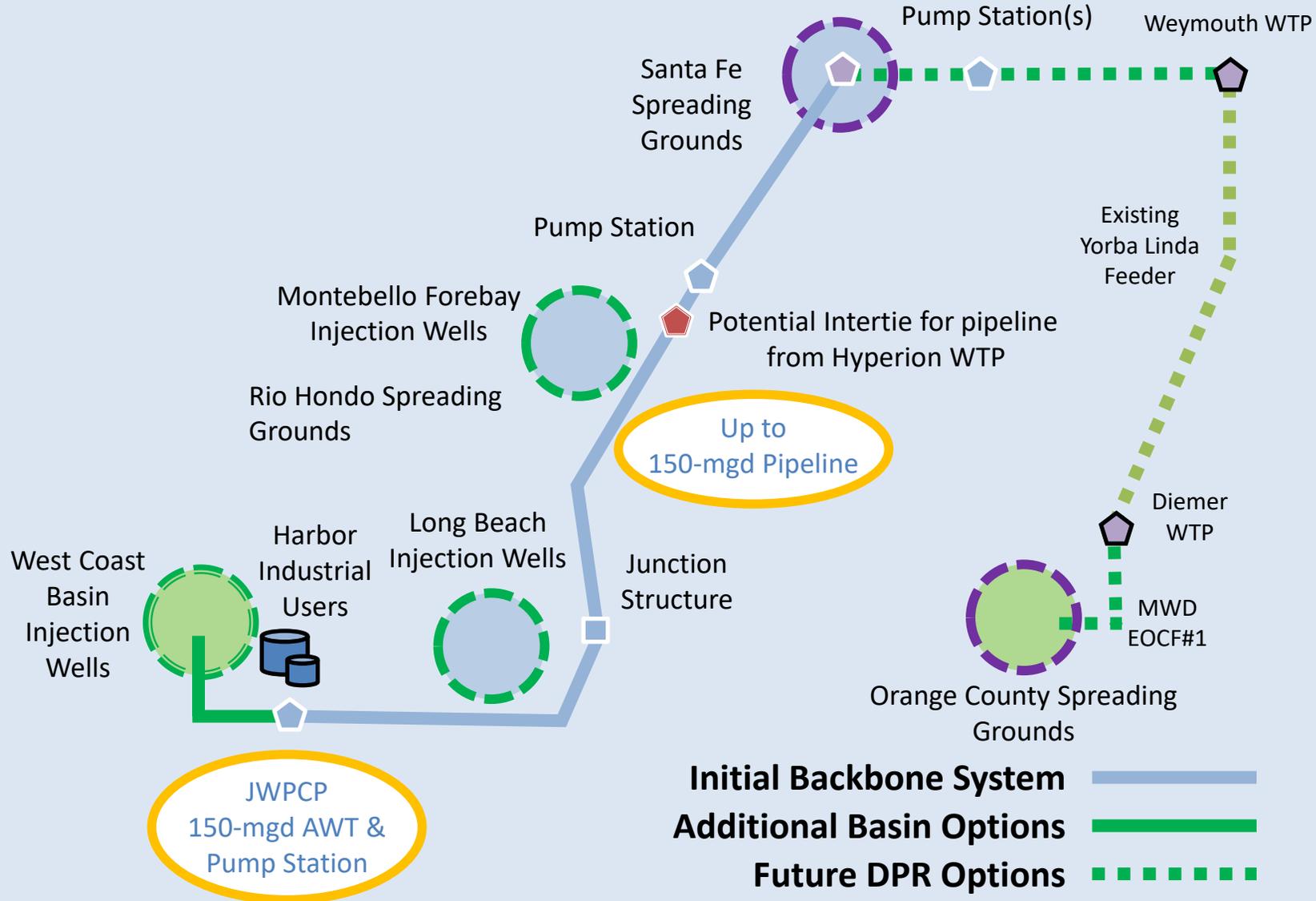
### *Raw Water Augmentation*



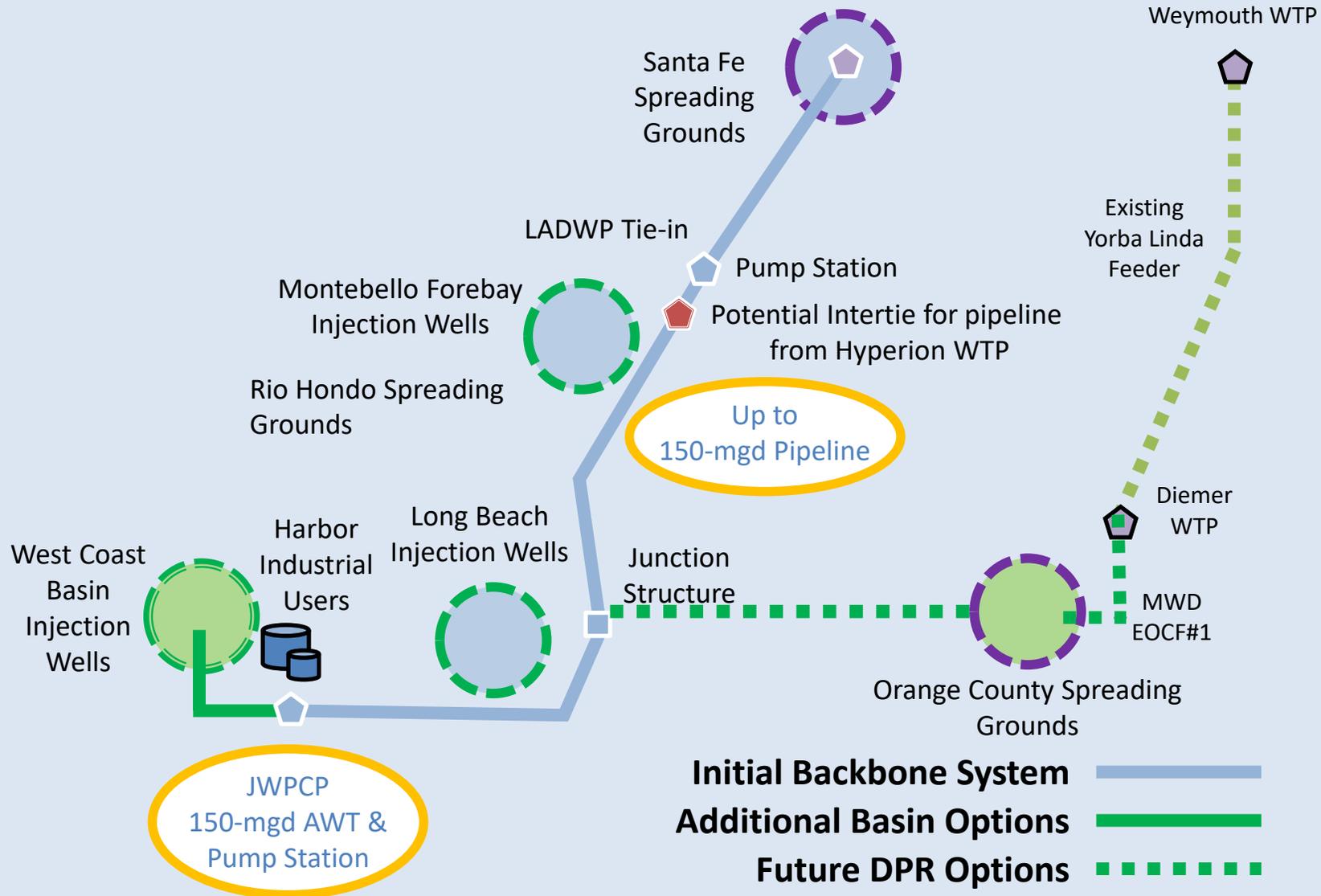
# PHASE 1: BACKBONE SYSTEM



# DPR OPTION: NORTHERN ROUTE



# DPR OPTION: SOUTHERN ROUTE



# PARTNERS AND STAKEHOLDERS

Main San Gabriel  
Watermaster

Upper San Gabriel  
Valley Municipal  
Water District

Los Angeles  
Department of  
Water and Power

West Basin  
