GROUNDWATER
RELIABILITY PLUS
Securing Our Water Future

Groundwater Reliability Plus

WateReuse Inland Empire Chapter Meeting

September 26, 2017

emwd

Agenda

- EMWD Overview
- Groundwater Reliability Plus Overview
  - Existing Facilities
  - Objectives
  - Current and Proposed Operations
- Purified Water Replenishment
  - Proposed Facilities
  - Salinity Benefit
  - Additional Benefits
  - Other Potable Reuse Projects
  - Community Outreach
- Schedule of Projects

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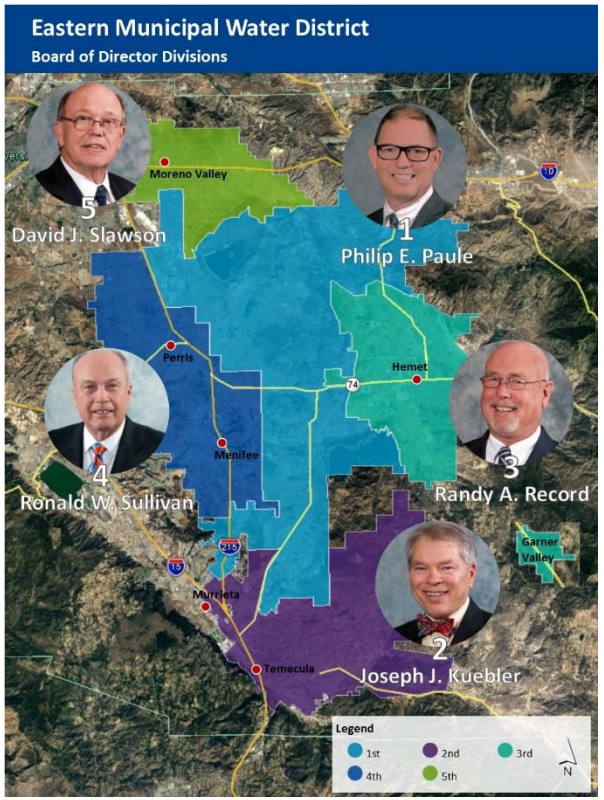
EMWD Overview

About EMWD

- Established in 1950
- Provide water, wastewater and recycled water services
- 555 square miles
  - Seven cities and unincorporated areas
- Population: 804,000
- Nearly 40 percent built out
- One of 26 member agencies of The Metropolitan Water District of Southern California (MWD)
- Five district-elected board members
- More than 600 employees



