



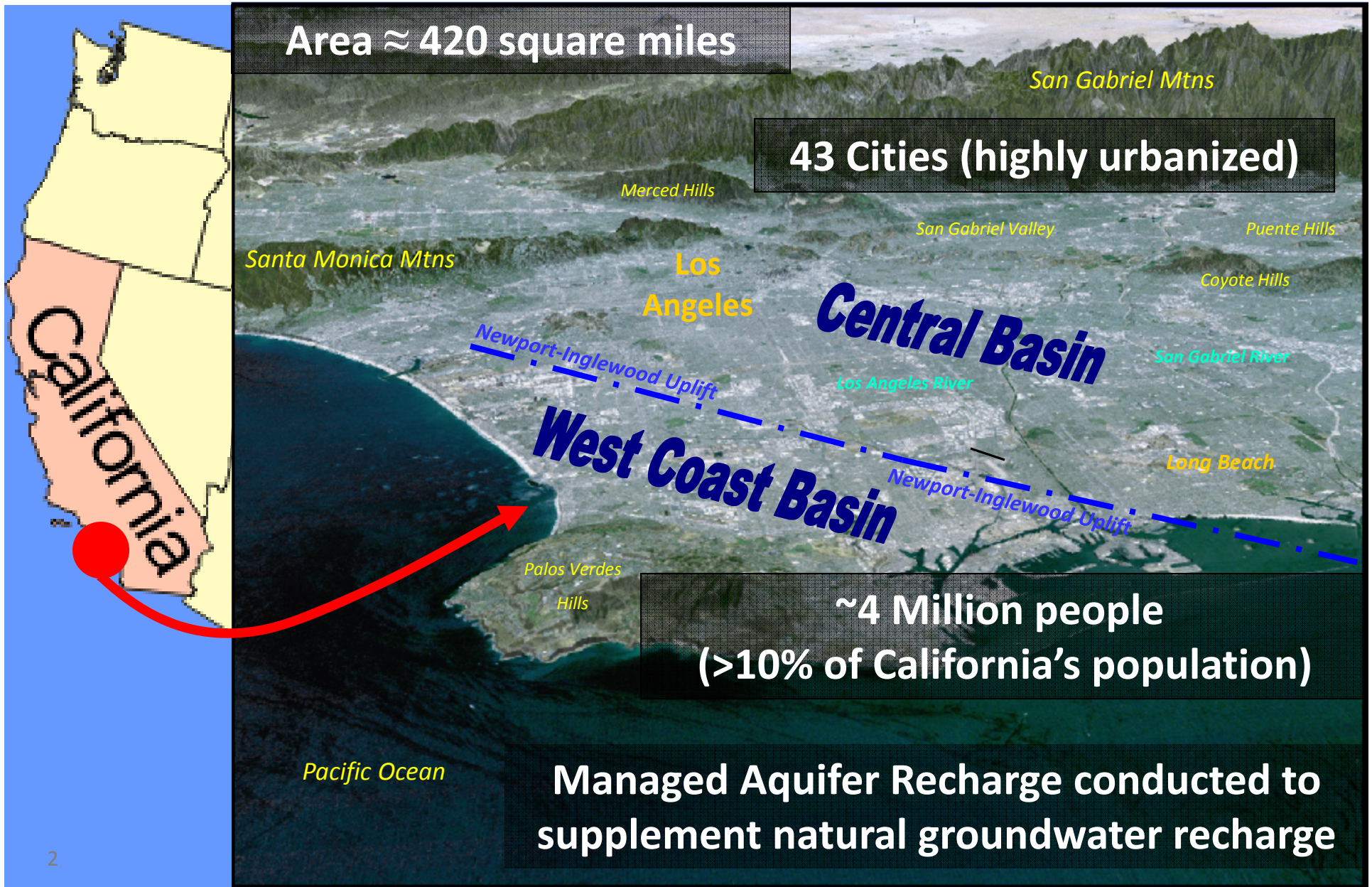
WATER REPLENISHMENT DISTRICT
OF SOUTHERN CALIFORNIA

***Aligning Sustainable Water Supply with
Groundwater Quality Management in a
Salt and Nutrient Management Plan for the
Central Basin & West Coast Basin***

