



Welcome to the Regional Recycled Water Advanced Purification Center

A NEW source of water for Southern California

Welcome Industry Advisory Council! | June 11, 2019
Social media: use #recycledwater and tag @mwdhzo

OUTLINE

- Metropolitan Overview
- Project Need
- Metropolitan – Sanitation Districts Partnership
- Regional Recycled Water Program
- Advanced Purification Center
- Tour
- Wrap-up

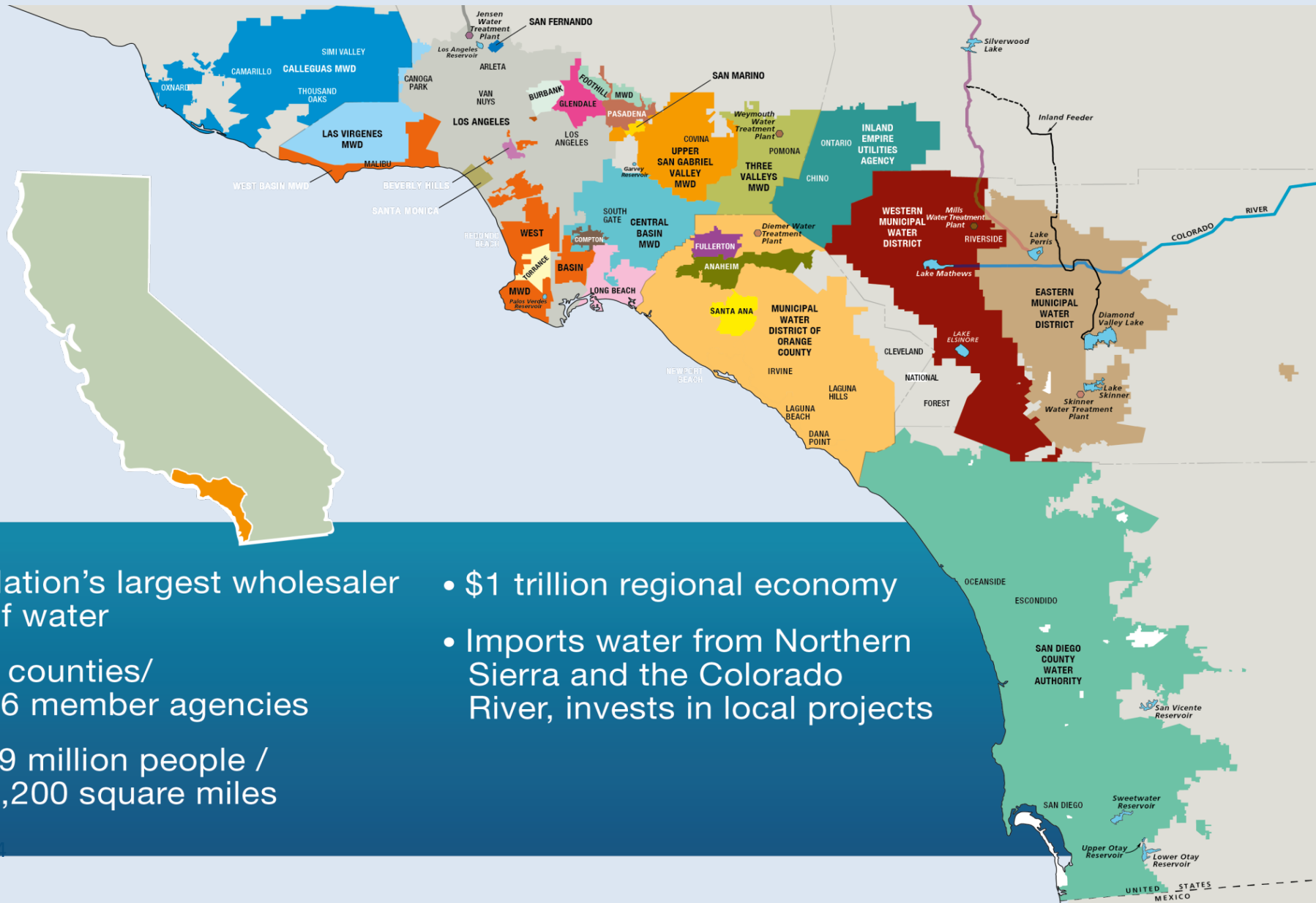




A Review

OVERVIEW OF METROPOLITAN

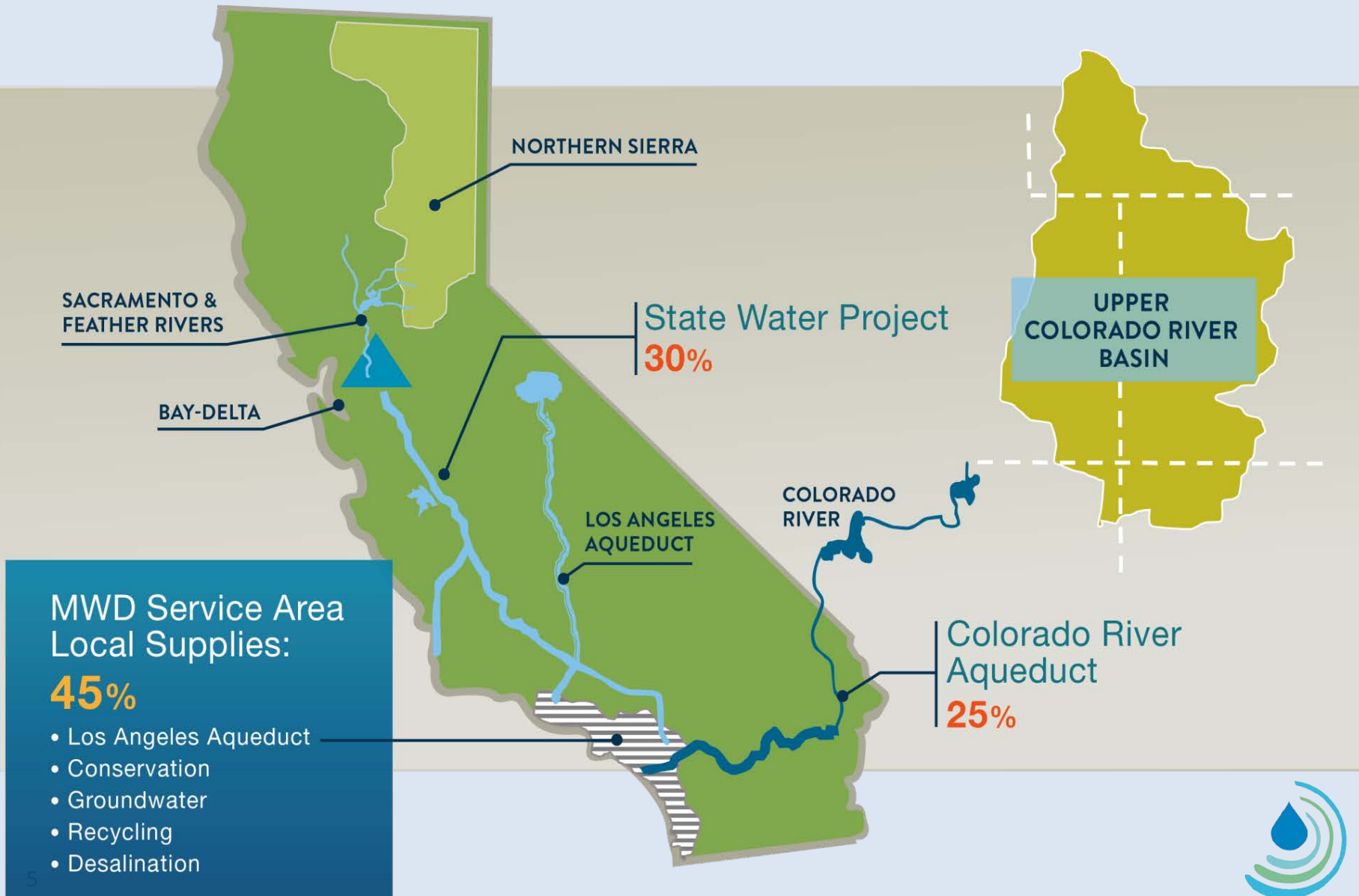
METROPOLITAN OVERVIEW



- 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

SOURCES OF WATER FOR SOUTHERN CALIFORNIA