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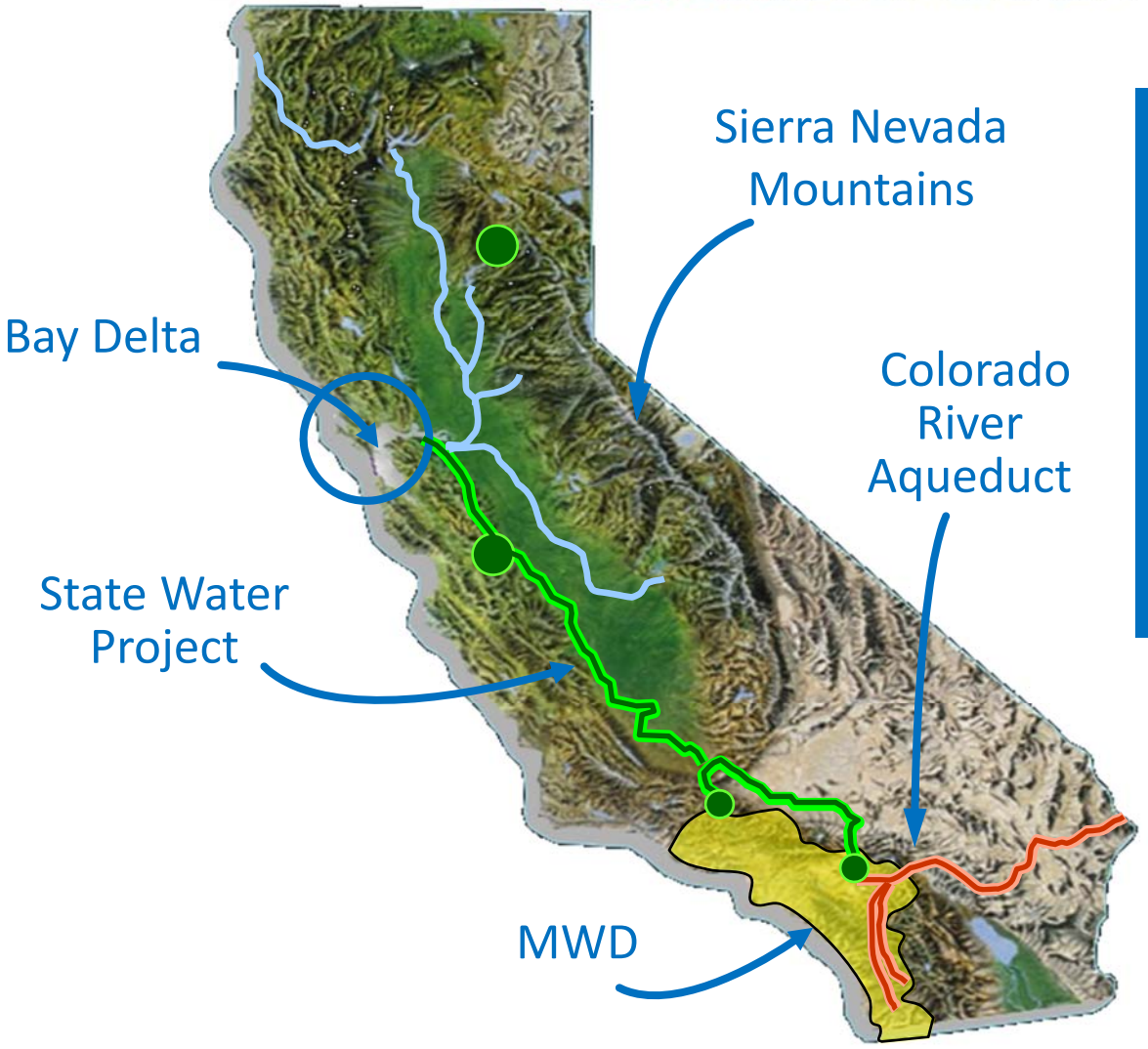
Where Our Water Comes From



Water Supply Challenges:

- Limited groundwater supplies
- Recurring drought
- Increasing imported water costs
- Population growth

EMWD Local Supplies:

- Groundwater
- Desalted Groundwater
- Recycled Water
- Stormwater Capture

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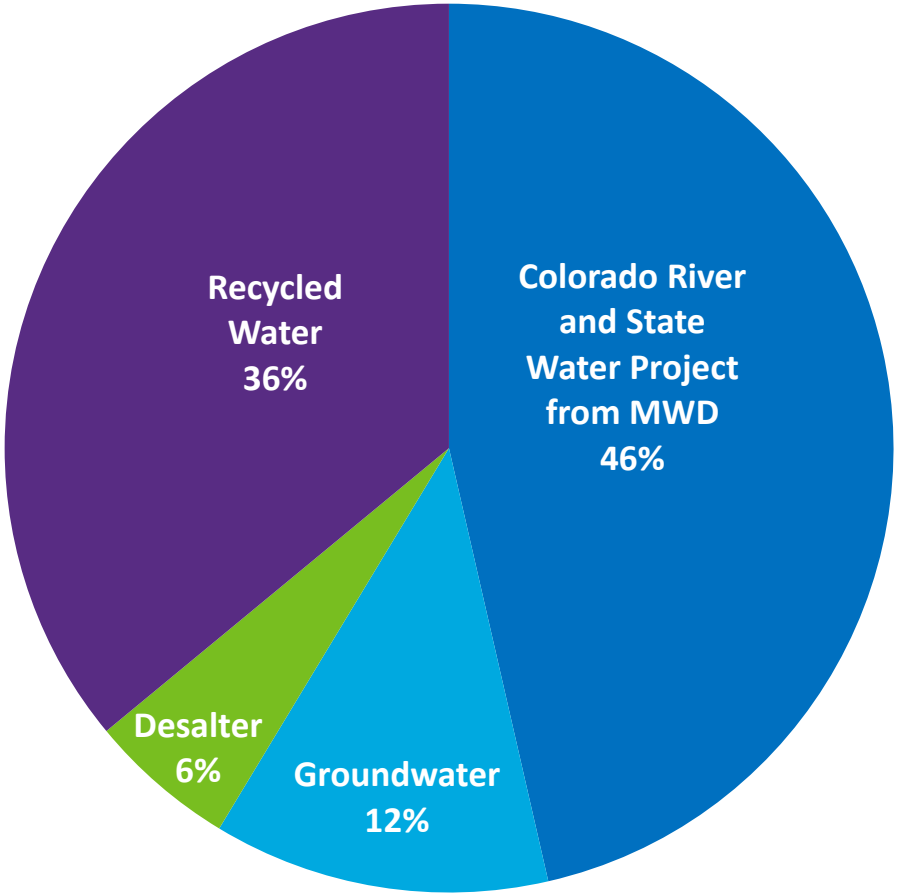
EMWD's Water Supply Portfolio

