



moulton niguel water district

REGIONAL ADAPTIVE AND INTEGRATED NATURAL (RAIN) TREATMENT CENTER

PRESENTED BY
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February 16, 2023



moulton niguel water district



Drinking-Water, Recycled Water, and Wastewater Treatment



Serve 170,000+ Customers in 6 Cities in South Orange County



7-Member Board of Directors



178 Employees



AAA Credit Rating from Fitch and S&P Global



Top Workplace OC & USA

Recognized Statewide and Nationally for Innovation, Environmental Stewardship, and Customer Service



THE ORANGE COUNTY REGISTER
Moulton Niguel Water District is a 2021 Top Workplace! 5 Years Running



moulton niguel water district



100% Imported Water



25% Demand Met by Recycled Water



Potable Water Supply System:

- 700 Miles of Pipelines
- 28 Storage Reservoirs
- 173 Million Gallons of Storage
- 30 Pump Stations
- 20 Pressure Reducing Stations



HISTORY OF WATER RECYCLING



Moulton Niguel Began Recycling Water in 1968
- Just 8 Years After the District was Formed

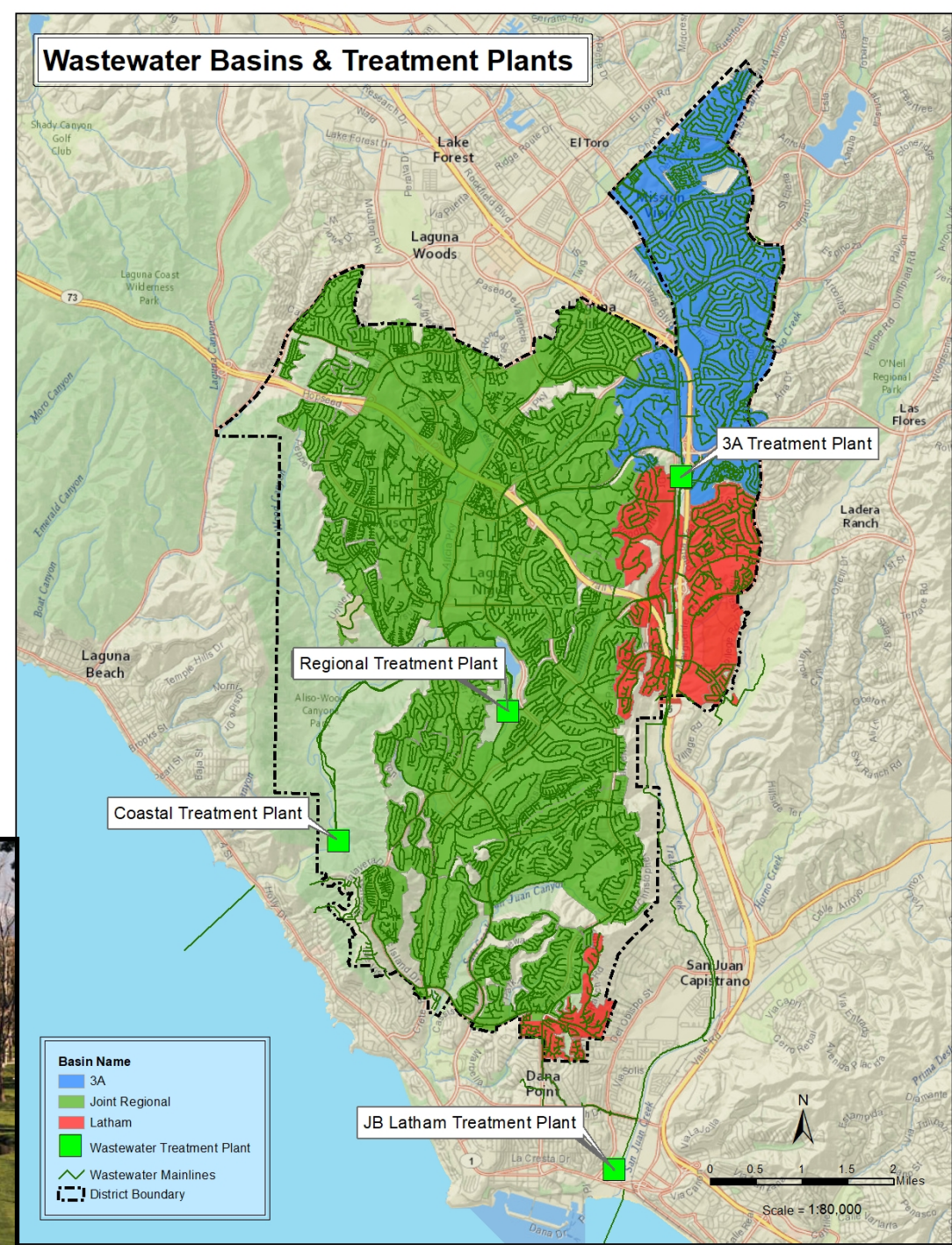


