



● EASTERN MUNICIPAL WATER DISTRICT

Indirect Potable Reuse for Groundwater Recharge - Succession Strategy for Recycled Water

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Today's Presentation



- Background on Eastern Municipal Water District
- Water supply portfolio and challenges
- Indirect Potable Reuse as a succession strategy for EMWD's recycled water program
- Statewide supply potential from recycling and Potable Reuse
- Summary and Conclusions



Eastern Municipal Water District



- Established in 1950
- 542 square-mile service area - population of 768,000
- Serving seven cities and unincorporated areas
- One of 26 MWD member agencies
- High-growth area
- 11.0" to 12.6" of rain per year (4" last year)



Eastern Municipal Water District Services



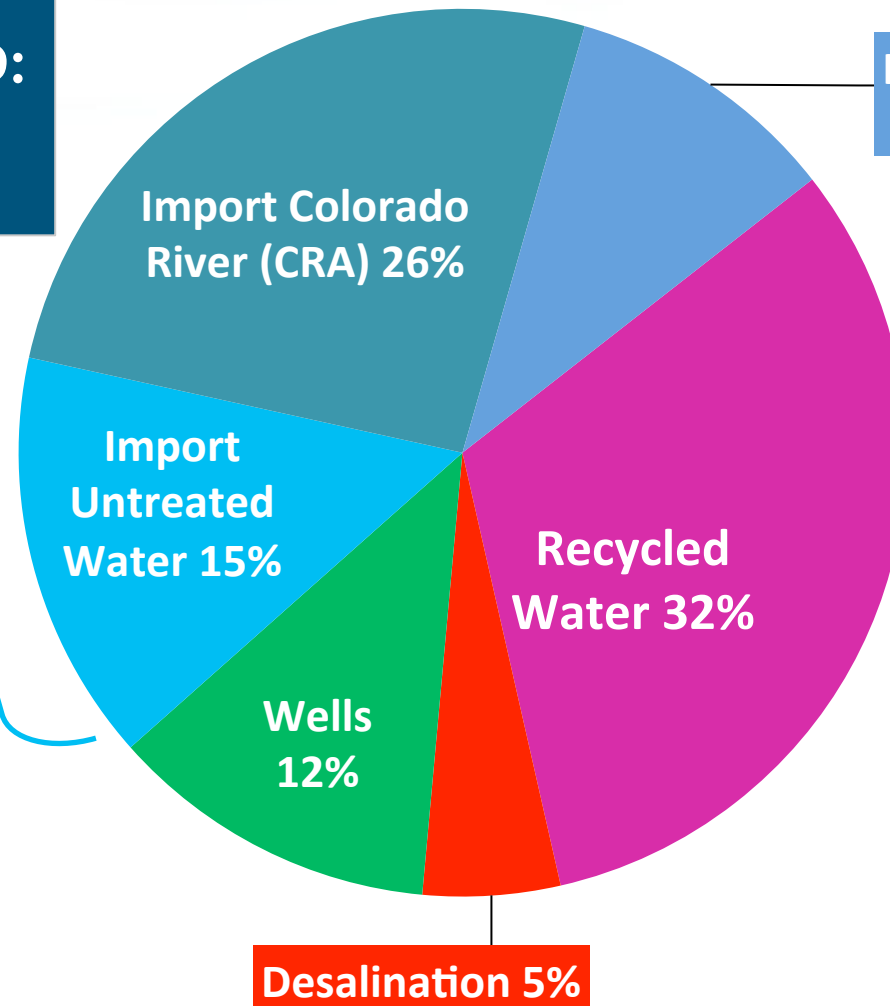
- **Potable (drinking water):**
 - Retail and wholesale
 - 140,000 accounts
 - 88,900 AF sold in 2014/2015
 - Imported and local supplies
- **Wastewater collection & treatment:**
 - 229,000 accounts
 - Four regional reclamation facilities treating: 49 MGD
- **Recycled water:**
 - 38,900 AF sold in 2014/2015
 - 10,800 acres of agricultural irrigation
- **Water Use Efficiency:**
 - Landscape standards, incentives, Turf removal, Budget-based rates
 - 45% reduction per-capita use in last decade