Calendar Year 2016 – 119,046 acre feet (AF)

Local Supplies: 54%



Imported Supplies 46%

Source: 2016 Data (Various Finance/Ops Records)

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Recycled Water Infrastructure - Drought-proof Sustainable Supply

- Program started in 1960's:
  - Four tertiary treatment plants – averaging 42 MGD of recycled water
  - Agricultural irrigation (10,800 acres)
  - Sport fields, golf courses, parks, schools, medians, recreational
  - Industrial (regional power plant, manufacturing)
- More than 7,010 AF of seasonal storage reservoir capacity
  - 900 AF additional storage brought on-line in 2017
- $188 million in total capital investments

Inland Empire Energy Center

Currently 100% of wastewater is recycled for beneficial use

Integrated Recycled Water System

More than 35,000 AF sold in FY 16/17

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Existing Groundwater Recharge Facilities

- Existing Facilities
  - Integrated Recharge and Recovery Program - Recharge Ponds
  - Monitoring Wells
  - 33 inch Raw Water Supply Pipeline
- Sources of Recharge Water*
  - Settlement Water: 7,500 acre-feet per year (afy) on average basis
    - 2016 Recharge: 12,565 afy

* *Excludes recharge of storm water captured in San Jacinto River, Soboba Pit and Grant Avenue Recharge ponds*

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San Jacinto River Diversions

- River diversions since November 2016 – 3,094 AF
- Storm water capture flows up to 23.5 million gallons per day
- Currently diverting approximately 2,100 gallons per minute
- Maximum permitted diversions per year – 5,760 AF

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Groundwater Reliability Plus Overview

Groundwater Supply Objectives

- Increase groundwater recharge
  - Construct raw water and recycled conveyance facilities, recharge basins
- Increase sources of recharge water
  - Existing Source:
    - Soboba Settlement Recharge Water (imported from MWD)
  - Proposed sources:
    - Water Banking
      - Increased State Project Water through new MWD connection
    - Potable Reuse
      - Advanced treated purified water (Reverse Osmosis)
      - Tertiary treated recycled water

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Water Banking

- Seasonal Water Banking *(recharge and annual extraction)*
  - Store and extract banked water for use during the same year
  - Recharge water during wet and average years at a rate up to the capacity of the recharge facilities, 7,000 afy or more
  - Total extraction in any given year would not exceed 7,000 af
- Extended Water Banking *(recharge and future year extraction)*
  - Store water in the bank for use during an emergency or drought in future years
  - Recharge water during wet years at a rate up to the capacity of the recharge facilities, 7,000 afy or more
  - Extract the banked water only during emergency or drought, up to 7,000 afy
  - Uses the same recharge and extraction facilities as Seasonal Water Banking