Wastewater Treatment Plants – Title 22 Tertiary RW

- Plant 3A, Mission Viejo
- Regional Treatment Plant, Laguna Niguel



Mission Viejo Country Club



TODAY'S RECYCLED WATER DISTRIBUTION SYSTEM



150 Miles of Distribution Pipes



11 Storage Reservoirs

■ Near 19 MG Storage Capacity



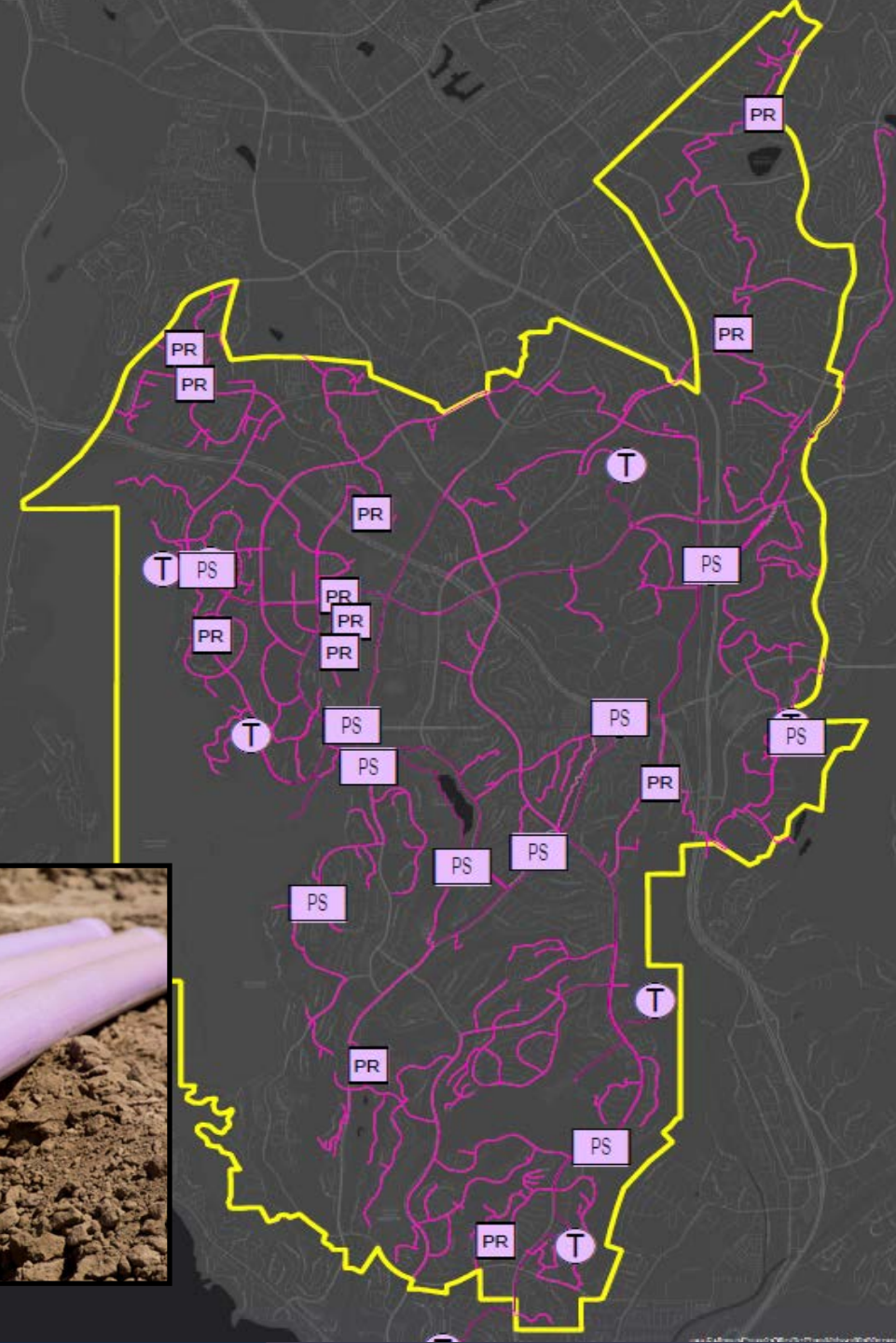
10 Pump Stations



13 Pressure Regulating Stations



16 Pressure Zones



RECYCLED WATER CUSTOMERS

25% of Local Water Demand Met Through Recycled Water & Used for Commercial Irrigation:

- Street medians
- Golf courses
- Grass & landscapes at parks, schools, HOAs, etc.
- 1,300+ customers

AMI Leak Detection

7 Million Gallons Daily Use

District Recycled Water System
Nearly Built Out



DISTRICT'S REUSE INITIATIVES



- 1 Maximize Wastewater Reuse for Water Recycling
- 2 Reduce Ocean Discharges of Treated Wastewater
- 3 Optimize Wastewater Treatment Operations and Capacities
- 4 Identify Opportunities for Regional Collaboration to Further Mutual Wastewater Efficiency and Recycling Goals
- 5 Improve Watershed Health Through Demand Management Actions