Metropolitan's Future Water Supplies

Achieve Additional Conservation Savings



Stabilize State Water Project Supplies



Maintain Colorado River Aqueduct Supplies

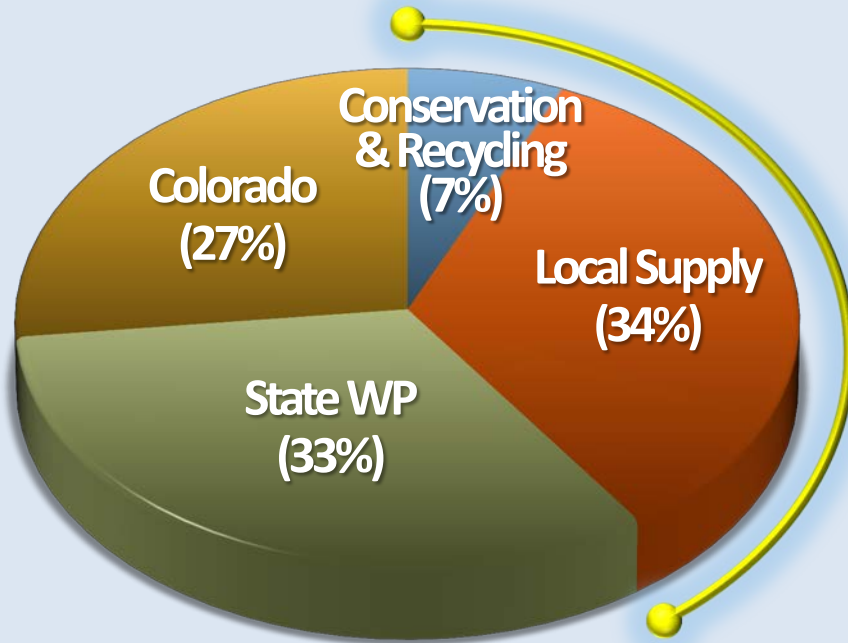


Develop Additional Local Water Supplies



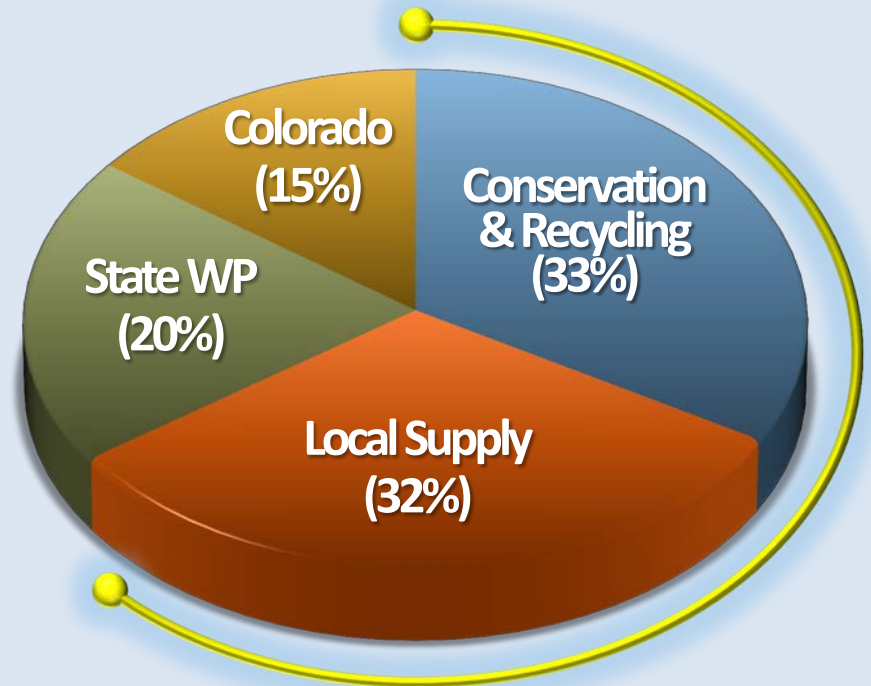
METROPOLITAN WATER SUPPLY STRATEGY

Average Year Water Supply – 1990 vs. 2040



1990 – 41% Local

Heavy Dependence on Imported Supply and SWP Diversions



2040 – 65% Local

Emphasis on Conservation and Local Supplies



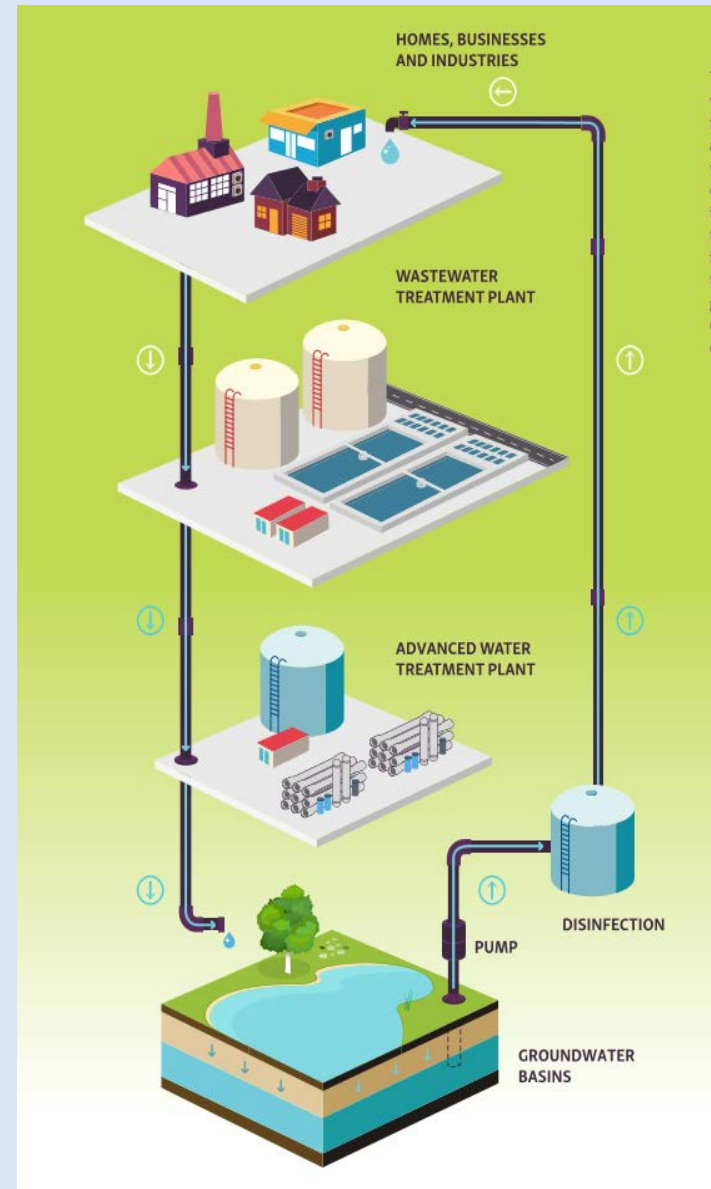


Adapting to Changing Conditions

PROJECT NEED

REGIONAL RECYCLED WATER PROGRAM