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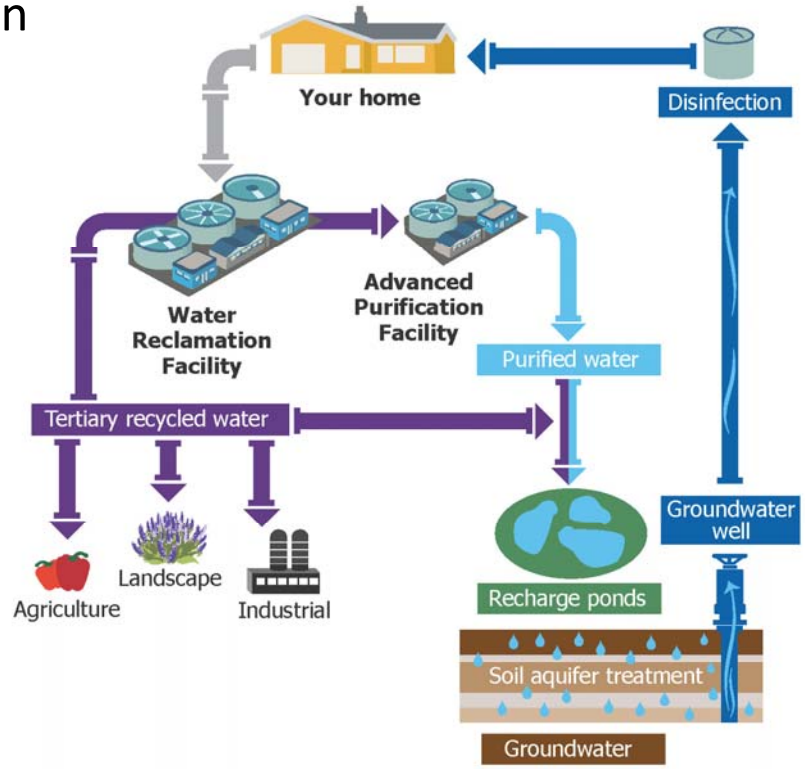
Potable Reuse

- Highly regulated, planned introduction of recycled water into potable system
- Uses a proven technology and is safe
- Used in California since early 1960's
- Four approaches:
  - Reservoir augmentation
  - Raw water augmentation
  - Treated water augmentation
  - Groundwater augmentation – Purified Water Replenishment
- Potable reuse water distributed for municipal use is safe, high-quality water that meets or surpasses state and federal drinking water standards.



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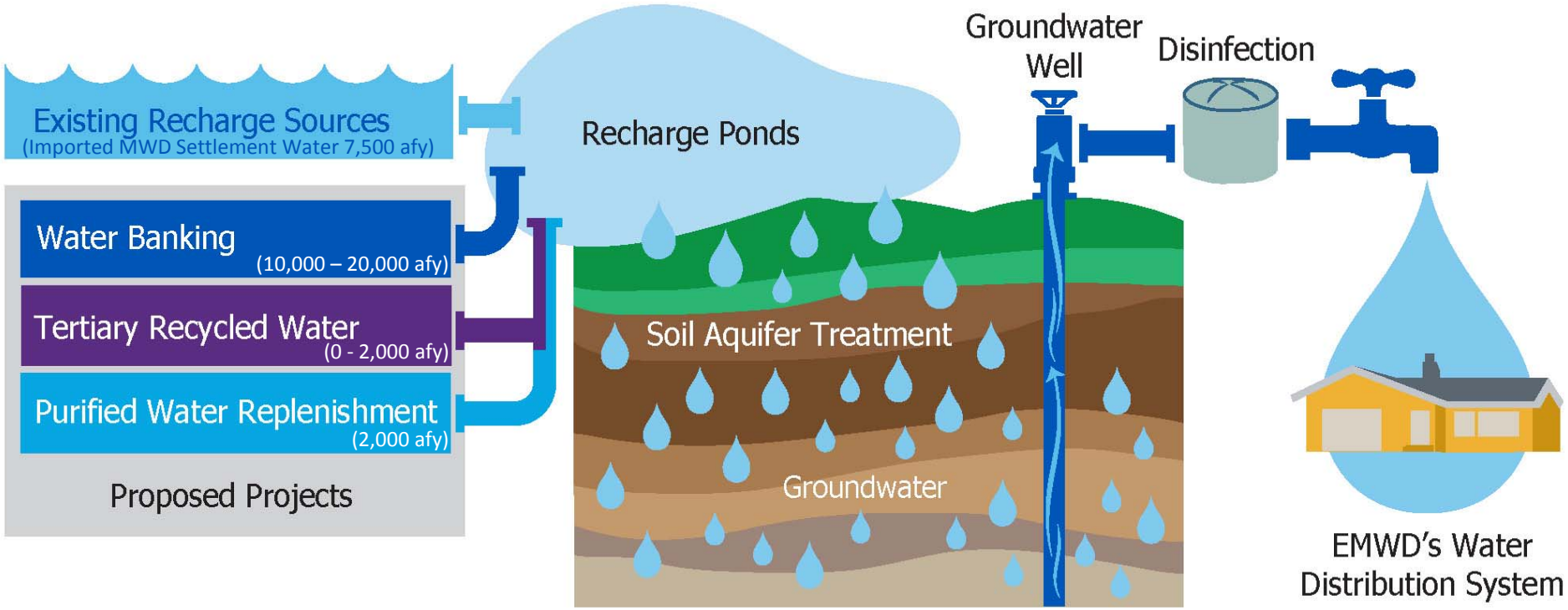
Current and Proposed Operations