Local Supply Diversity - EMWD's Current Water Supply Portfolio - 2015



**Imported Water
Supply from MWD:
76,900 AF
51%**

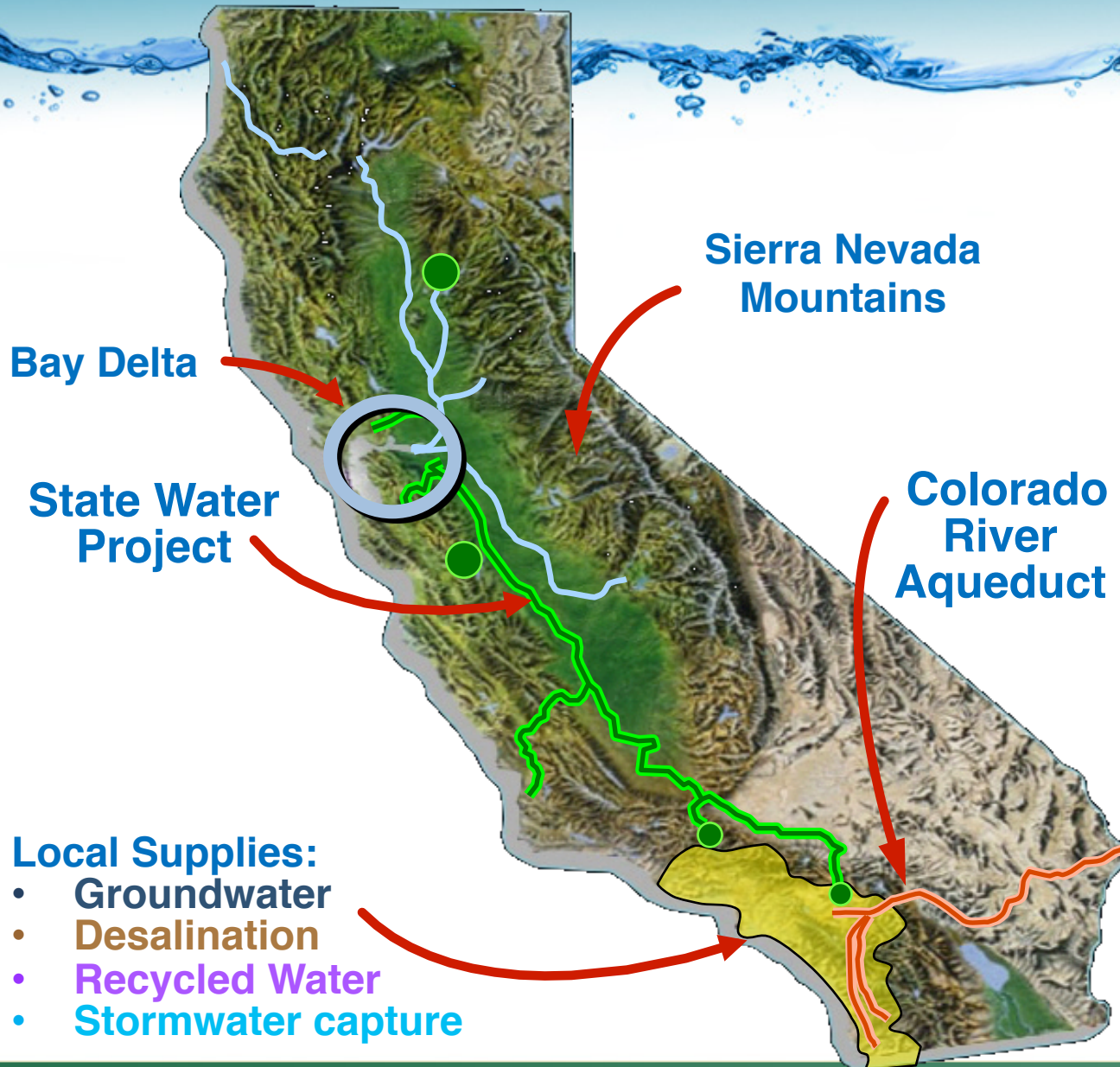


**Import Delta
(SWP) 10%**

SWP/CRA

**Local Water
Supply:
74,800 AF
49%**

Eastern MWD - Sources of Water



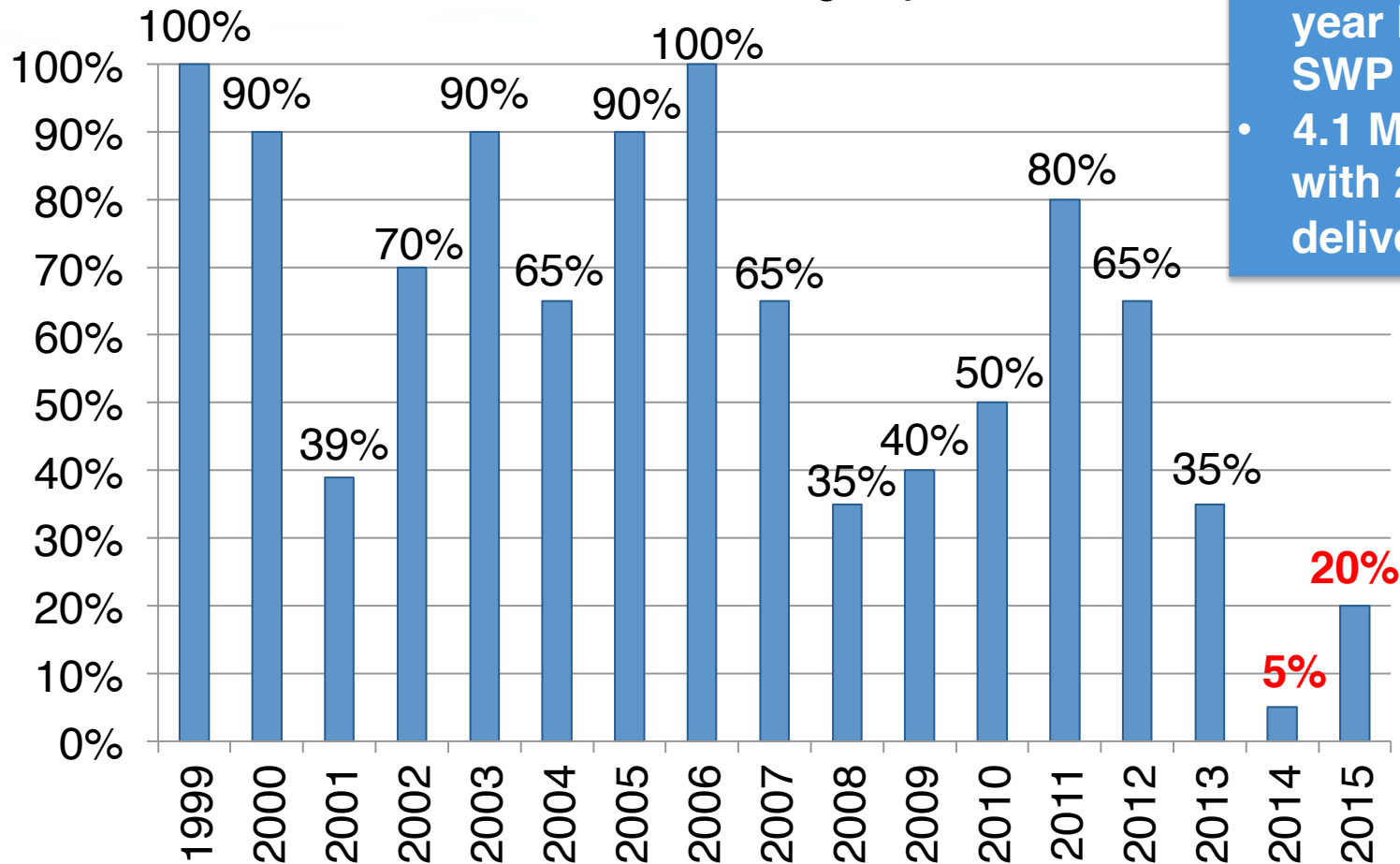
- 26 member agencies
- Owns Colorado River Aqueduct
- State Water Project Contractor
- Imports water to meet ½ of So. Cal retail demands
- Typical demands: 2.1 MAF (1.7 MAF in 2015)