Municipal Water  
District

Three Valleys  
Municipal Water  
District

City of Long Beach

City of Torrance

Water  
Replenishment  
District

State Water  
Resources Control  
Board

Los Angeles  
County Public  
Works

Southern  
California Edison

U.S. Army Corps of  
Engineers

LACSD

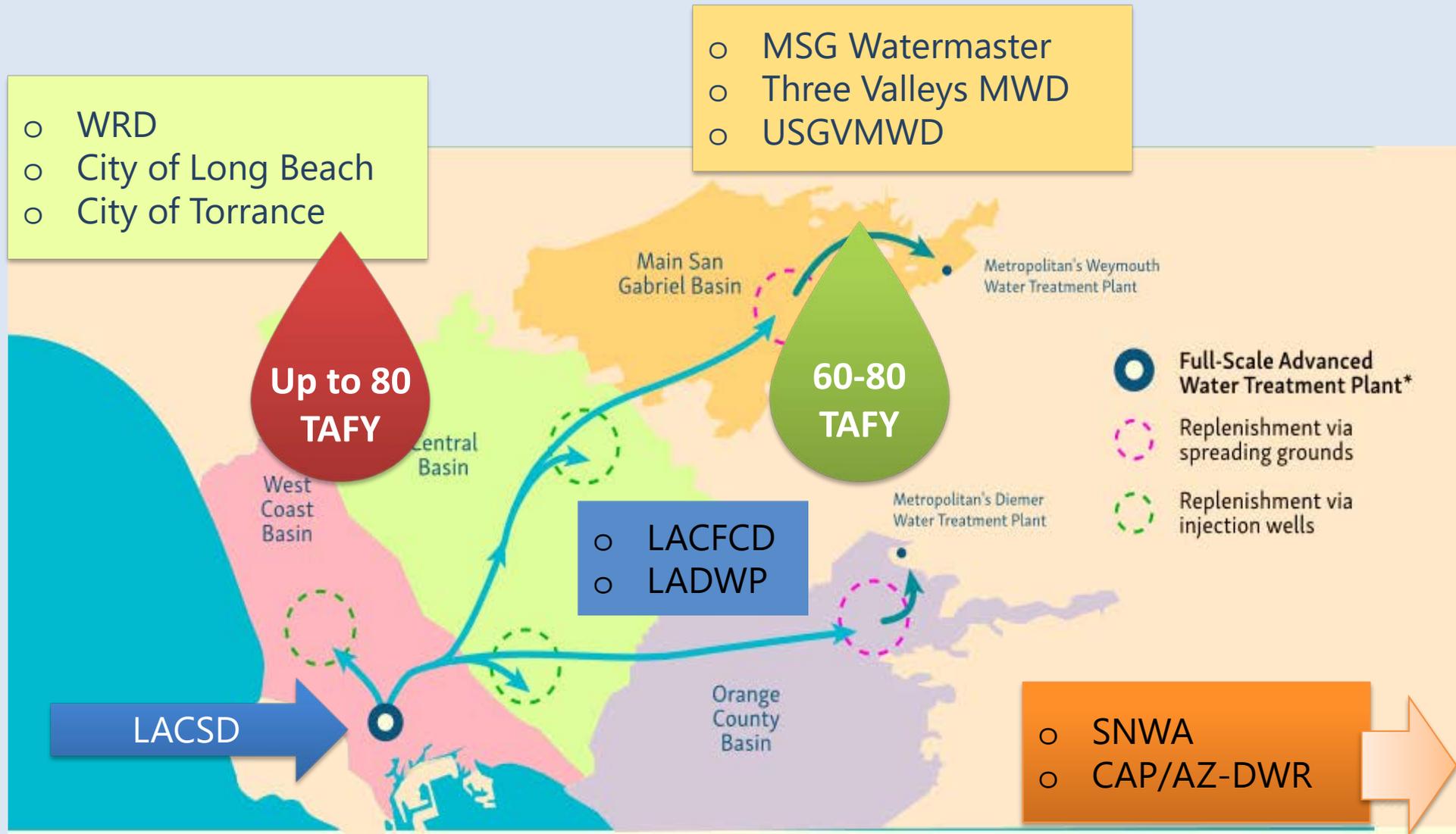
Central Arizona  
Project & Arizona  
DWR