FORUM ON GROUNDWATER MANAGEMENT & POLICY

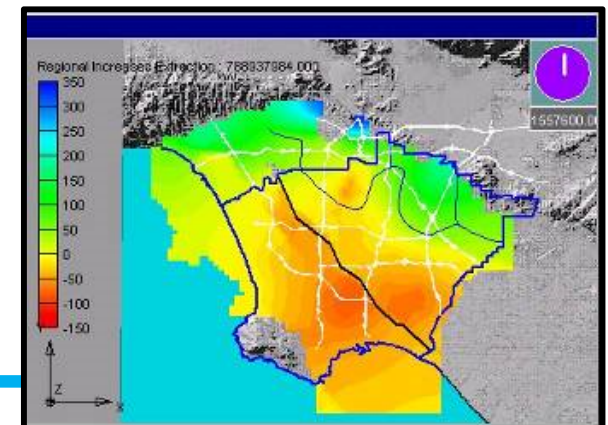
November 17, 2015

Central Basin & West Coast Basin (CBWCB)

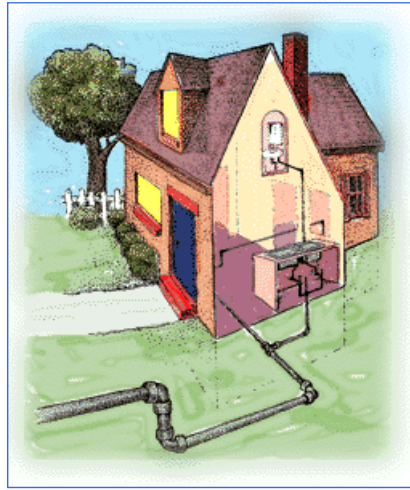


WRD's Core Mission

- **State Special District established in Water Code in 1959**
- **Manage the Central Basin & West Coast Basin**
 - **Groundwater replenishment**
 - **Groundwater cleanup**
 - **Basin monitoring**
 - **Basin modeling**



Summary of LA's Water Supply



- >400 Active Production Wells
- Pump ~250,000 acre-feet/yr (82 billion gallons annually)

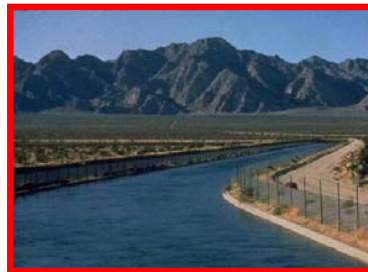
GROUND WATER (40%)
(Production Wells)



IMPORTED WATER (60%)

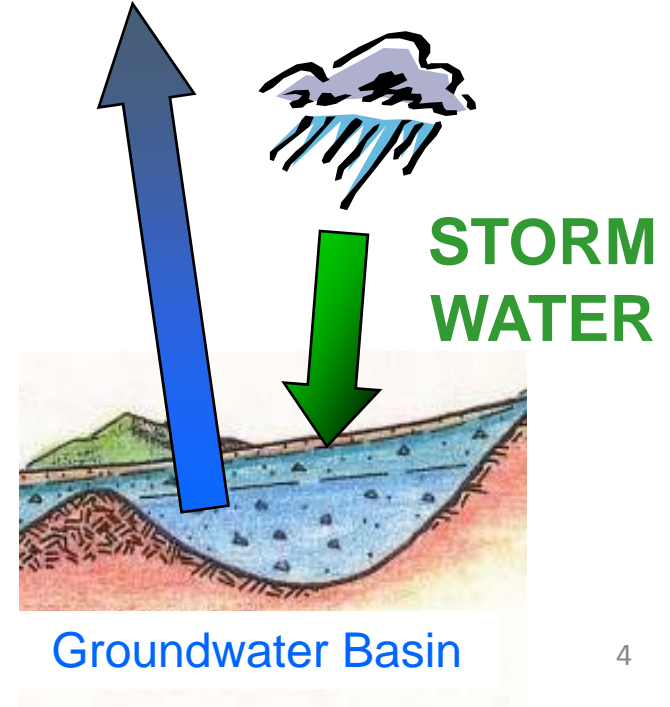
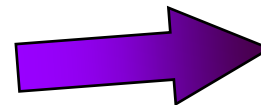


(State Water Project, Colorado River, LA Aqueduct)