“Best Practices” in Water Use Efficiency (Conservation)

State Water Project Allocations



SWP Allocation Percentage by Year



- 2014 Lowest allocation in 54-year history of the SWP
- 4.1 MAF requested with 205,000 AF delivered



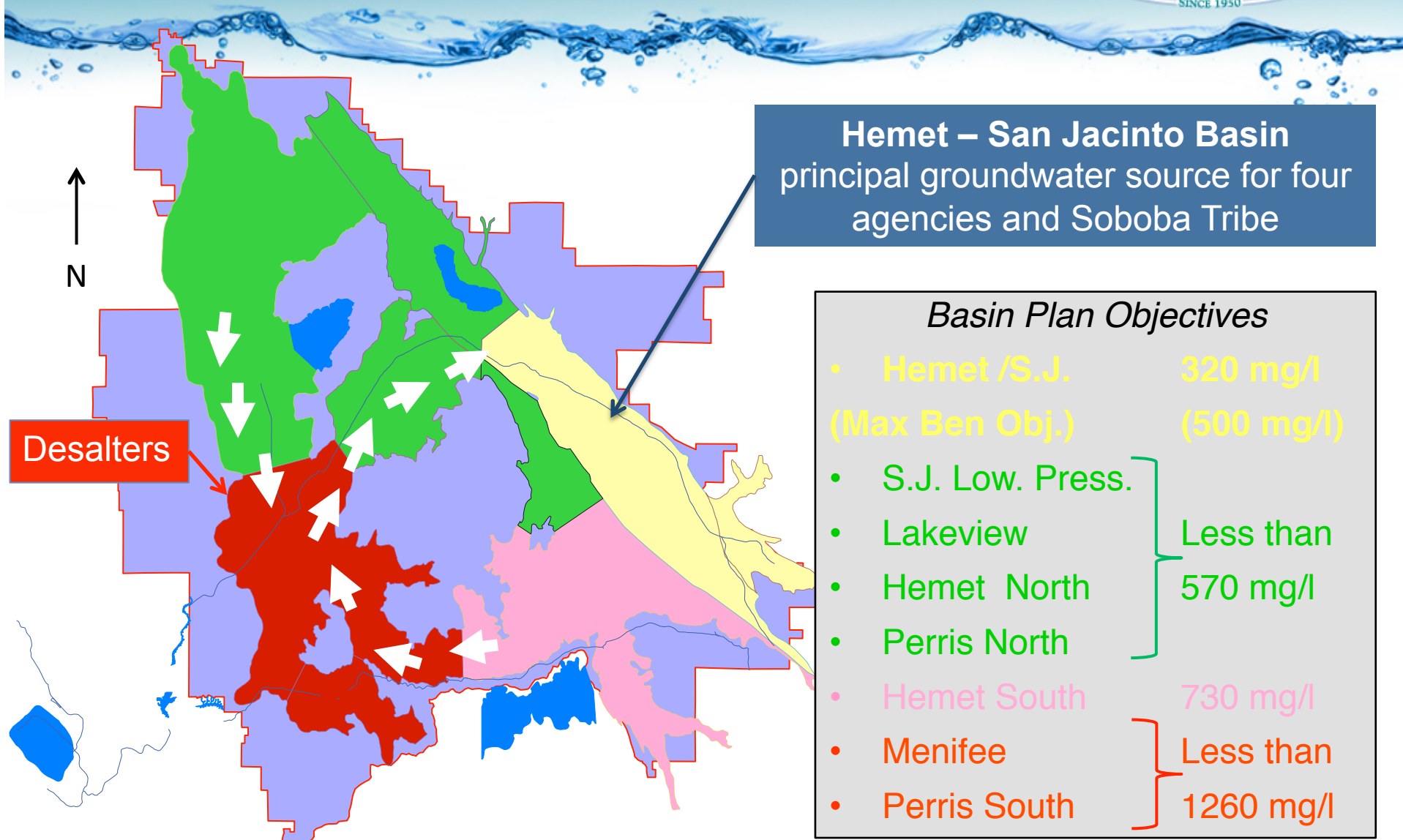
Current Sources of Imported Recharge Water