Southern Nevada  
Water Authority



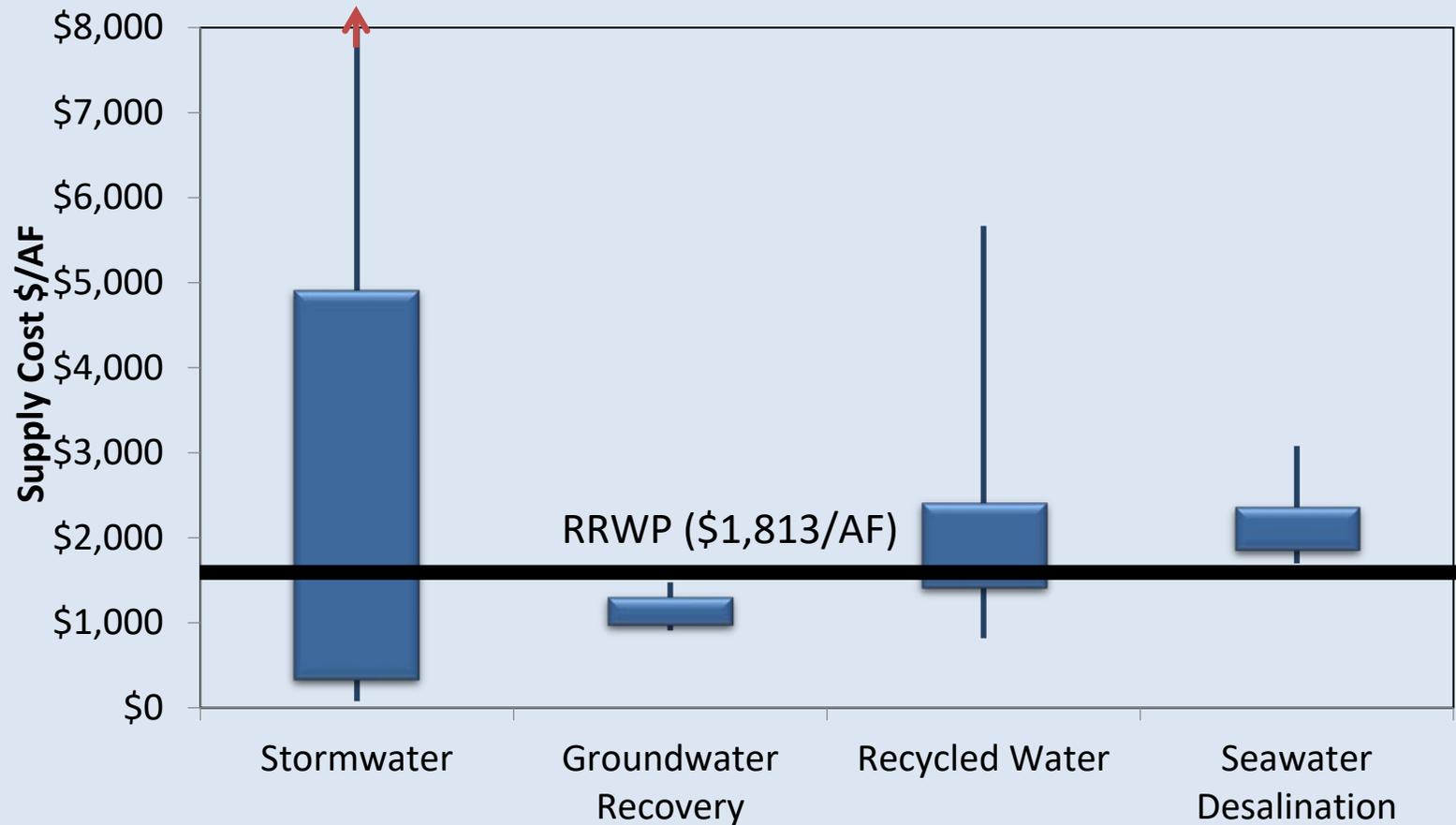
# PROGRAM COLLABORATION

*LOIs and MOUs developed*



# PROGRAM COSTS

- Total capital cost of \$3.4 billion
- Annual O&M cost of \$129 million
- Unit cost of approximately \$1,800/AF
- Approximately 42,000 jobs created