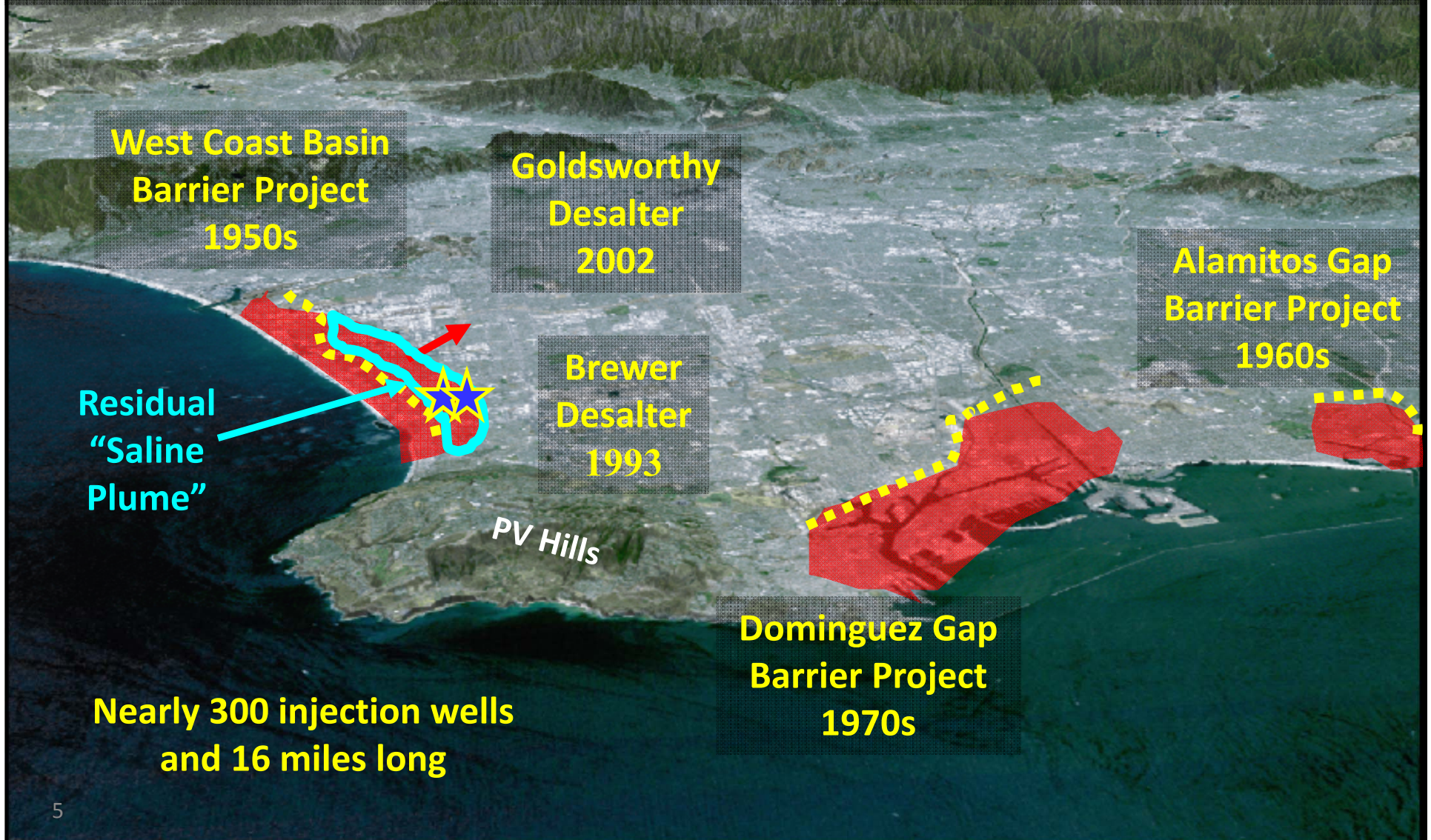
RECYCLED WATER

(Treated Municipal Wastewater)