Imported Supply	Salt (TDS – mg/l)	Lbs. of salt/acre foot
Colorado River Water	~500 to 700 mg/l	1,360 to 1,900 lbs/af
State Water Project (current range)	~250 to 399* mg/l	680 to 1,085 lbs/af

* Elevated TDS due to low SWP deliveries and drought

Groundwater Supply and Salinity



EMWD Service Area and
Groundwater Basins

Desalination and Salinity Management



- **Brackish Desalination**

- Two brackish desalters operating.
- Program is presently able to produce 5,000-6,000 acre feet/year of potable water from otherwise unusable groundwater.



- **Salinity Management**

- Current salt removal: 27,000 tons annually (3.3 MGD brine from desalters and industrial discharge).
- Offsets majority of 31,000 ton import.
- Current disposal: 70 mile brine line to Pacific Ocean.



Strategic Supply Goal: Expand Brackish Desalination to provide over 17,500 af/year and 50,000 tons/year salt removal

EMWD's Current Recycled Water Program



Program started in 1960's:

- Four tertiary treatment plants – 49 MGD
- Agricultural Irrigation (10,800 acres)
- Sport fields, golf courses, parks, schools, medians, habitat (San Jacinto wetlands)
- Industrial (regional power plant, industrial)
- \$188 million in capital investments



Inland Empire Energy Center



***Currently 100% of Wastewater is
Recycled for Beneficial Use***

38,900 af in 2015

Succession Plan: Indirect Potable Reuse project

Growth in Demands - Limited Supplies



- EMWD's Urban Water Management Plan based upon 2045 build-out of city county general plans

2045 Demands: 215,000 AF – an increase of 68%

- EMWD Adopted Supply Strategic Plan:
 - Local supply and water use efficiency focused
 - Protect and enhance groundwater resources through increased yield and salinity management
 - Recycle 100% of wastewater for beneficial use
- To support growth, EMWD has committed to local resource investments:
 - **Water Use Efficiency standards and Stormwater capture**
 - **Maximize Brackish Desalination (new capacity and brine recovery)**
 - **Expand and Transition Recycled Water Use (Indirect Potable Reuse)**