- Collaboration between Metropolitan and Sanitation Districts of LA County
- Development of a new regional water source
 - Up to 150 mgd (168,000 AFY) of purified recycled water
 - Replenish groundwater basins
 - Provide water to industries
 - New supply to Metropolitan's water treatment plants



PROGRAM BENEFITS

Benefits of the Regional Recycled Water Program



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.





A partnership between two regional agencies

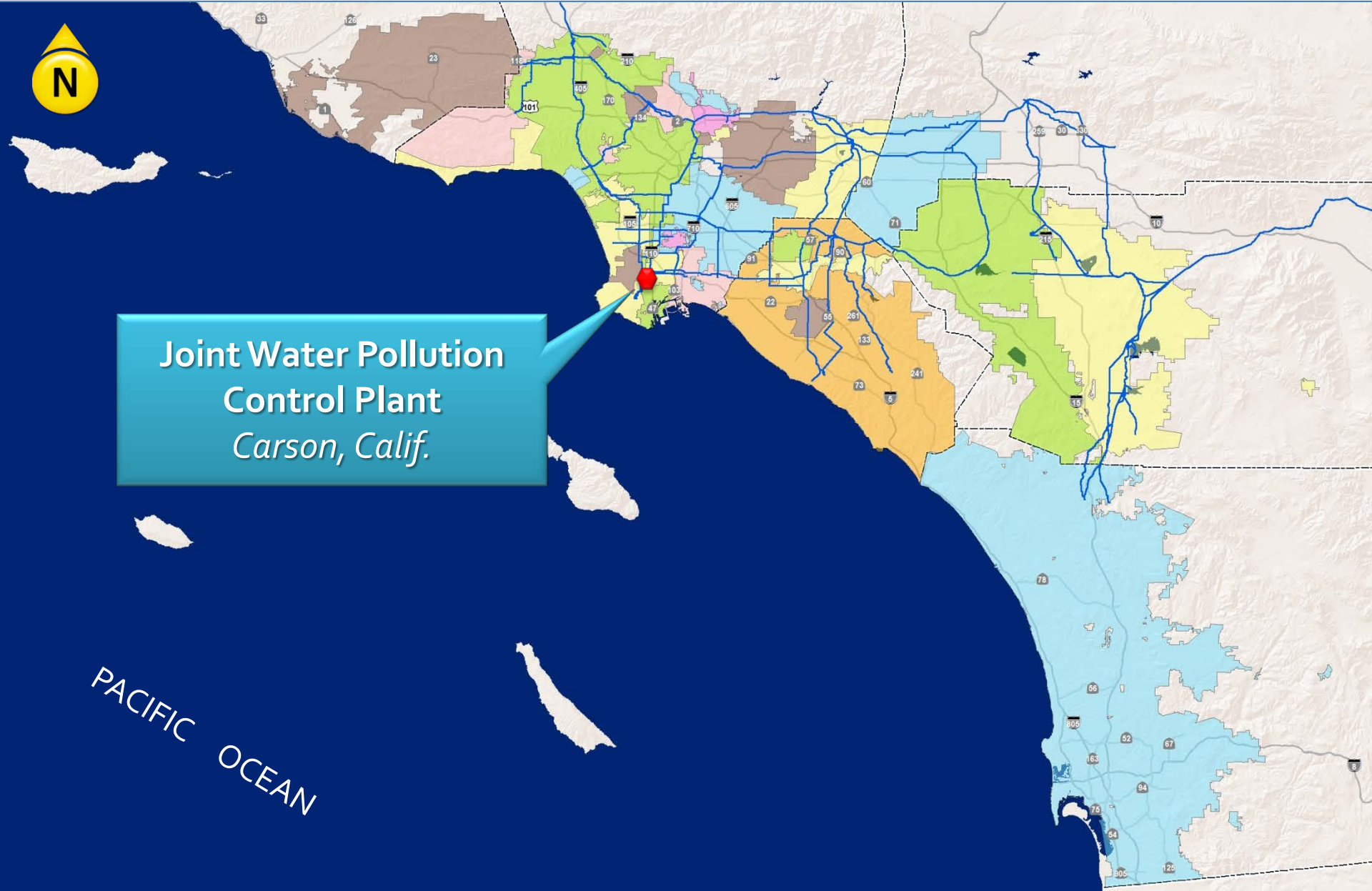
METROPOLITAN – SANITATION DISTRICTS

NEW REGIONAL SOURCE OF SUPPLY



Joint Water Pollution
Control Plant
Carson, Calif.