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PURIFIED WATER REPLENISHMENT

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Purified Water Replenishment Overview

Purified Water Replenishment Process

Disinfected Tertiary

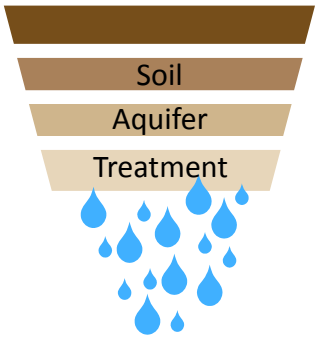
Continuous

MF / RO

2,000 afy

0 - 2,000 afy Seasonal

Recharge Ponds



Required travel time in groundwater aquifer

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Proposed Facilities

- Treatment Facilities
  - Advanced Water Treatment Facility
  - Pump Station at Advanced Water Treatment Facility
  - Brine Evaporation Pond
- Conveyance Facilities
  - Advanced Treated Water Pipeline
  - Tertiary Recycled Water Pipeline
- Recharge Ponds
  - Mountain Avenue North Percolation Basin
  - Mountain Avenue East Percolation Basin
  - Mountain Avenue West Percolation Basin
- Production Facilities
  - Three Groundwater Wells

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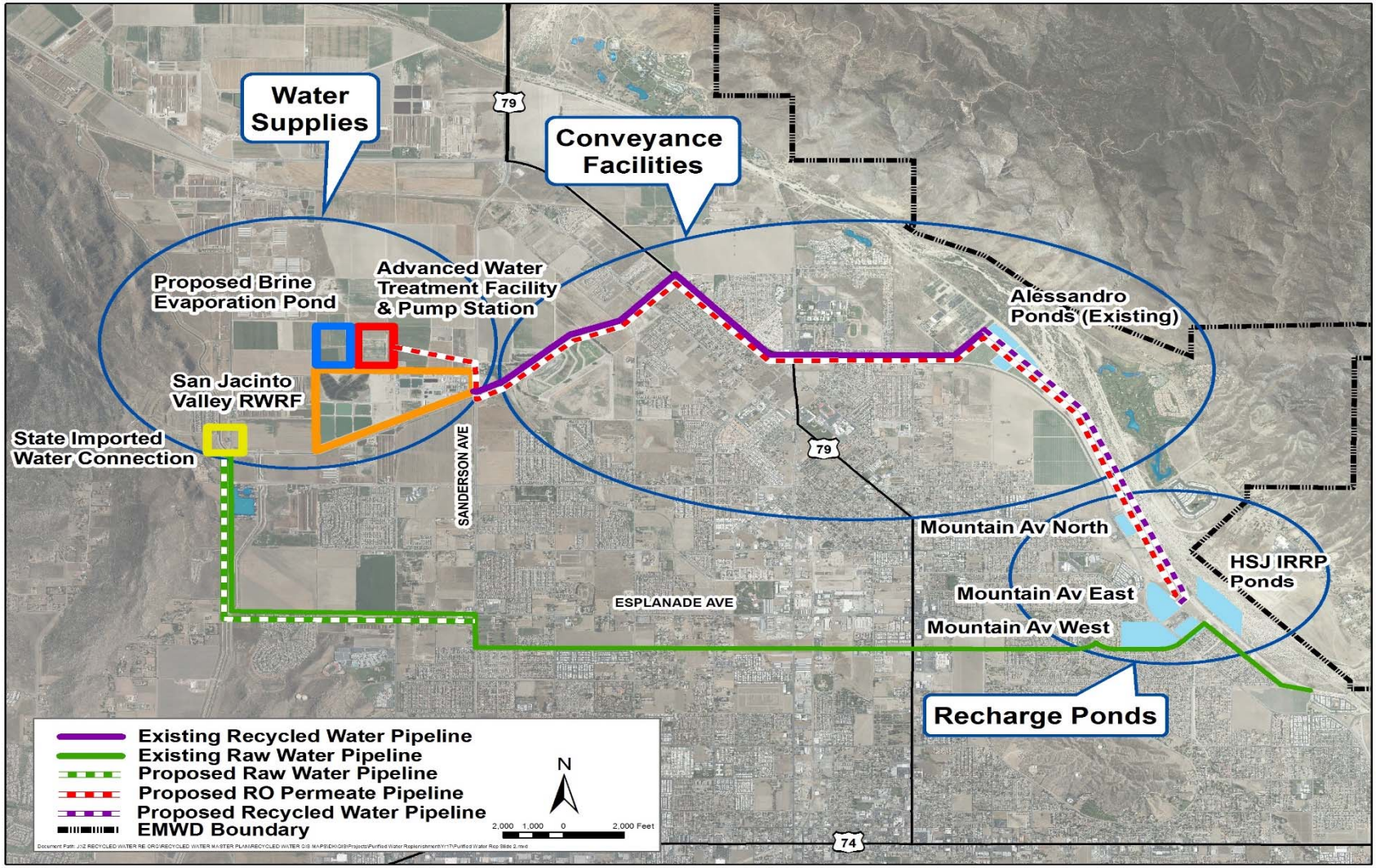
Proposed Purified Water Replenishment Facilities