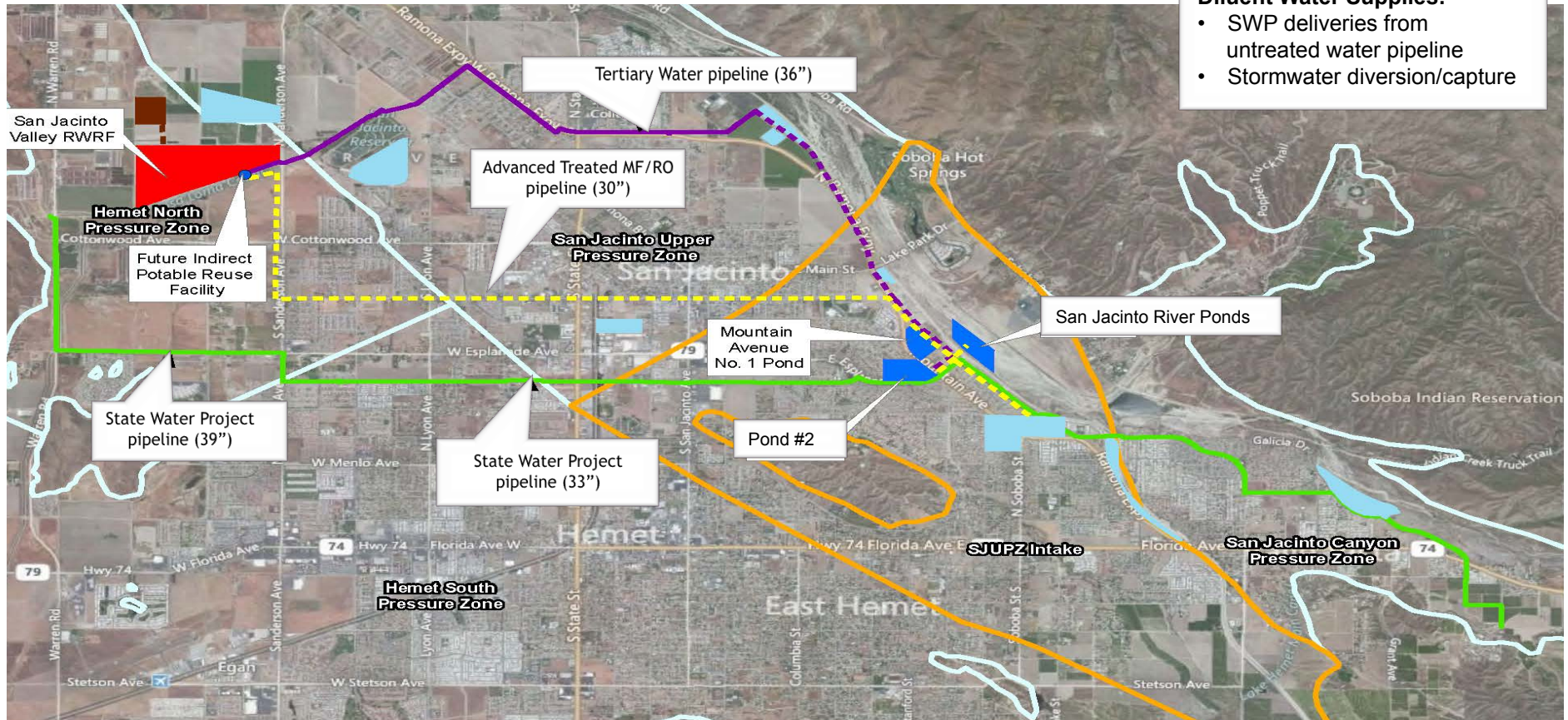
EMWD Indirect Potable Reuse Objectives



- Sustain and expand Hemet-San Jacinto basin production through additional replenishment supplies
- Develop a highly reliable source of replenishment water to modulate variations in SWP deliveries and stormwater
- Ensure long-term succession for recycled water that maximizes use of the resource (100% utilization)
- Provide replenishment source that meets all water quality requirements and is low in salt
- Develop multi-use groundwater recharge facilities (IPR, Imported and Stormwater)

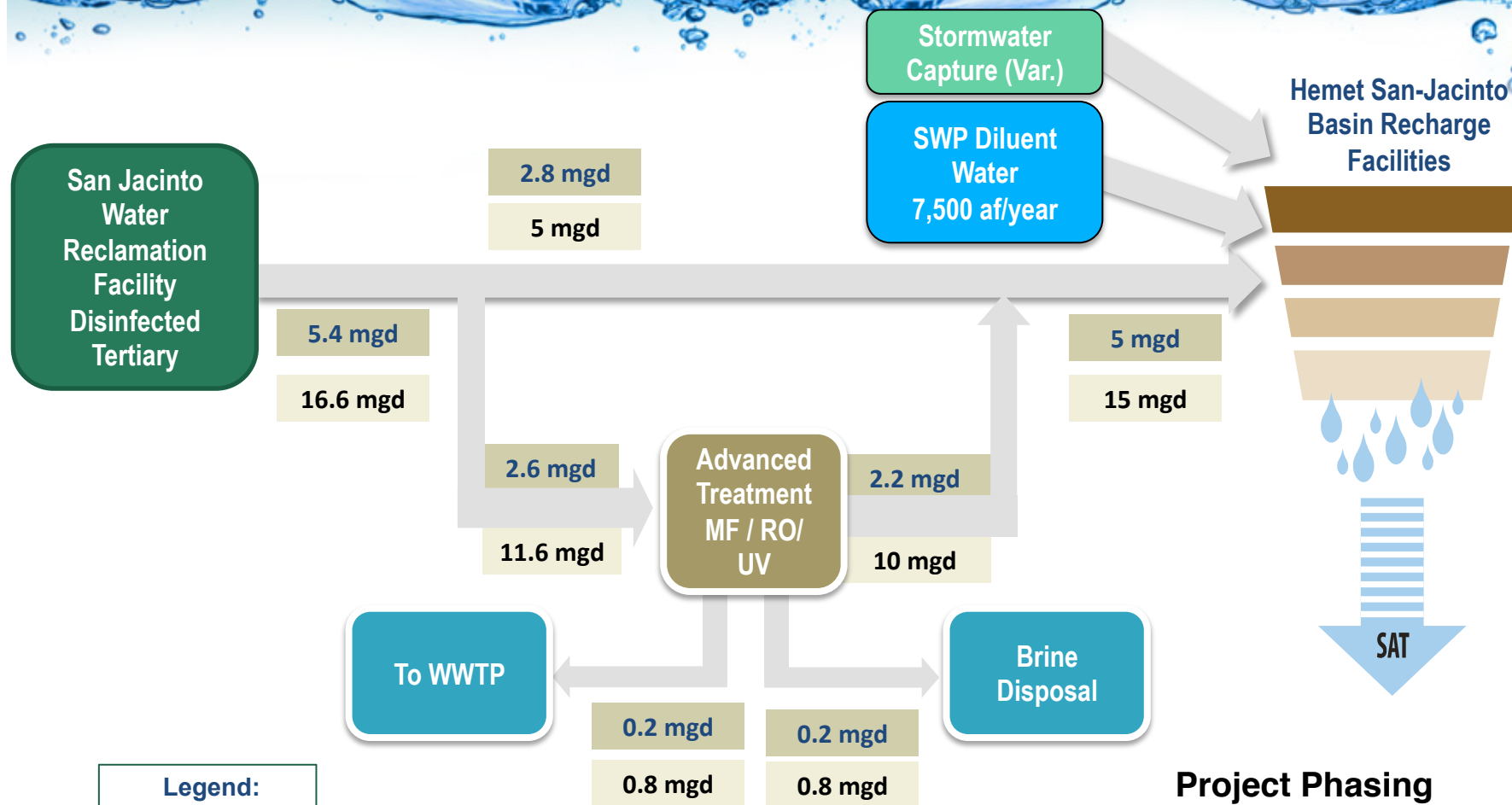


San Jacinto IPR Project Elements



San Jacinto IPR Project Strategy: Recharge Advanced Treated/RO water and Tertiary Treated Recycled Water with SWP and Stormwater

Preferred Alternative - Blend of Tertiary Recycled Water/RO Permeate Balanced Salt Reduction