Regional Recycled Water Advanced Purification Center

# ADVANCING TECHNOLOGY AND DIRECT POTABLE REUSE

# REGULATIONS DEVELOPMENT



# ABOUT THE ADVANCED PURIFICATION CENTER

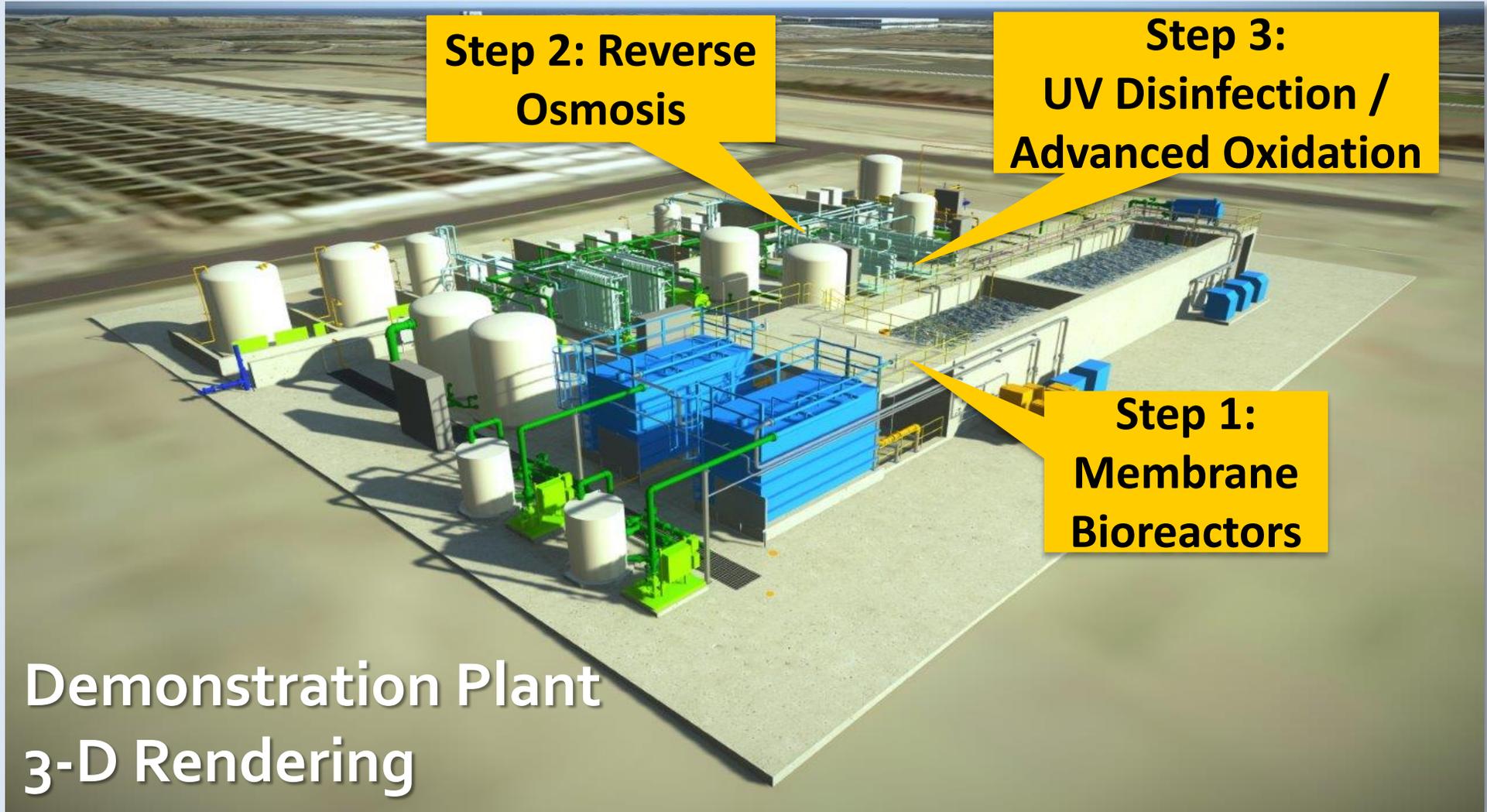
*A New Demonstration Facility*

- Tests innovative purification process
- Obtain regulatory approval of process
- Provides costs and data for full-scale facility
- Gain public support