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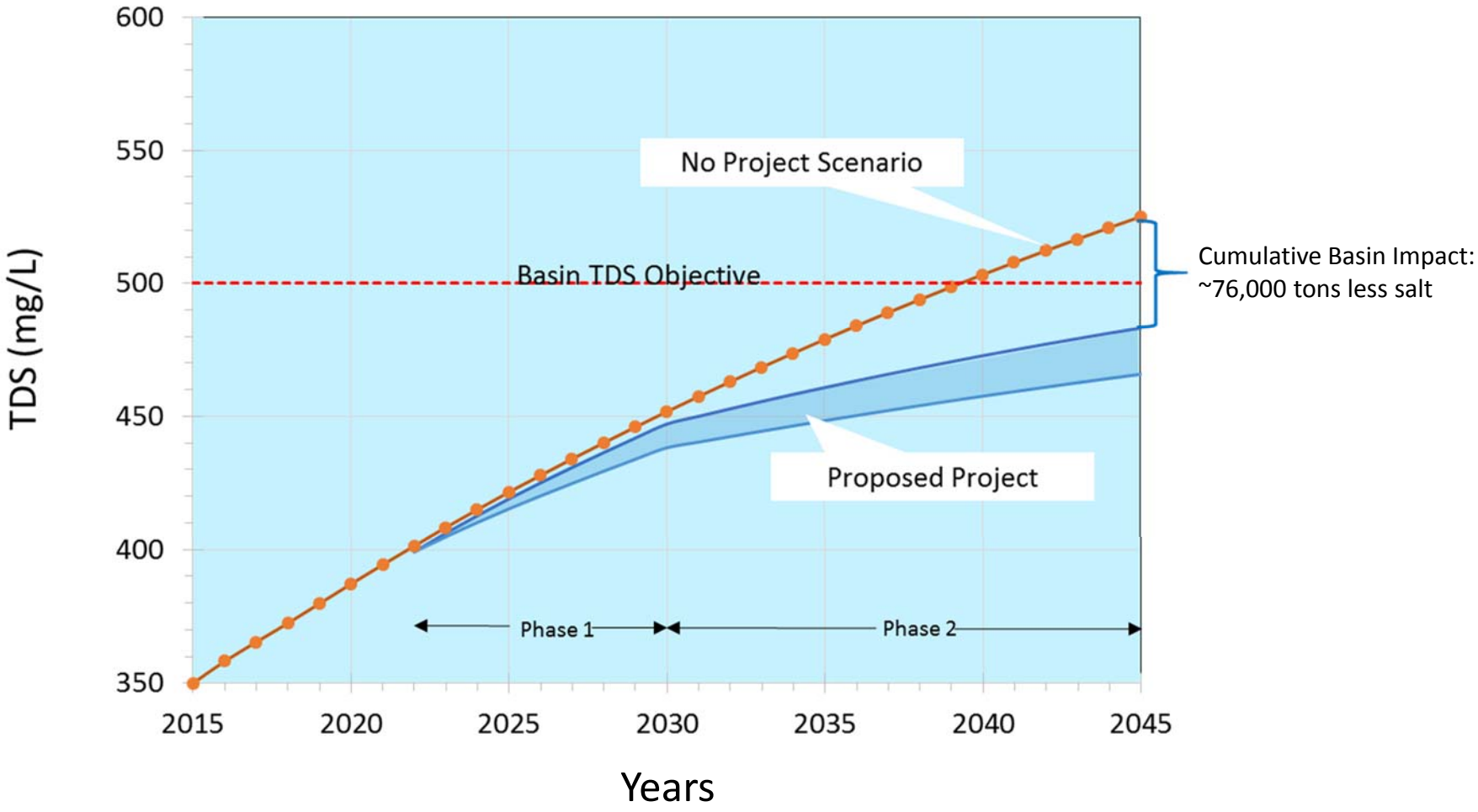
Salinity Management Benefit