Legend:

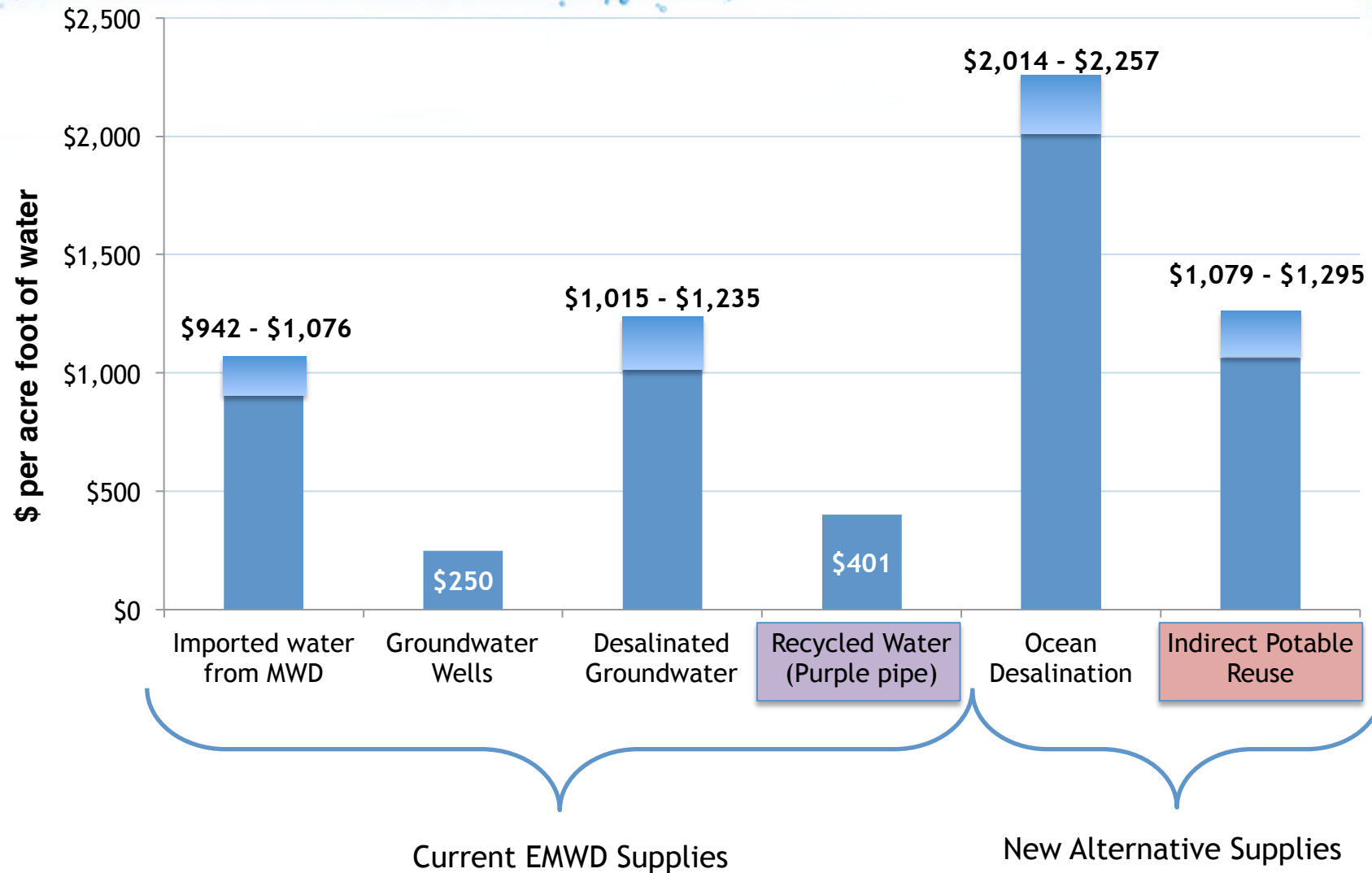
Phase 1 Flows

Phase 2 Flows

Project Phasing

- Phase 1 = 5,000 AFY
- Phase 2 expansion = 10,000 AFY
- Total capacity = 15,000 AFY