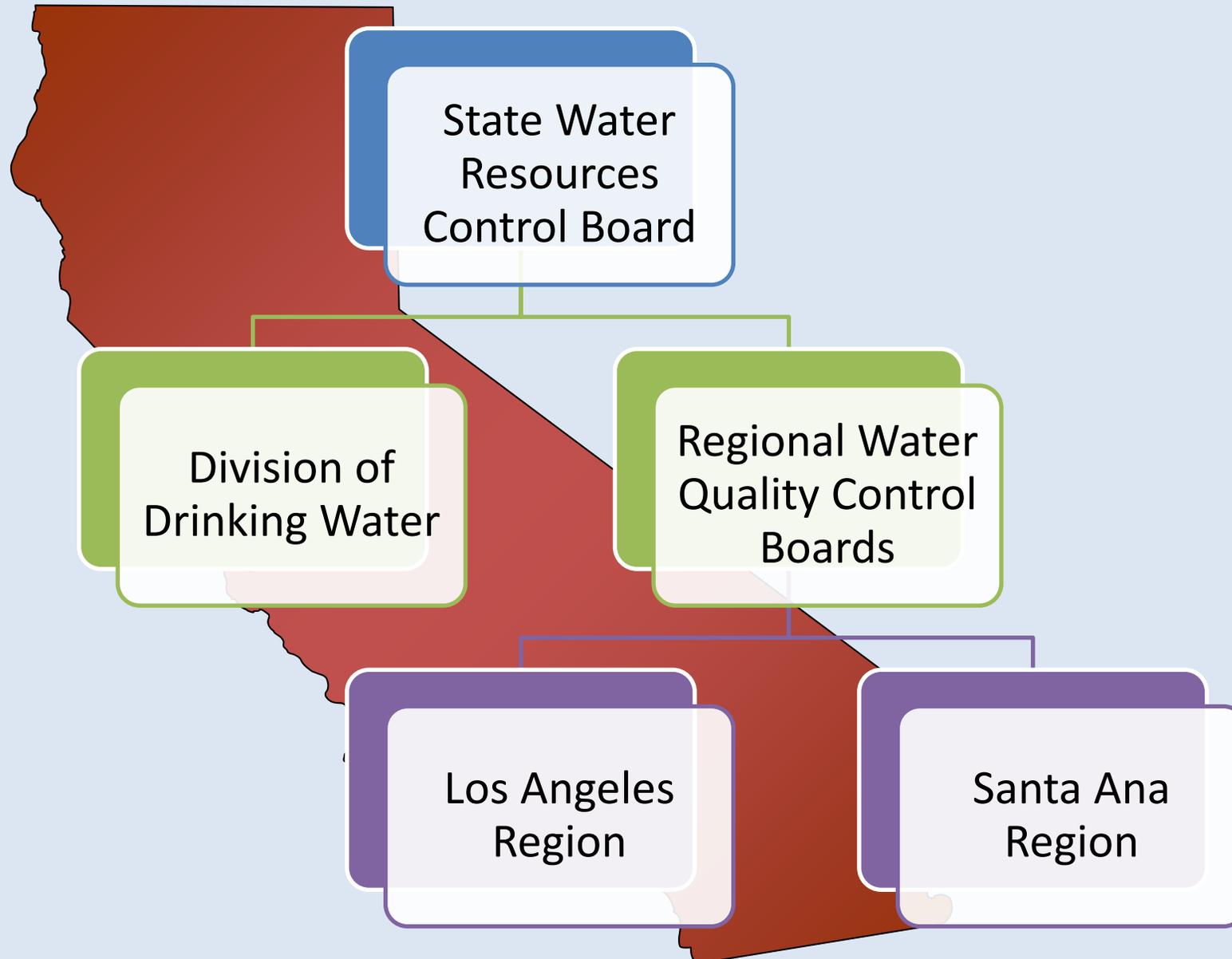
# Regional Recycled Water Advanced Purification Center