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Additional Benefits

- Provides a safe, environmentally-responsible and cost-effective drinking water source
- Improves water quality
  - Lowers projected salinity levels in groundwater basin
- Increases regional groundwater levels
  - Lowers pumping costs
- Increases reliability of groundwater supplies
  - Drought-proof local supply
  - Reduces dependence on imported water supplies
- Safely used across state and nation for decades

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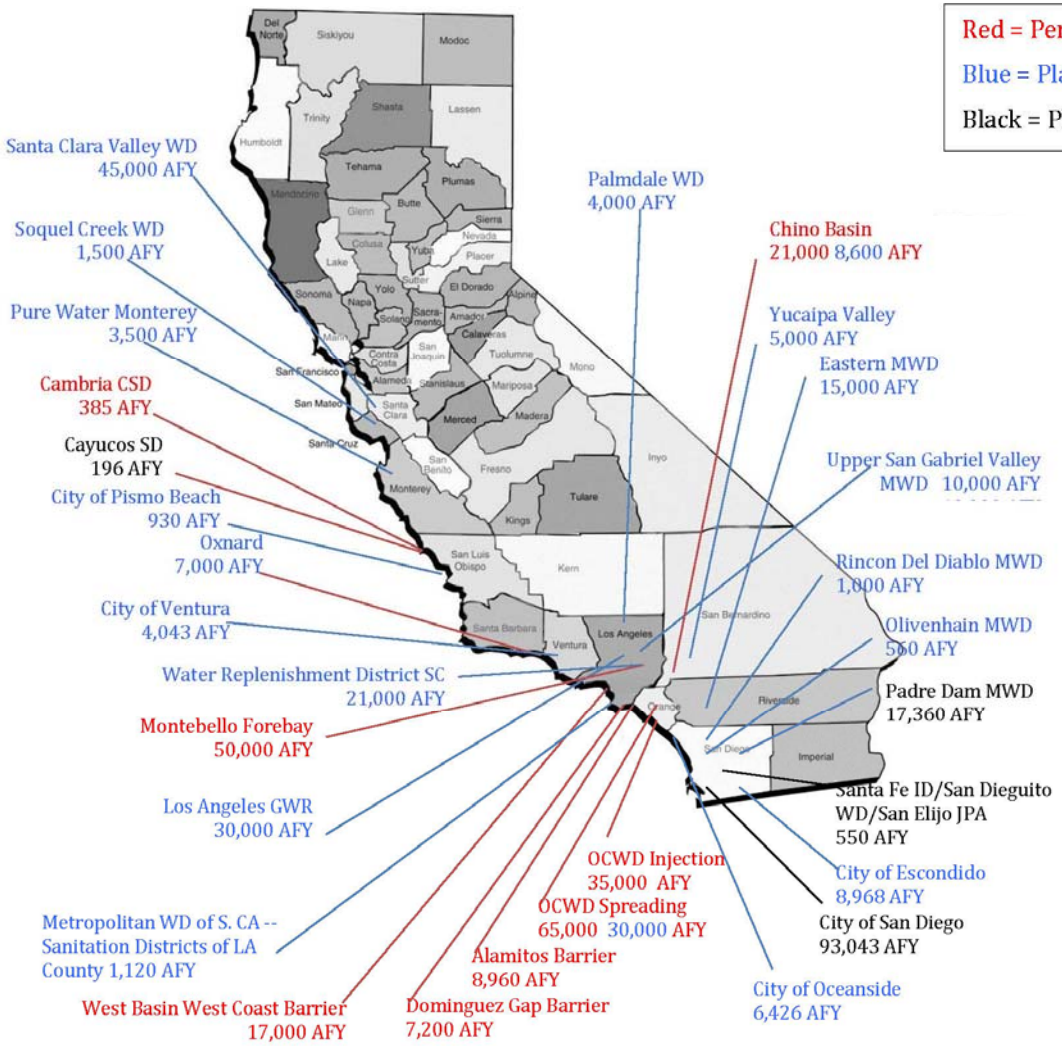
California Potable Reuse Projects