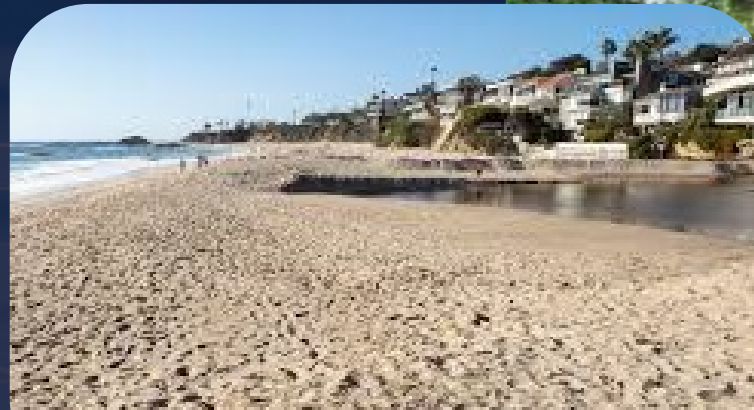
URBAN RUNOFF REDUCTION PARTNERSHIP

- Partnership with County, Cities, NGOs
- Data Sharing, Program Development, and Community Outreach
- Reduce Runoff and Improve Watershed Health



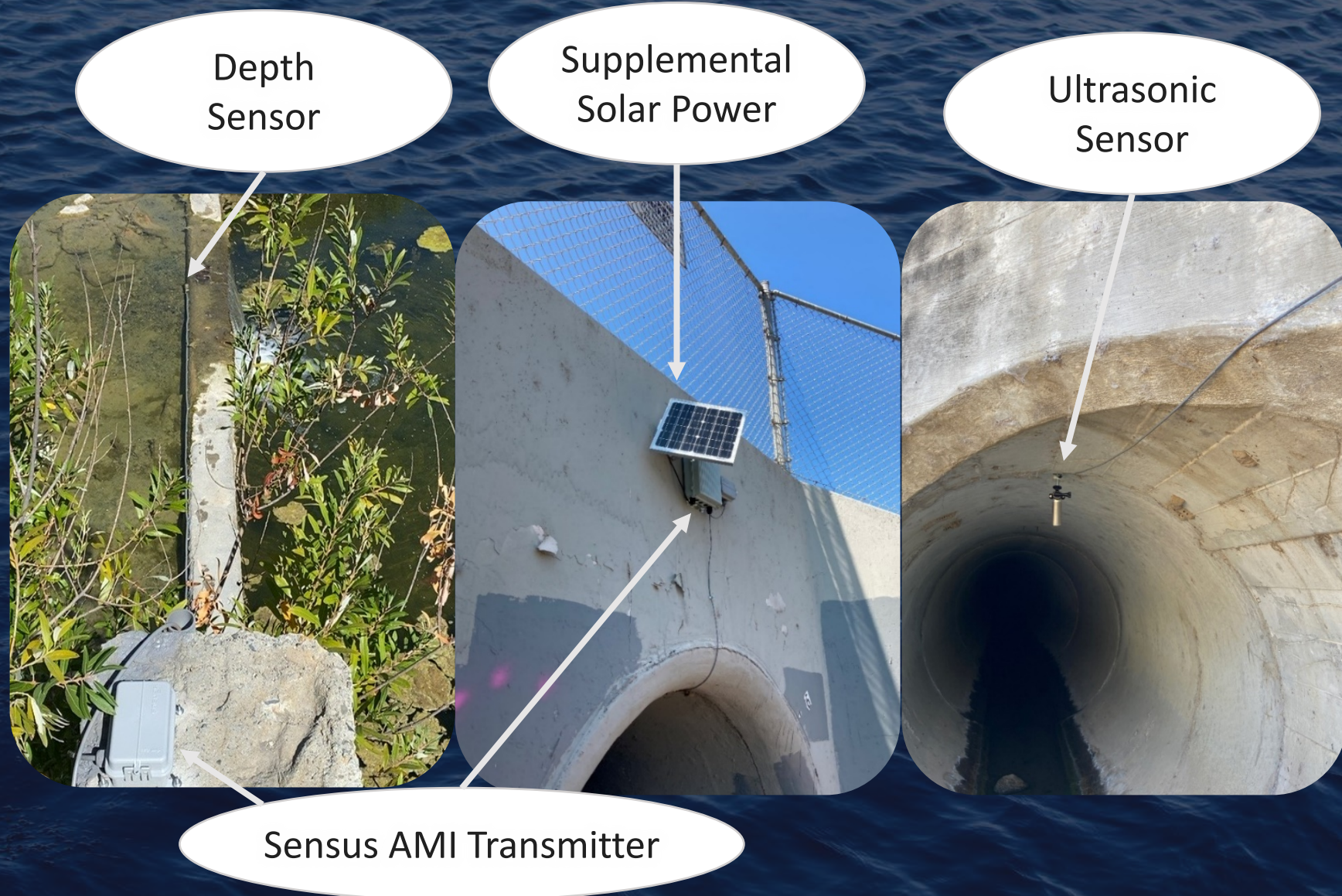
URBAN RUNOFF POTENTIAL

- > 1 MG flows to Aliso Creek each day during dry weather
- Dry weather discharge changes streamflow and transports pollutants
- Opportunity to augment local supply and increase watershed health