PACIFIC OCEAN



JOINT WATER POLLUTION CONTROL PLANT

- 2017 average flow of ~260 MGD
- Permitted capacity of 400 MGD
- Primary and secondary treatment
- Currently discharges to the ocean



LARGEST UNTAPPED SOURCE OF TREATED WASTEWATER



Source: Heal the Ocean. "Inventory of Municipal Wastewater Discharges to California Coastal Waters"

COLLABORATION ON REGIONAL WATER SUPPLY

- Nearly a decade of discussions on water recycling
 - 2009-11: Initial technical studies
 - 2010-12: Pilot study on treatment feasibility
 - 2015-16: Program feasibility study
 - 2017-19: Construction of demonstration facility
 - 2017-19: Conceptual planning and engineering studies





A New Source of Water for Southern California

REGIONAL RECYCLED WATER PROGRAM

PROGRAM COMPONENTS



①

Wastewater from homes, businesses, and industries in LA County

②

Cleaned at Sanitation Districts' Joint Water Pollution Control Plant

③

Purified at Metropolitan's advanced water treatment plant

④

Conveyed through over 60 miles of pipeline to groundwater basins, industries, or Metropolitan's treatment plants

⑤

A new purified source of water for Southern California

CALIFORNIA RECYCLED WATER REGULATIONS



Non-Potable
Reuse

*Irrigation
Industrial Uses*

2000



Indirect
Potable Reuse

*Groundwater
Replenishment*

2014



Indirect
Potable Reuse

*Reservoir Water
Augmentation*

2018



Direct Potable
Reuse

*Raw Water
Augmentation*

2023/TBD

Increasing requirements for public health protection

THREE-STEP PLANNING PROCESS

**Feasibility
Study Report
(Complete)**

- Can it be done?
- What will it cost?

**Conceptual
Planning
(Underway)**

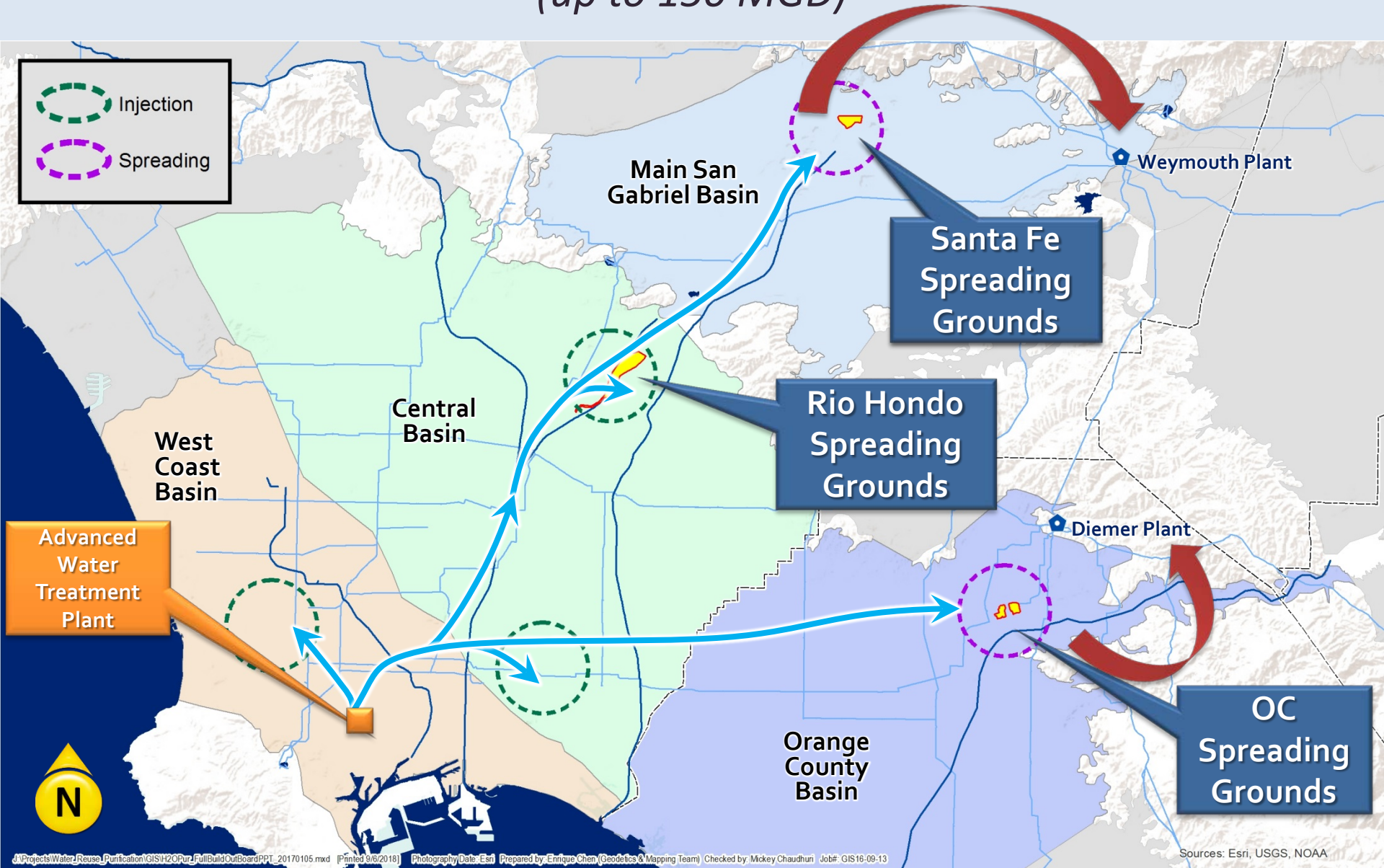
- How should it be done?
- Can it be phased?