Demonstration Plant  
3-D Rendering



# REGULATORY OVERSIGHT



# INDEPENDENT SCIENTIFIC ADVISORY PANEL



**NWRI**

Administration

**Ed Means**

Facilitation

## Panel Members

**Paul Anderson, Ph.D.**

Toxicology

**Adam Olivieri, Ph.D.**

Regulations and Permitting

**Joe Cotruvo, Ph.D.**

Chemistry

**Vernon Snoeyink, Ph.D.**

Pipeline Corrosion/Water Chemistry

**Charles Haas, Ph.D.**

Microbiology

**Nancy Love, Ph.D.**

Wastewater Treatment

**Thomas Harder, R.G.**

Hydrogeology

**Paul Westerhoff, Ph.D.**

Drinking/Advanced Water Treatment



# CURRENT SANITATION DISTRICTS' EFFORTS



Implementation  
of Testing and  
Monitoring Plan



FORCO Site  
Cleanup



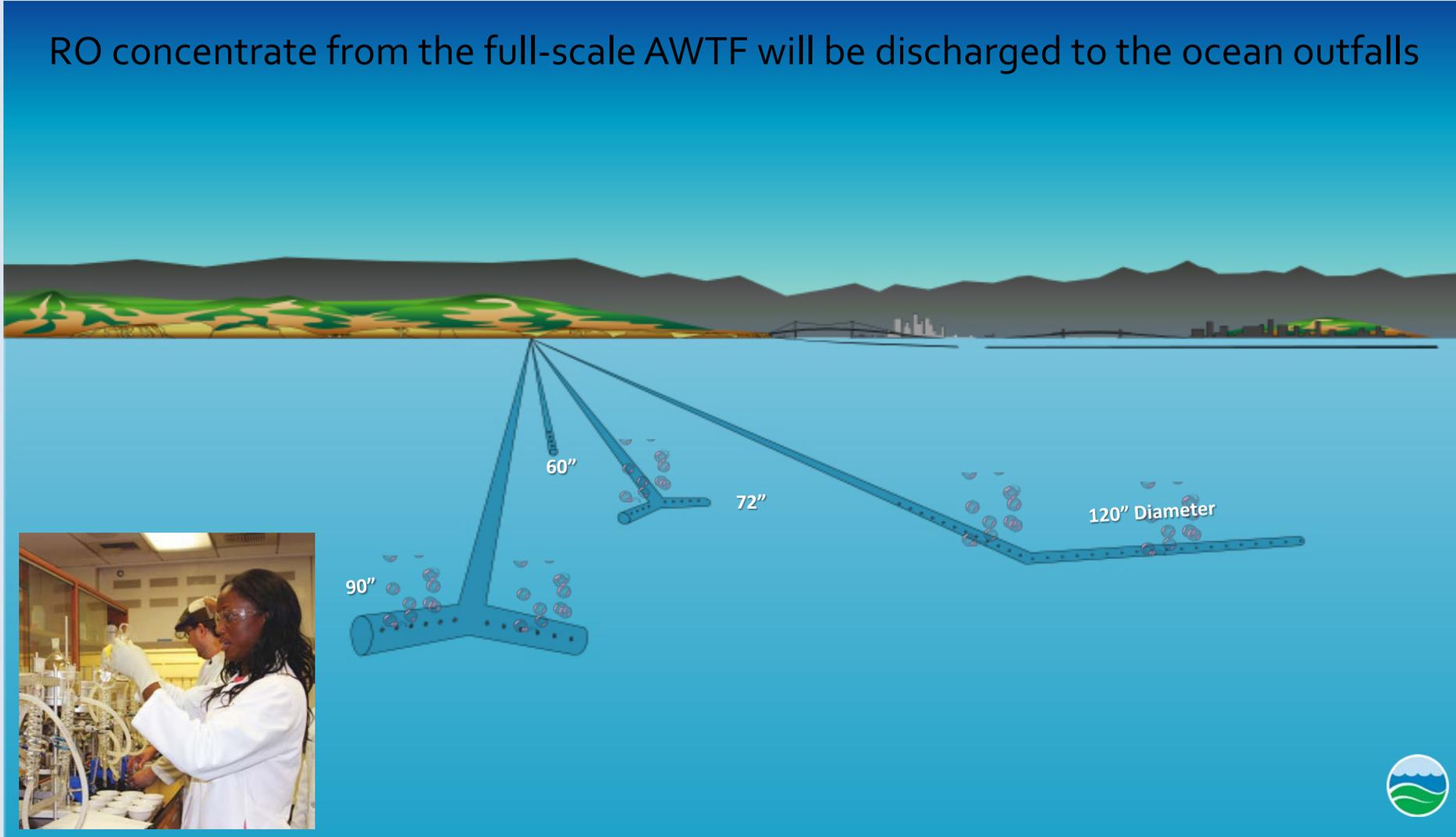
Manage  
Waste  
Residuals



Evaluate  
enhanced JWPCP  
operation for  
reuse

# RESIDUALS TESTING

RO concentrate from the full-scale AWTF will be discharged to the ocean outfalls



# NITROGEN MANAGEMENT

## Nitrogen Management Work Group

Objective - Identify optimal nitrogen management practice based on the following:



Retrofit existing or  
build new



Wet weather  
capacity



Ability to meet  
water quality goals



Cost



Operational  
compatibility



Environmental  
impact



Operational reliability  
and redundancy



Constructability



# SOURCE CONTROL PROGRAM ENHANCEMENTS

## Constituents of Concern

- Boron
- Nitrosamines
- 1,4-Dioxane

## Approach

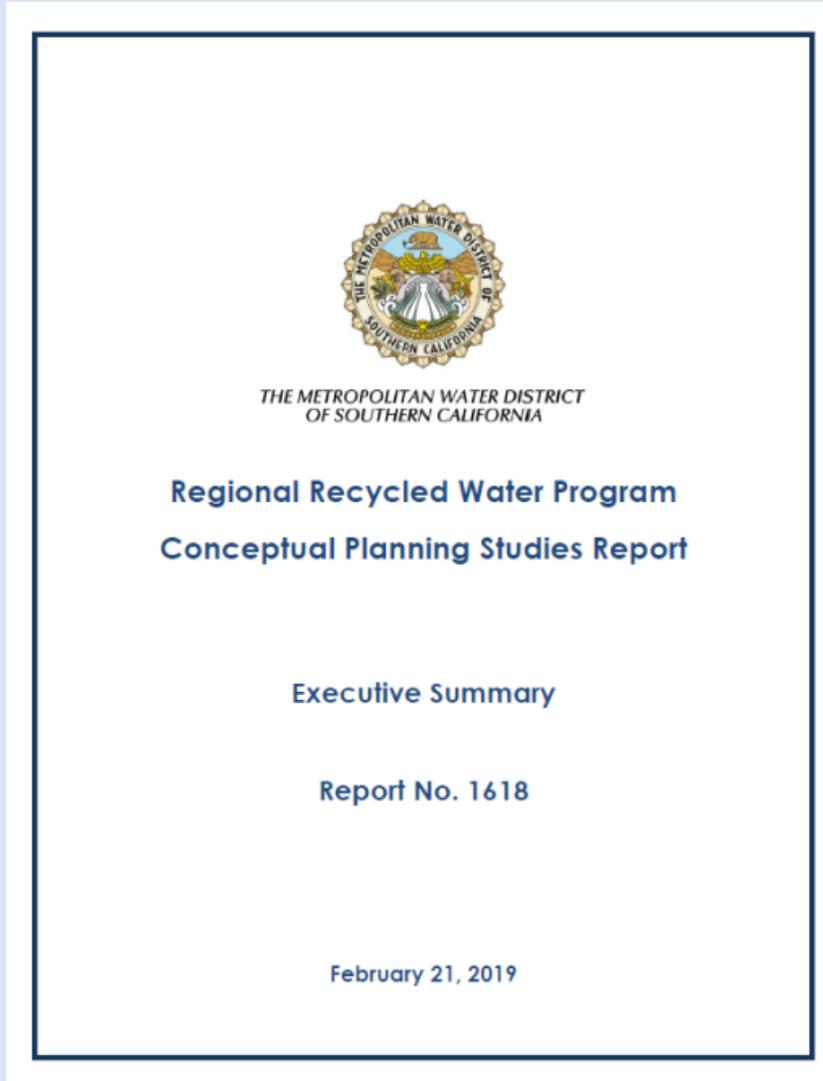
- Identify Potential Source(s)
- Initiate source control efforts as warranted





## OUR PROGRESS AND NEXT STEPS

# SUMMARY OF WORK TO DATE



- Technical Studies (2009)
- Pilot Scale Studies (2012)
- Feasibility Study Report (2016)
- Conceptual Planning Studies Report (2019)
- Demonstration Plant (2019)
- White Paper #1 (2019)
- White Paper #2 (2020)

# COLLABORATION AND FUNDING

*More than \$ 2 million in Grants Awarded to Date*

Program	Amount
USBR Title XVI Reuse Research Grant	<ul style="list-style-type: none"><li>• Awarded \$750,000 to study MBR pathogen removal</li></ul>
California Water Recycling Funding Program (WRFP) State Prop 1 /68	<ul style="list-style-type: none"><li>• Awarded \$1M for Demonstration Plant</li><li>• Awarded \$300,000 for four groundwater basin planning studies</li></ul>



# AWARDS AND RECOGNITION

- Engineering News Record Owner of the Year
- ASCE Los Angeles Section Water/Wastewater Project of the Year
- Environmental Communication Award, AAEES
- Articles in Journal AWWA, Water Environment and Technology
- Featured presentations at water industry conferences



# MAJOR POLICY DECISION

## NOVEMBER 2020

- First in-region water supply developed by Metropolitan
- Seek Board approval for:
  - Environmental Phase Services
  - Amendment to LACSD Agreement
    - MWD/LACSD shared roles and responsibilities for environmental review
  - Participation from Southern Nevada Water Authority
  - Additional support for demonstration facility



# PROGRAM SCHEDULE



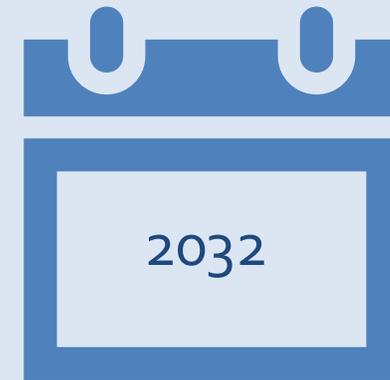
Board  
Action on  
Next Steps



Environmental  
Planning



Design and  
Construction



Start-up and  
Operations



# OPPORTUNITIES TO WORK TOGETHER



- Regional Recycled Water Program
  - Board action
  - Environmental planning
  - Virtual tours
- 2020 Integrated Resources Plan
- Climate Action Plan



# ENSURING WATER RELIABILITY FOR THE FUTURE



# METROPOLITAN RECYCLED WATER WEBSITE



The screenshot shows the homepage of the Regional Recycled Water Advanced Purification Center website. At the top, there is a dark blue navigation bar with the logo on the left and a menu of links: INTRODUCTION, HOW IT WORKS, PROCESS, BENEFITS, STRATEGY, MILESTONES, RESOURCES, and PARTNERSHIP. Below the navigation bar is a large banner with a light blue background and a stylized water drop logo. The main heading reads "Regional Recycled Water Advanced Purification Center" in green and light blue. Below this, the text "A NEW SOURCE OF WATER FOR SOUTHERN CALIFORNIA" is displayed in white, followed by a paragraph: "Water is too precious to use just once. So the Metropolitan Water District of Southern California is making a major investment in a potential water recycling project that will reuse water currently sent to the ocean."