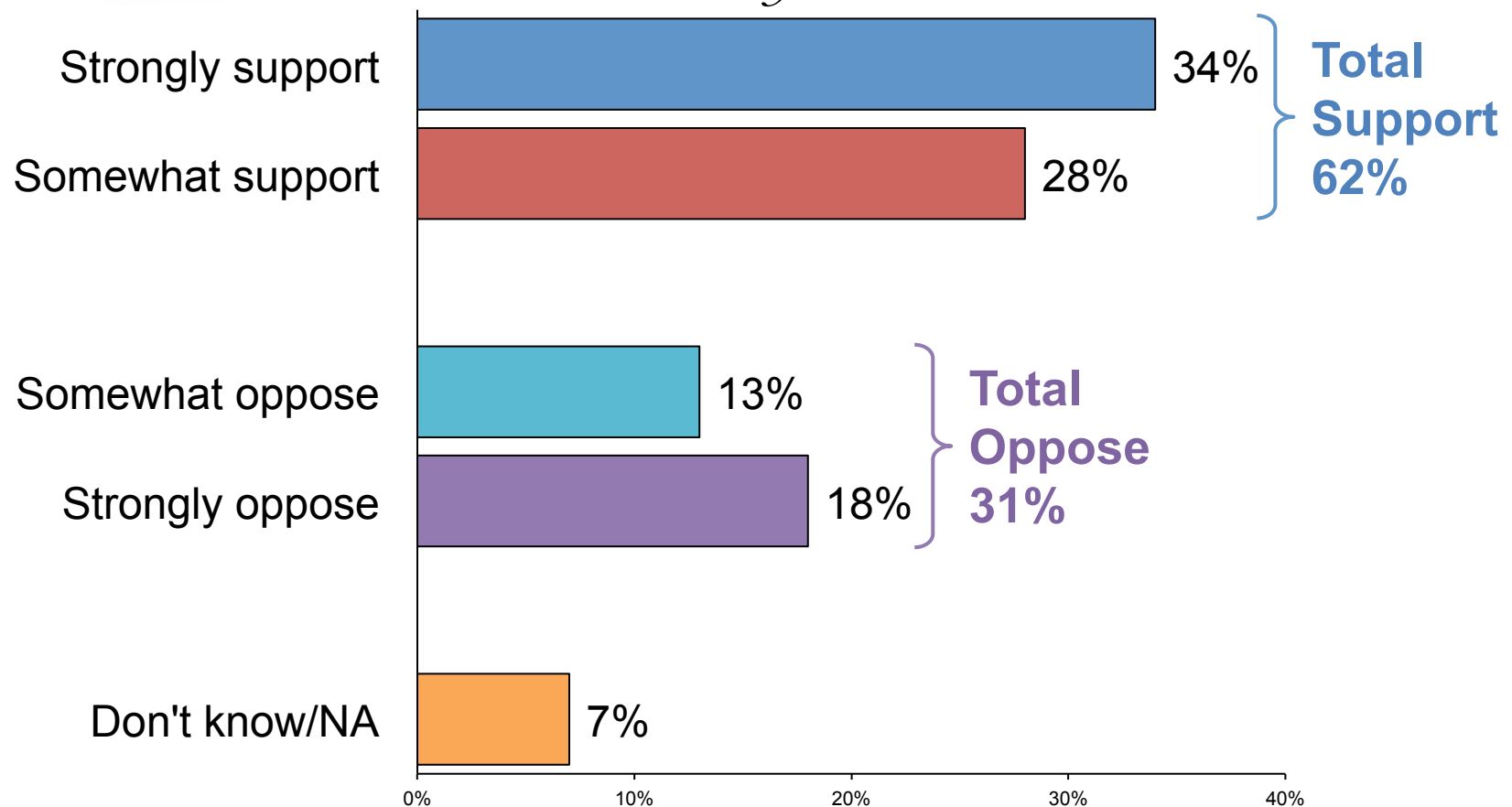
Indirect Potable Reuse - Cost Profile



There's public support for Potable Reuse.....



Would you support or oppose indirect potable reuse of recycled water in your community?



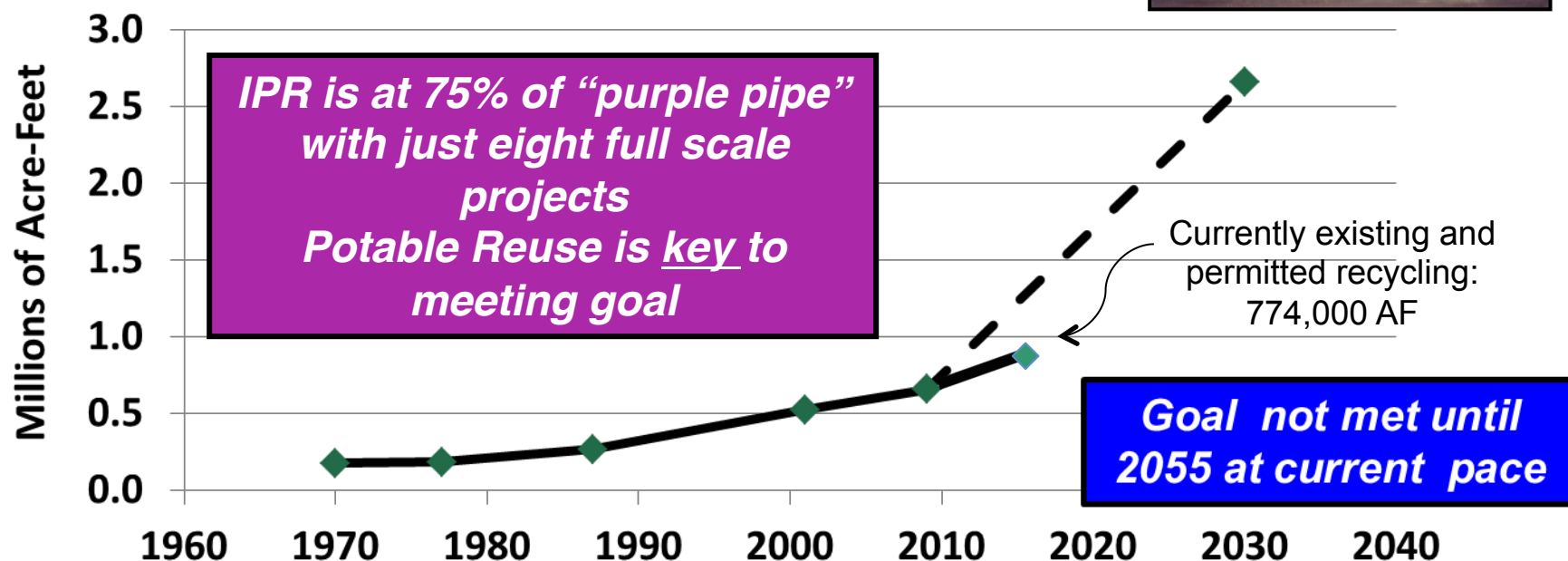
...and there's not support for Potable Reuse