**Environmental
Permitting
(Future)**

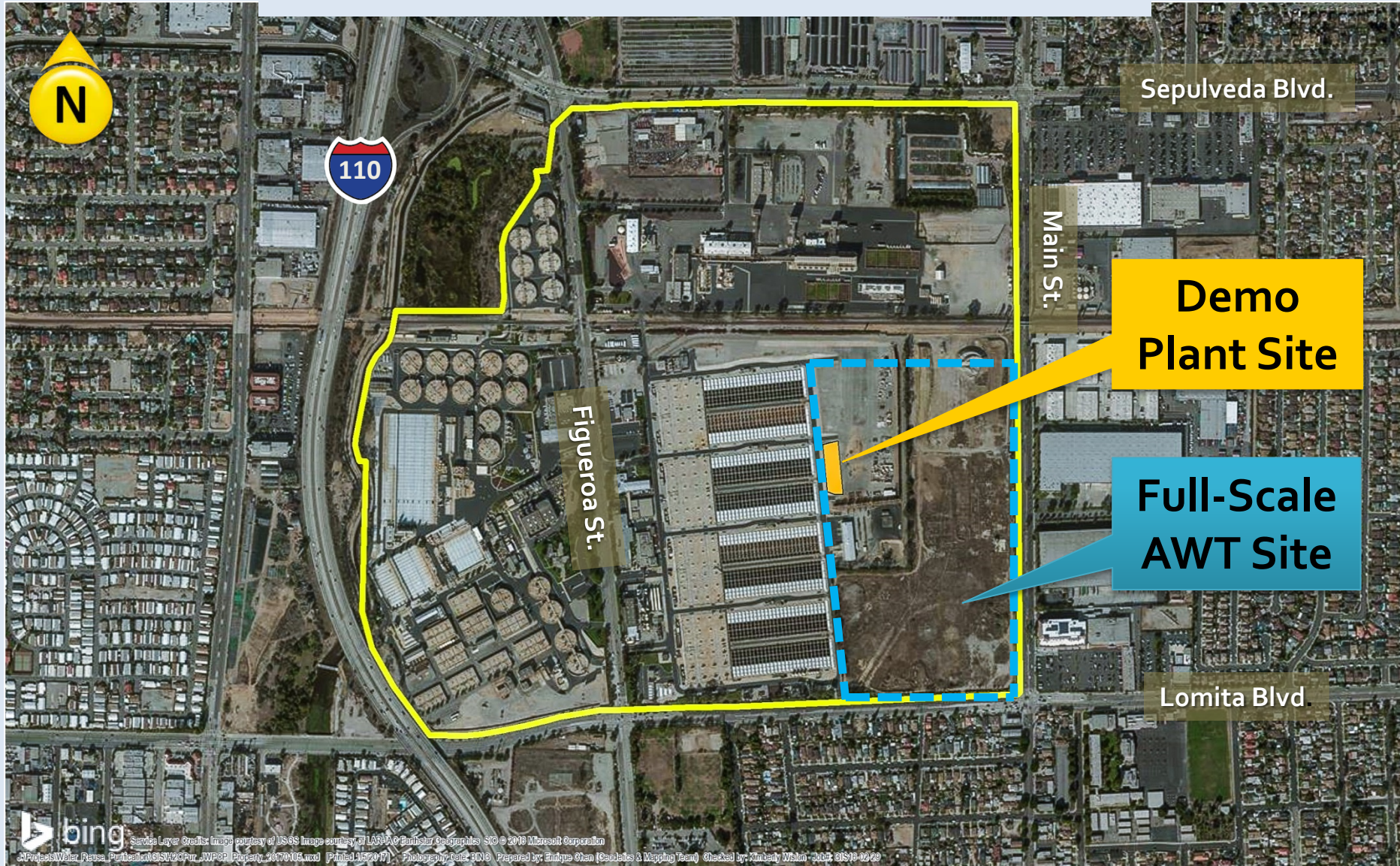
- What are impacts?

POTENTIAL FULL PROGRAM

(up to 150 MGD)



LOCATION OF FULL-SCALE FACILITIES AT JWPCP



Sepulveda Blvd.

Main St.

**Demo
Plant Site**

**Full-Scale
AWT Site**

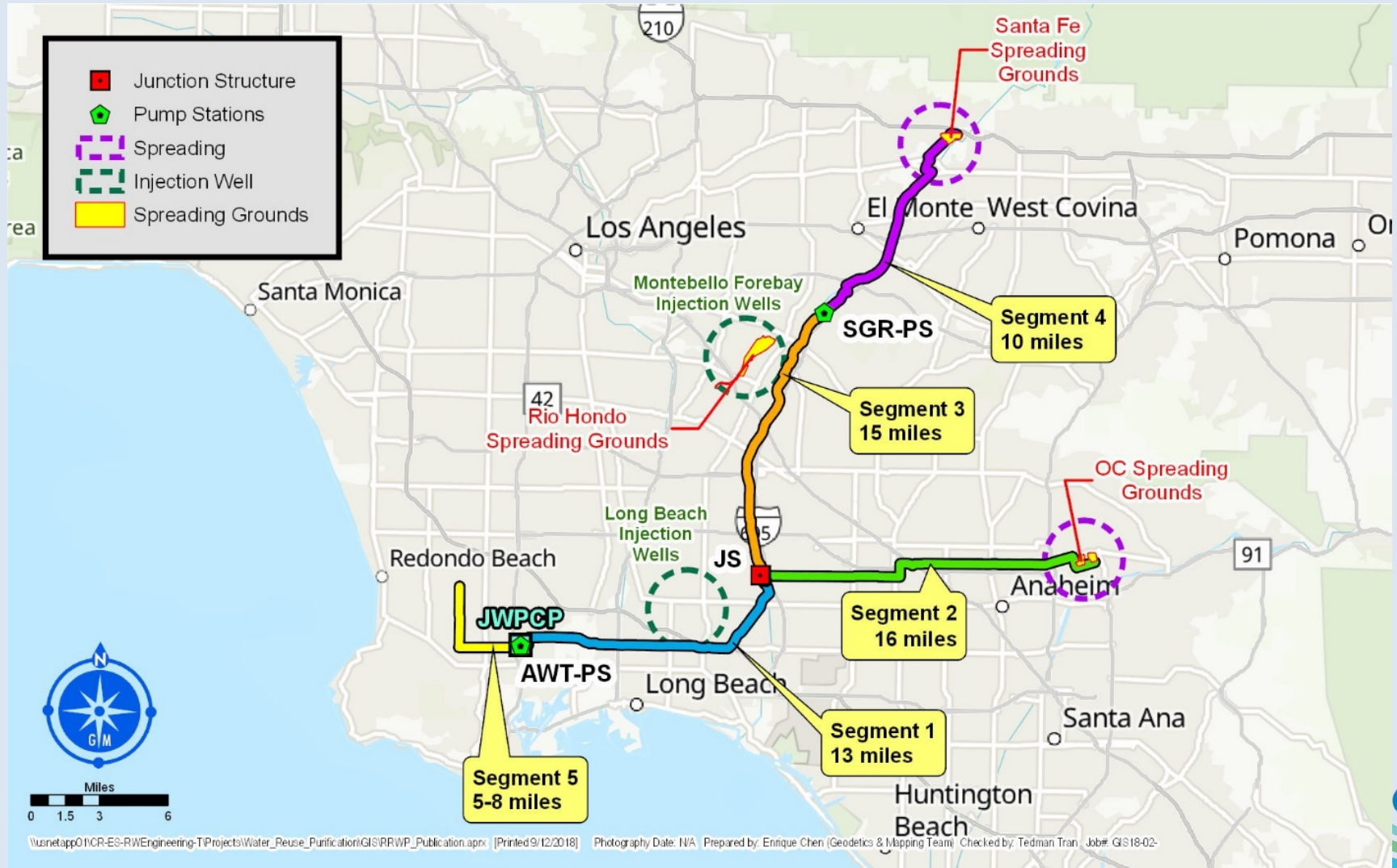
Figueroa St.

Lomita Blvd.