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Community Outreach

- Agency presentations
- Community presentations
- Newsletters
- Website
- Social media
- Email updates
- Facility tours

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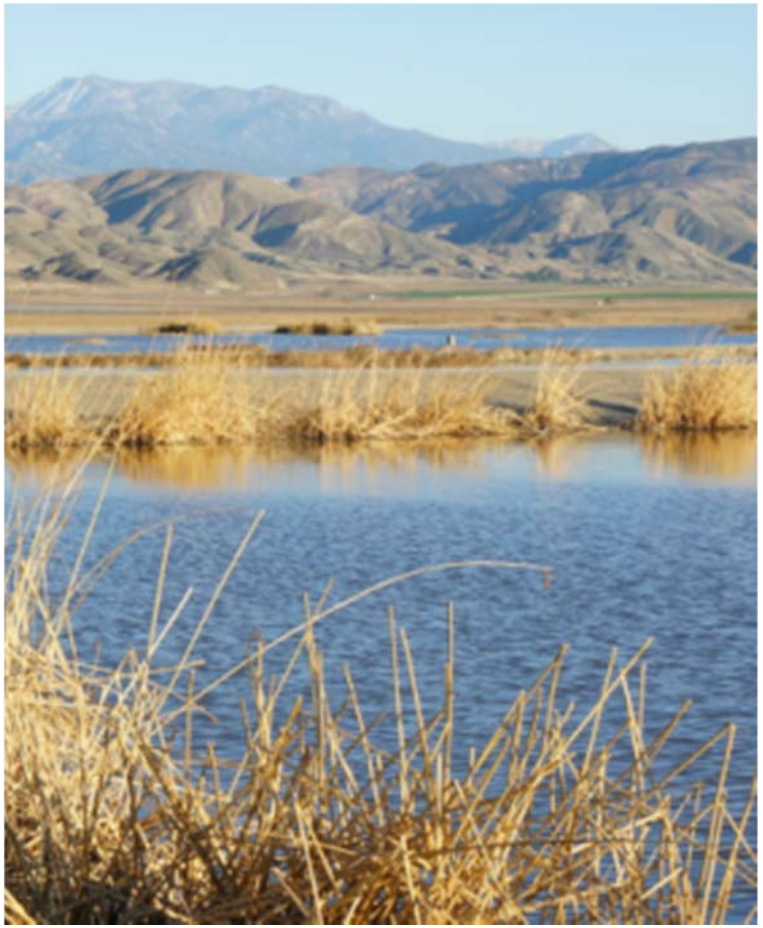
Schedule of Projects

Schedule

- Water Banking
  - Estimated groundbreaking: 2018
  - Estimated completion: 2020/2021
- Purified Water Replenishment
  - Estimated groundbreaking: 2019
  - Estimated completion: 2022



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Thank you

Joe Mouawad,
Assistant General Manager
Planning, Engineering, and Construction
(951) 928-3777 Ext. 4463
mouawadj@emwd.org

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