California's Recycling Opportunities

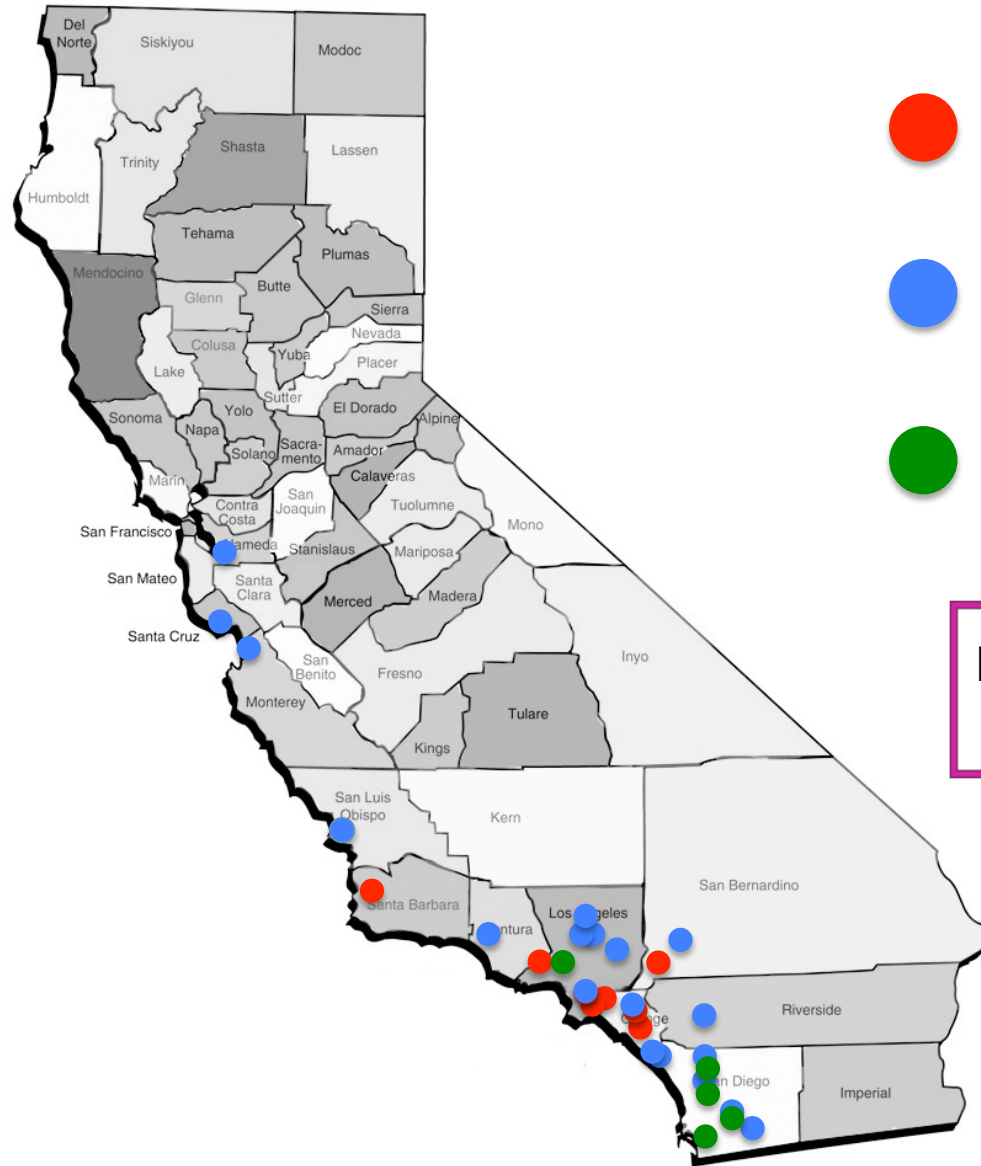


2010 California Water Plan:
Increase recycling to 2.5 MAF to
2030 from 650,000 AF in 2010



Currently California discharges 2.6 MAF/y of treated wastewater to the ocean

Indirect Potable Reuse - Significant Interest



PERMITTED GROUNDWATER (8)

Existing \approx 200,000 AFY \sim 1.6 M People



PLANNED GROUNDWATER (19)

Planned \approx 293,500 AFY \sim 1.6 M People



PLANNED SURFACE WATER AUGMENTATION (4)

Planned \approx 100,000 AFY \sim 800,000 People

**Planned IPR Total = 393,500 AF
Serving 2.4 million People**

Summary and Conclusions




- For EMWD, the IPR program will ensure long-term succession and 100% utilization of recycled water
- The project will sustain and expand groundwater production in the Hemet-San Jacinto basin to meet future growth
- Costs are very competitive with imported water and other new sources of water (desalination)
- Statewide, California discharges 2.6 MAF/y of treated wastewater into the ocean
- Potable Reuse has the potential to meet the municipal needs for 8 million Californians or *1/5 of the state's population*





● EASTERN MUNICIPAL WATER DISTRICT

Thank You !



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