CONVEYANCE SYSTEM

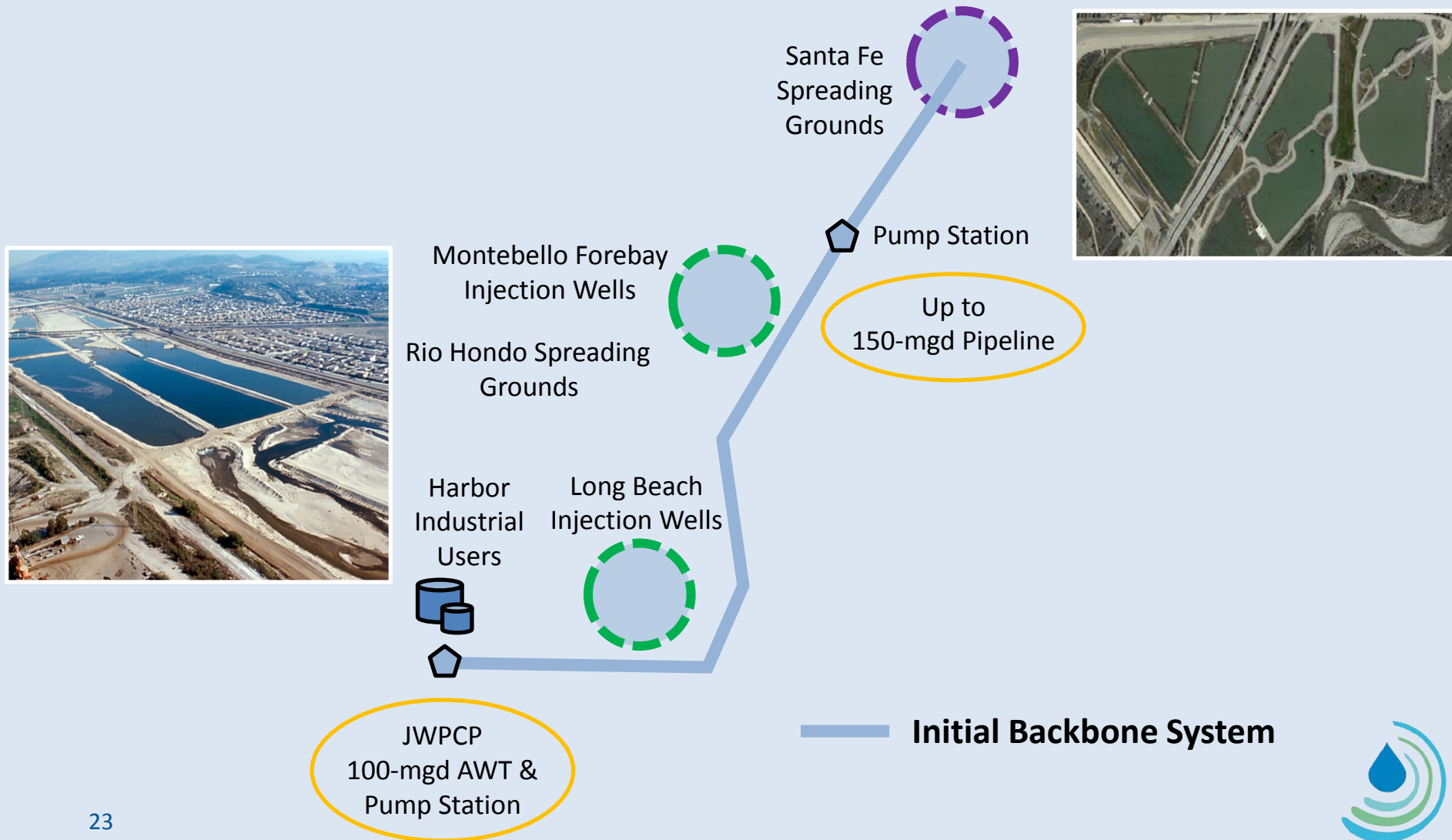
Over 60 miles of pipeline



RECOMMENDATION:

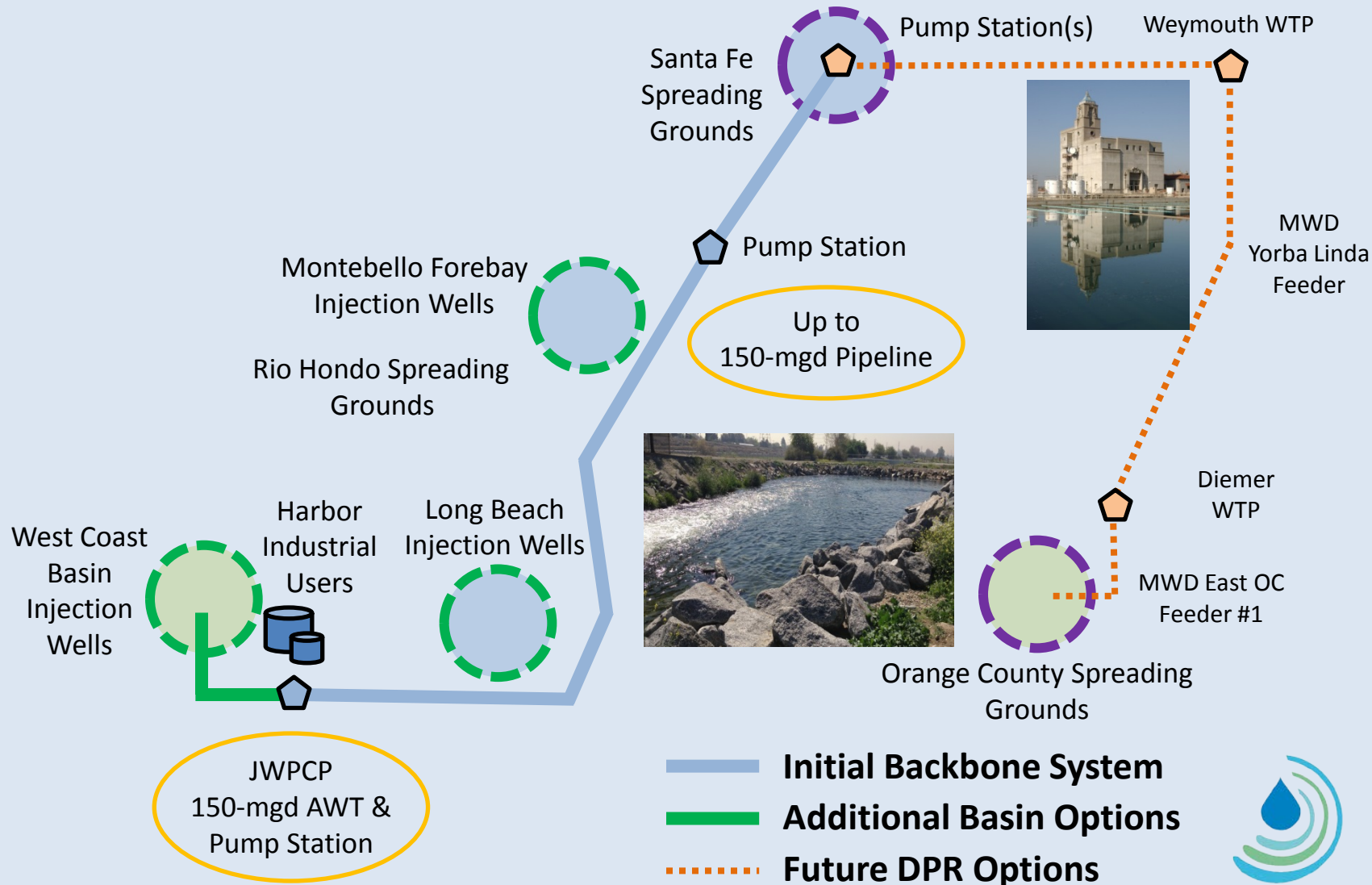
CONSTRUCT IN TWO PHASES

Phase 1: 100 mgd plant to Santa Fe Spreading Grounds



RECOMMENDATION: CONSTRUCT IN TWO PHASES

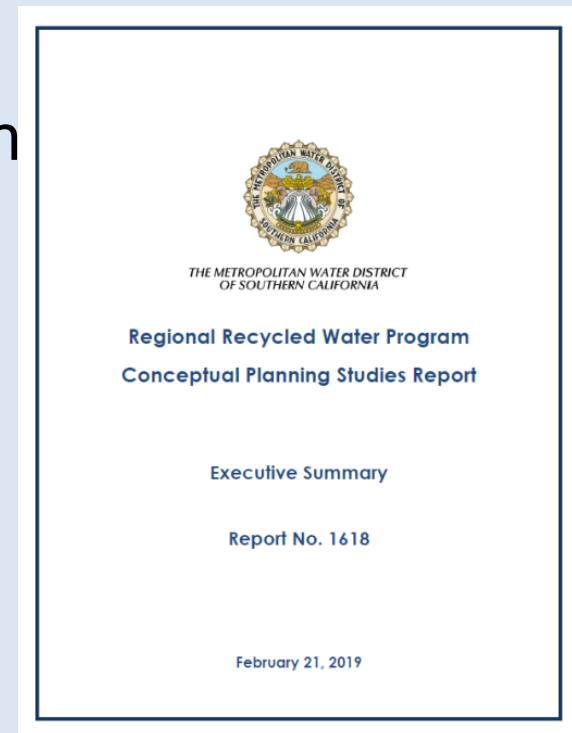
Future opportunities: additional basins, direct to treatment plants



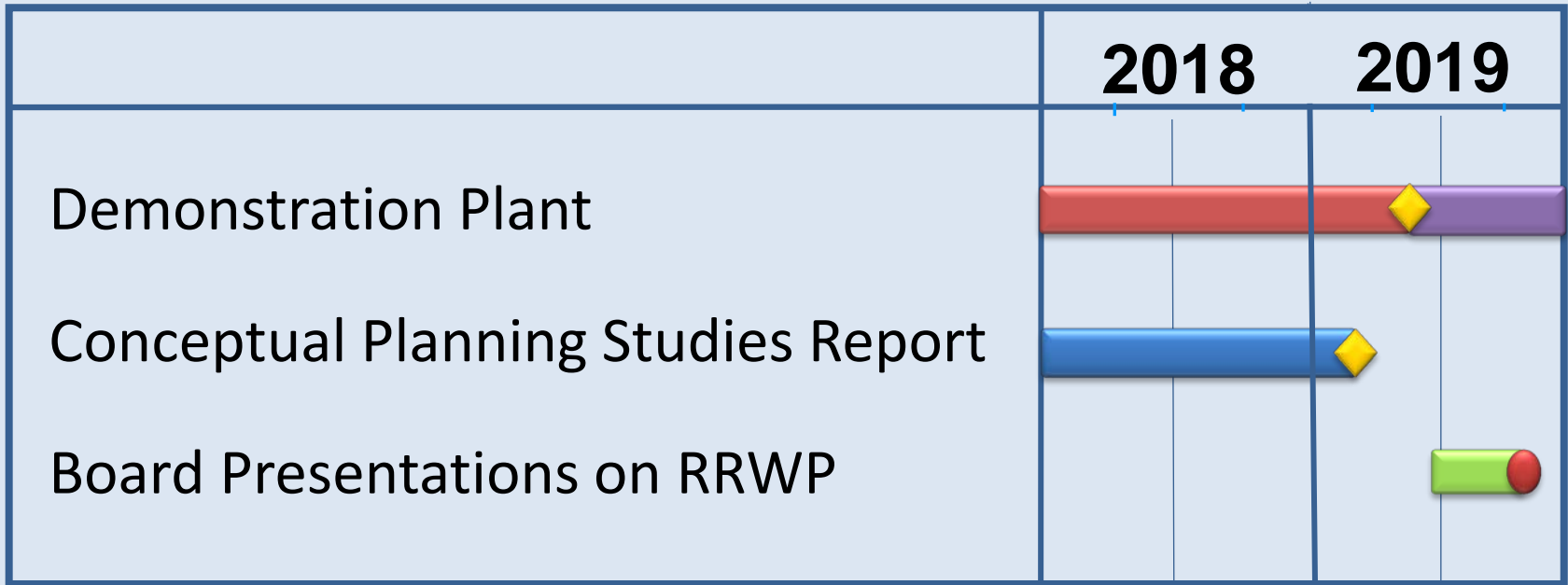
ESTIMATED RRWP COSTS

Full Program

- Total capital cost of \$3.4 billion
 - All new facilities including 150-mgd AWT plant, 60 miles of pipeline and 2 pump stations
- Annual O&M cost of \$129 million
- Unit cost of \$1,826/AF



SCHEDULE



Construction



Operations/Testing



Studies



Board Workshops



Completion



Board Action





A New Demonstration Facility

REGIONAL RECYCLED WATER ADVANCED PURIFICATION CENTER

ABOUT THE ADVANCED PURIFICATION CENTER

- Test innovative purification process
- Obtain regulatory approval of process
- Provide data and costs for a full-scale facility
- Conduct tours and outreach for public acceptance





Regional Recycled Water Advanced Purification Center

Chemical Feed Systems

**2. Reverse
Osmosis**

**3. UV Disinfection /
Advanced Oxidation**

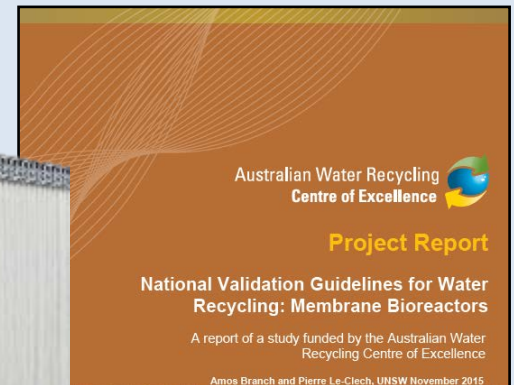
**1 a. MBR –
Aerobic and
Anoxic Tanks**

**1 b. MBR –
Membrane
Modules**

**Demonstration Plant
3-D Rendering**

MEMBRANE BIOREACTOR FOR WATER REUSE

- Commonly used in wastewater and non-potable reuse applications
- Limited use in potable reuse projects
- International and pilot studies show promising results
- Effective technology for source water
 - Removes pathogens
 - Manages nitrogen
 - Minimizes RO degrading
- **Increases efficiency and saves money**