SMART WATERSHED NETWORK PILOT PROJECT

Primary Objective:
Evaluate the sustainable use of urban runoff and stormwater as a potential water supply source



SMART WATERSHED NETWORK DASHBOARD

Input/Result	Scenario 1
Operating Rule	Dry only
Operating delay	48 hrs
Storage Volume	0
Diversion Rate	0.2 cfs
% of Inflow Diverted	23%
Approx. dry weather volume diverted, ac-ft	22
Approx. wet weather volume diverted, ac-ft	0
Approximate conductivity of diverted water, uS/cm	1800

Smart Watershed Network Home Time Series Analysis Paired Regression Analysis Diversion Scenario Learn More Manage Welcome Austin Orr

Time Series Analysis

Use the map to select stations and datasets to add to your analysis. Then select the requested time intervals, wet-dry filters, and aggregating criteria. Once you have a visualization designed, you can download the supporting data or create a permalink to be able to return to this in the future.

Station Selection

Filter Sites By: All Sites Station Search: Station Name, ID, or Description

Station ID @: J01_9144_1
Short Name @: Aliso Ck Rd at J01
Description @: Aliso Creek Rd at Aliso Creek (J01P23)
[View Tributary Area](#)

Data Available:

- Discharge**
Description: Volumetric discharge (cfs) as measured at this station. [Add](#)
Record: 10/6/2020 - 4/16/2022
- Distance to Water**
Description: Distance from sensor to water surface (inches) as measured at this station. [Add](#)
Record: 10/6/2020 - 4/16/2022
- Estimated Urban Drool**
Description: Estimate of Monthly Urban Drool (centum cubic feet) accumulated from Regional Subbasins upstream of this station. [Add](#)

Selected Data

[Clear All](#)

- Alicia Pkwy at J03 - Discharge
- Alicia Pkwy at J03 - Conductivity
- Alicia Pkwy at J03 - Estimated Urban Drool
- Laguna Niguel Park - Rainfall

Time Series View and Download

Start Date: 2021-11-01 End Date: 2022-04-01

[Link to this analysis](#) [Download Data \(.csv\)](#)

Alicia Pkwy at J03 - Discharge

Time Interval: Daily Weather Condition: All (Wet + Dry) Aggregation Method: Average

Alicia Pkwy at J03 - Conductivity

Time Interval: Daily Weather Condition: All (Wet + Dry) Aggregation Method: Average

Alicia Pkwy at J03 - Estimated Urban Drool

Time Interval: Daily Weather Condition: All (Wet + Dry) Aggregation Method: Total

Laguna Niguel Park - Rainfall

Time Interval: Daily Weather Condition: All (Wet + Dry) Aggregation Method: Total

[Submit](#)

REGIONAL ADAPTIVE INTEGRATED NATURAL (RAIN) TREATMENT CENTER

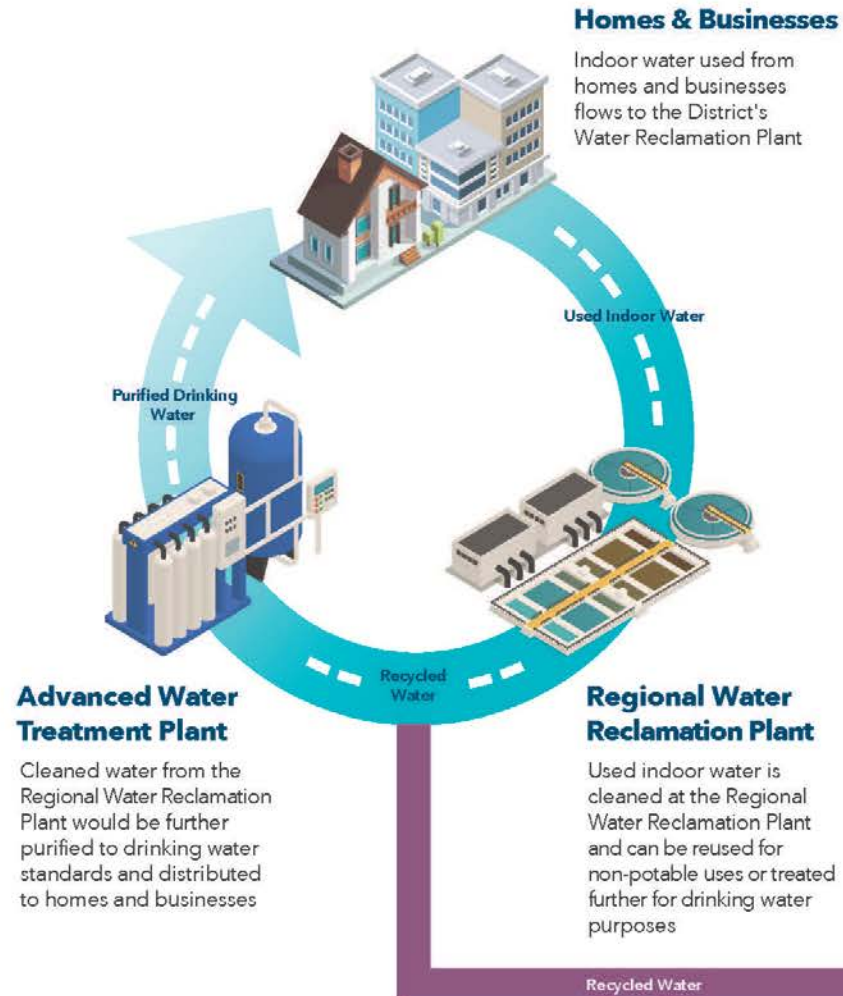
MULTI-BENEFIT PROJECT:

- Aliso Creek Watershed Benefits
- New Local Water Supplies
- Watershed Education Center
- Regional Partnerships
- Promotion Of Water Efficiency Programs



RAIN TREATMENT CENTER

DIRECT POTABLE REUSE DRINKING WATER



*Potable Water = Drinking Water

RUNOFF DIVERSION RECYCLED WATER



Local Runoff & Stormwater

Urban runoff water and stormwater is collected from storm drains in the watershed to be reused



Lake Reservoir and Natural Treatment Center

Urban runoff and stormwater are temporarily stored in the Laguna Niguel Lake so that the water can be reused when demands are highest

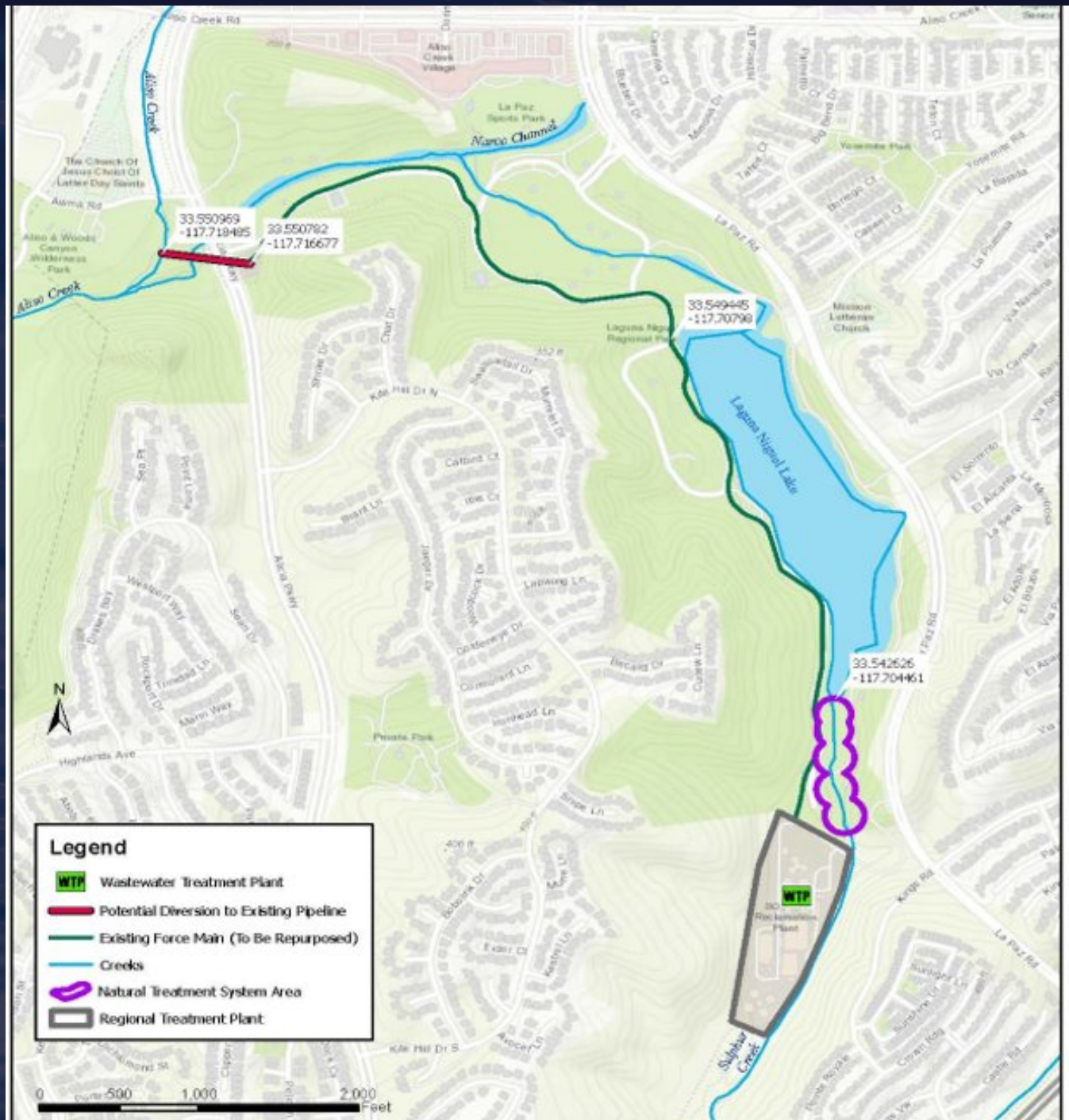


Non-potable Water Use (Irrigation)

Treated water from the Regional Water Reclamation Plant and the Lake Reservoir and Natural Treatment Center is sent to recycled water customers for outdoor irrigation use

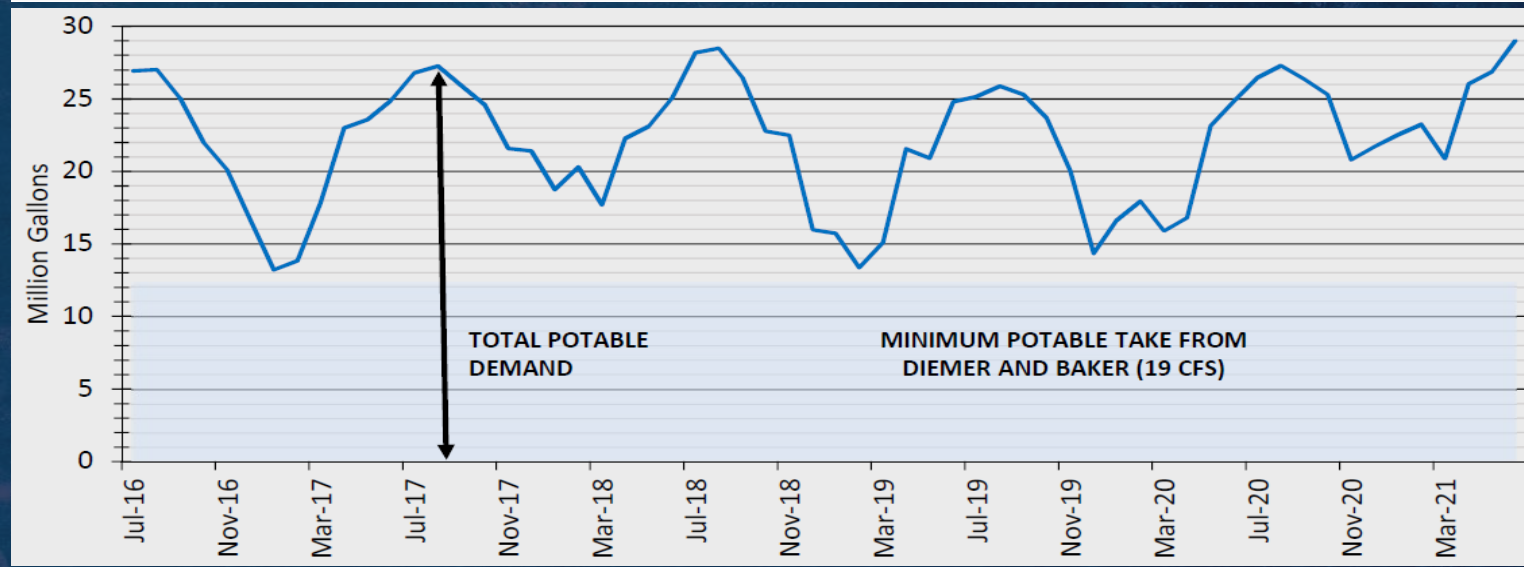
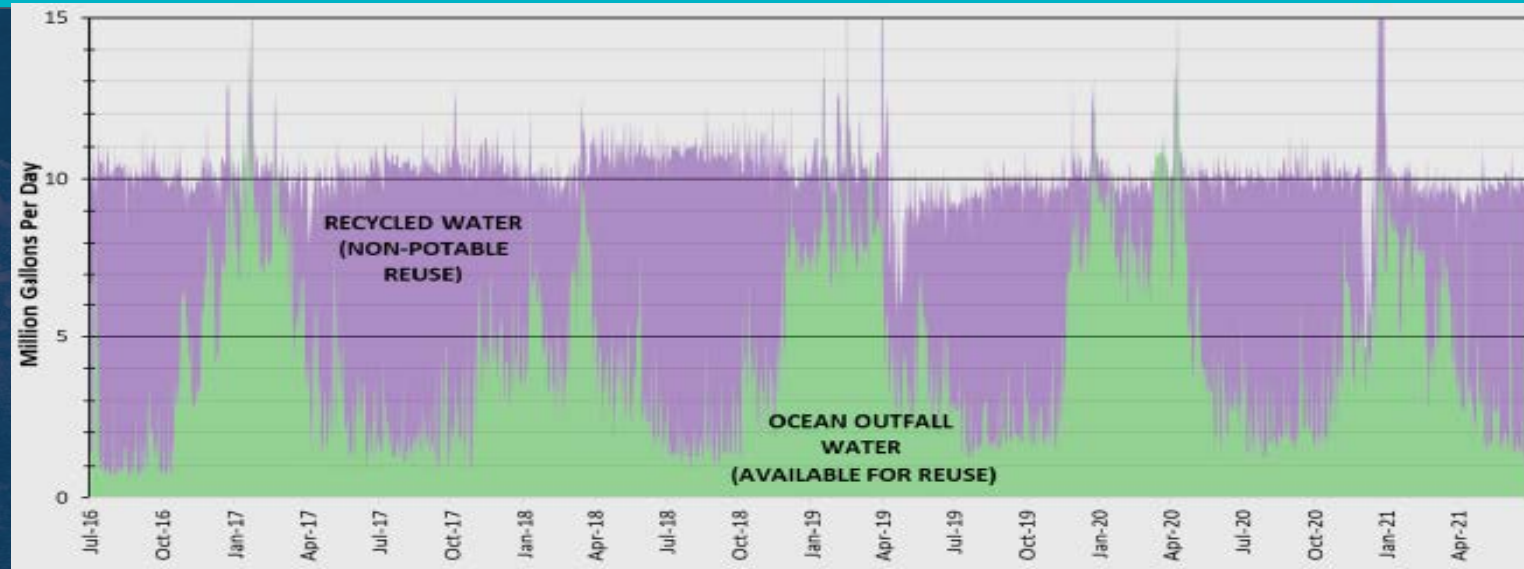
POTENTIAL PROJECT FACILITIES