[www.mwdh2o.com/RRWP](http://www.mwdh2o.com/RRWP)



# Thank you for joining today!

Deven Upadhyay  
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Department Head, Technical Services  
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[mwdh2o.com/rrwp](http://mwdh2o.com/rrwp)



@mwdh2o



# Question and Answer



# How to Ask a Question



Click “Q&A” on the bottom of your screen

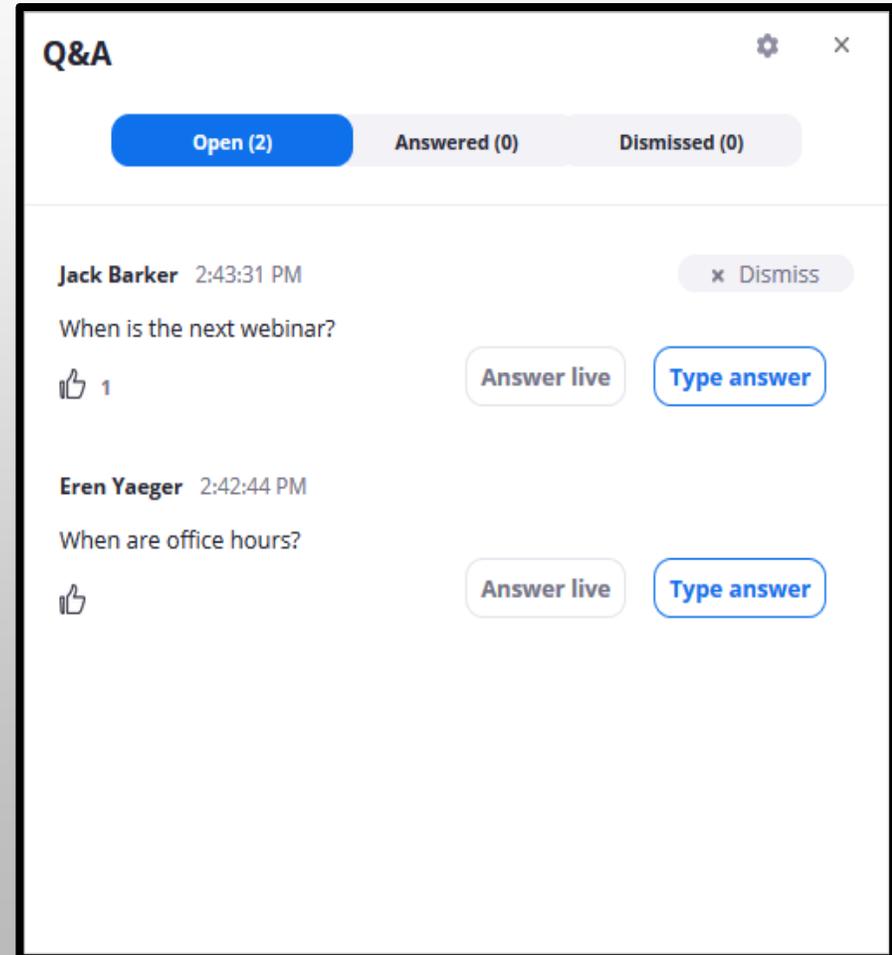
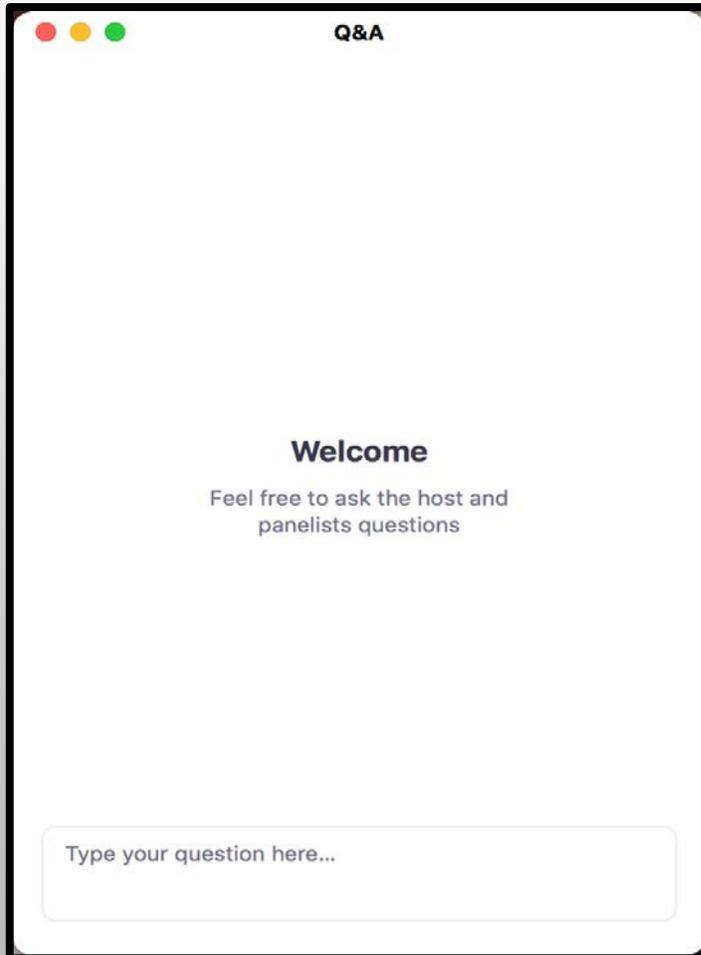




Type in question, indicate if you want to ask live, then click send



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Next  
Southern California Water Dialogue Webinar

Wednesday, January 27, 2021  
12:00 – 1:30 pm

*Your feedback on today's meeting is important to us. For the next ten minutes, you can use the Zoom Chat feature to send us any comments.*