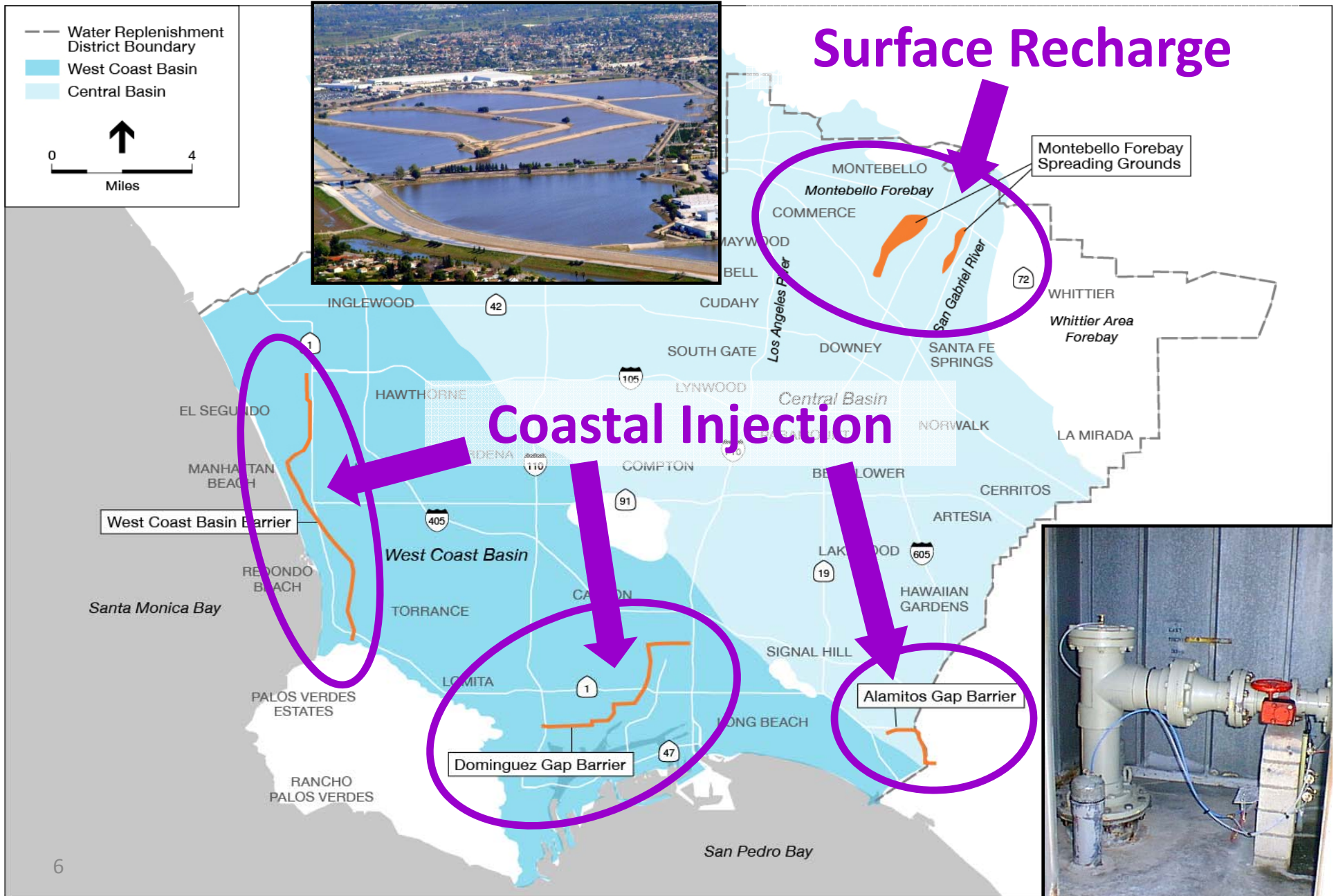


Major Salinity Control Measures

Excessive pumping between 1900 and 1950s caused groundwater levels to drop below sea level, which resulted in seawater intrusion