- Runoff Diversion Structure
- Repurpose Pipeline
- Natural Treatment System
- Direct Potable Reuse
- Education Center



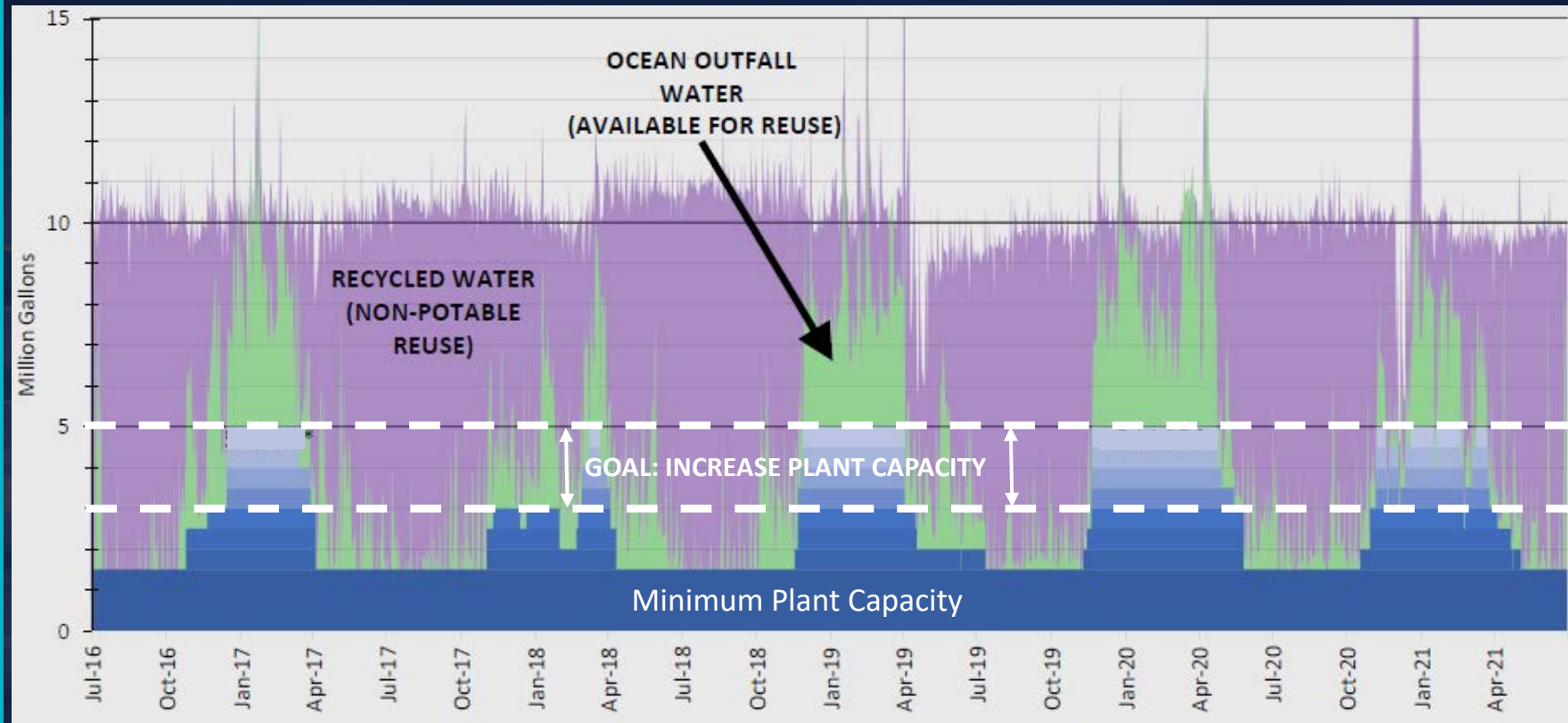
DIRECT POTABLE REUSE (DPR) SUPPLY

- Wastewater Availability
- Seasonal Constraints



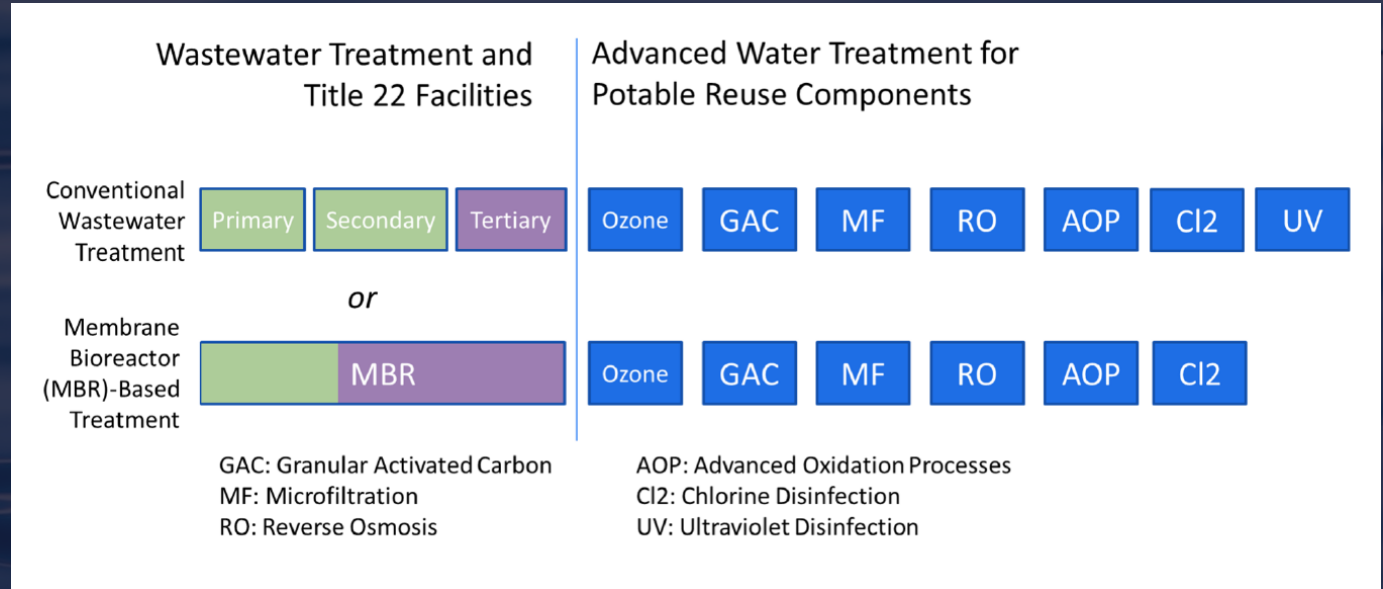
PATHWAYS FOR INCREASING DPR PLANT CAPACITY

- Recycled Water Supply Augmentation
- Seasonal Storage Optimization
- Recycled Water Demand Management



TREATMENT CONSIDERATIONS

- Treated Water Augmentation
 - Treatment Options
 - Improved Instrumentation and Automation
 - Enhanced Source Control Program



WATER QUALITY MONITORING PLAN

- Aliso Creek
- Sulphur Creek
- Laguna Niguel Lake
- Regional Treatment Plant
- Title 22 Drinking Water and Recycled Water Regulations



PLANNING ACTIVITIES


- Grant Funding Opportunities
 - \$1.5M Building Resilient Infrastructure Communities (FEMA)
- DPR Concept Study
- Demonstration Plant
- Runoff Diversion Study
- Water Quality Monitoring Plan
- Regional Partnerships
- Stakeholder Coordination and Outreach



THANK YOU!


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CONNECT WITH
MOULTON NIGUEL WATER DISTRICT!

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