DEMONSTRATION PLANT SCHEDULE

Spring
2019

- Construction complete
- Equipment testing

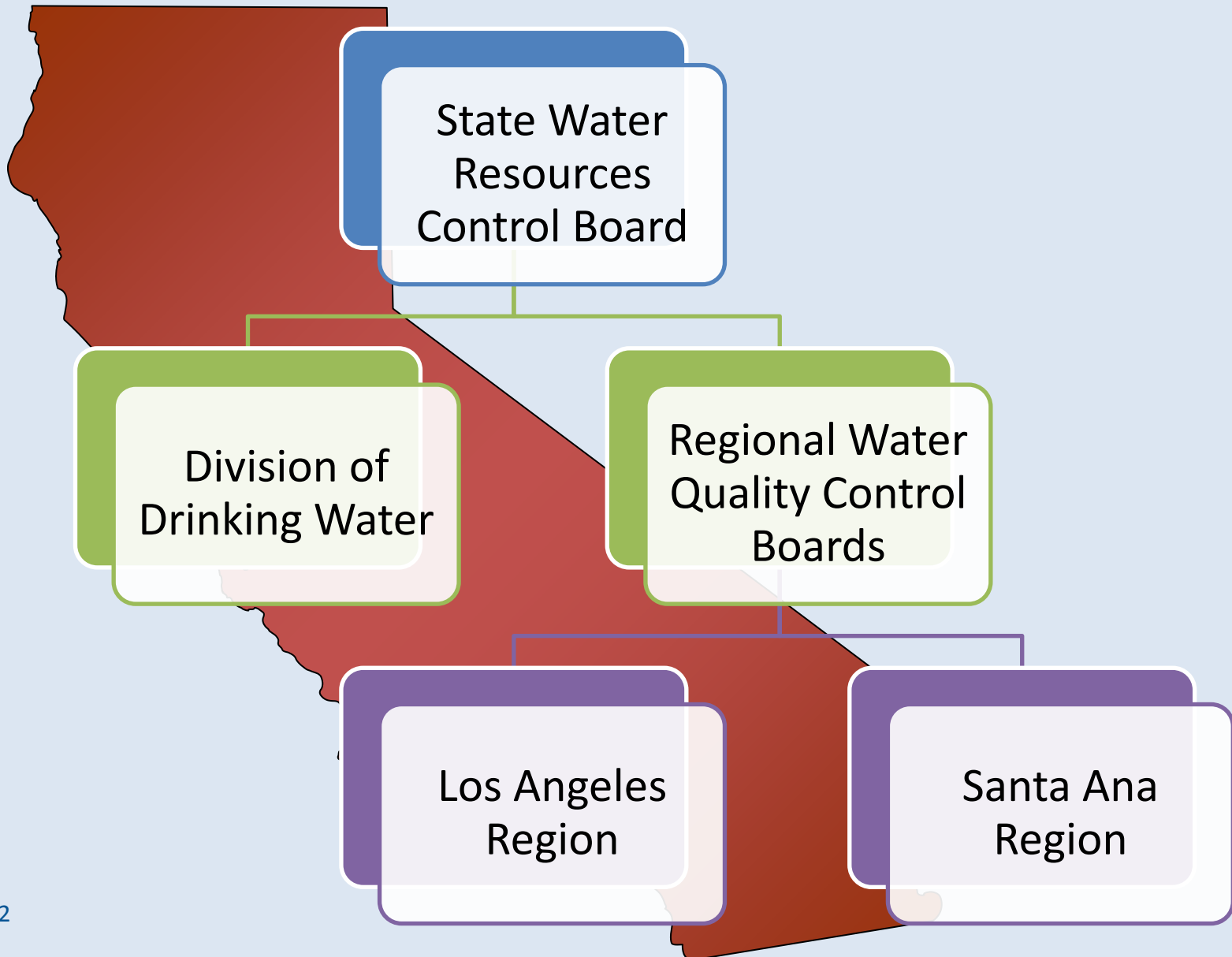
Summer
2019

- Center is online
- Pre-testing begins

Fall 2019

- Testing begins
- Testing and evaluation under both normal (4 months) and stressed (8 months) conditions; focus is to show pathogen removal

REGULATORY OVERSIGHT



APPROVAL AND IMPACT

- Submitted testing plan and accepted by regulators
- Once approved, could be used in California
- Data could be applied all over world



The cover page features the official seal of the Sanitation Districts of Los Angeles County in the top left. To its right is the organization's logo, which consists of a stylized blue and green wave above the text 'SANITATION DISTRICTS OF LOS ANGELES COUNTY'. On the right side, there is a large graphic of a blue water drop with green and blue concentric circles around it. The title 'Regional Recycled Water Advanced Purification Center Demonstration Project' is centered below the logos. The main title 'TESTING AND MONITORING PLAN' is prominently displayed in large, white, sans-serif capital letters. Below the title, the date 'January 2019' is printed. At the bottom of the page, there are three logos: Stantec (a stylized orange 'S'), Trussell Technologies Inc. (the name in blue with 'TECHNOLOGIES INC.' in smaller text below), and carollo (the name in blue with 'Engineers...Working Wonders With Water®' in smaller text below).

SANITATION DISTRICTS OF LOS ANGELES COUNTY

Regional Recycled Water Advanced Purification Center
Demonstration Project

TESTING AND MONITORING PLAN

January 2019

Stantec Trussell Technologies Inc. carollo
Engineers...Working Wonders With Water®



TOURS AND OUTREACH PROGRAM

- Tours for public and key stakeholders
- Ages 10 and up welcome
- School program
- Invite others to attend





LET'S TAKE A TOUR

GUIDELINES

- Hard hats and safety vests required
- Please let us know if you are having trouble hearing
- Photos are encouraged at most locations
- Ask questions anytime
- For social media: use #recycledwater , tag@mwdh2o





Wrap-up

FEEDBACK AND QUESTIONS

METROPOLITAN RECYCLED WATER WEBSITE



INTRODUCTION HOW IT WORKS PROCESS BENEFITS STRATEGY MILESTONES RESOURCES PARTNERSHIP



Regional Recycled Water Advanced Purification Center

A NEW SOURCE OF WATER FOR SOUTHERN CALIFORNIA

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