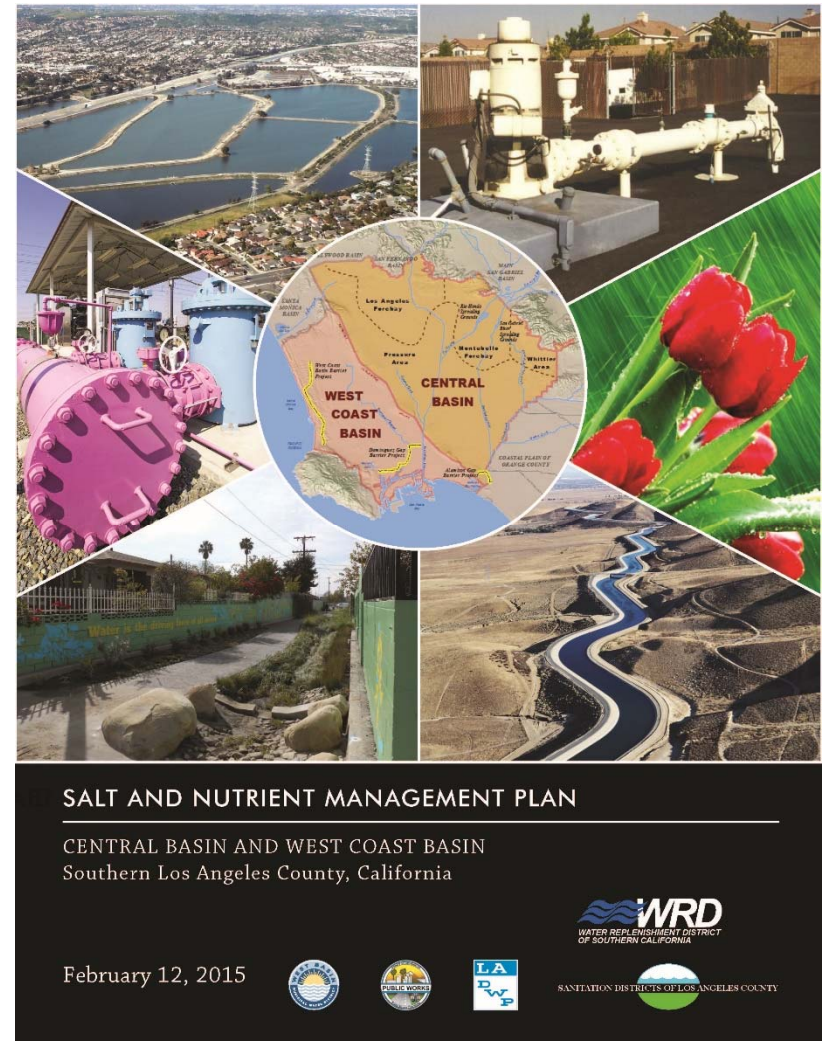


Main Groundwater Recharge Areas



Key Elements in SNMP

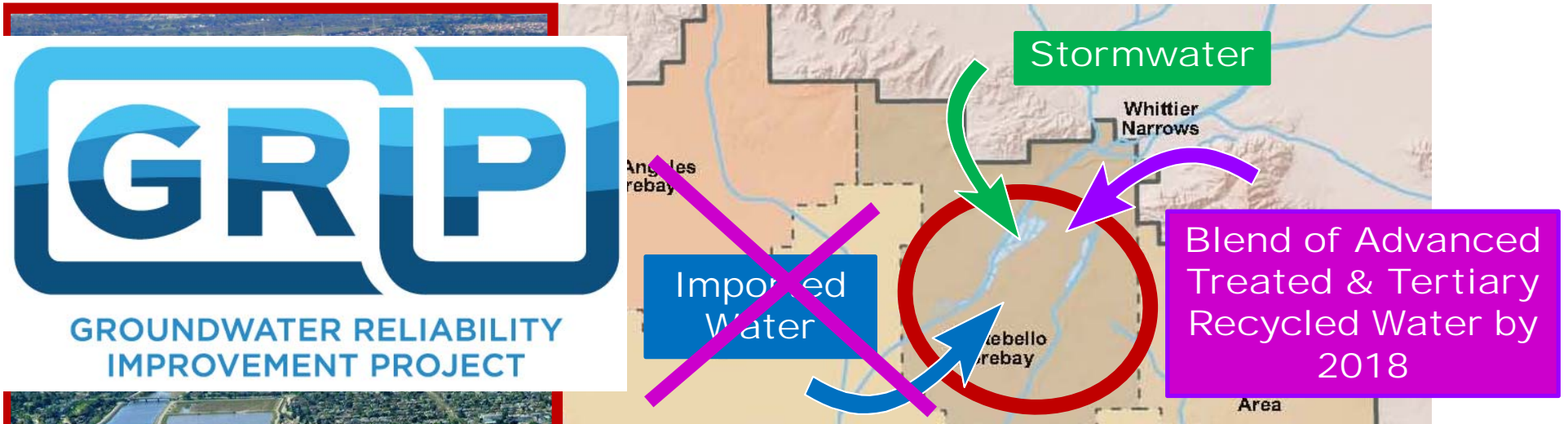
- Groundwater basin hydrogeology & water quality
- Recycled water and stormwater use/recharge goals & objectives
- Estimate current and future salt and nutrient loading (2025)
- Assess the water quality impacts of major proposed projects in the basins
- Establish a water quality monitoring program, including constituents of emerging concern (CECs)
- Implementation measures (plans/projects) to manage salt/nutrient loading



Salt & Nutrient Concentrations

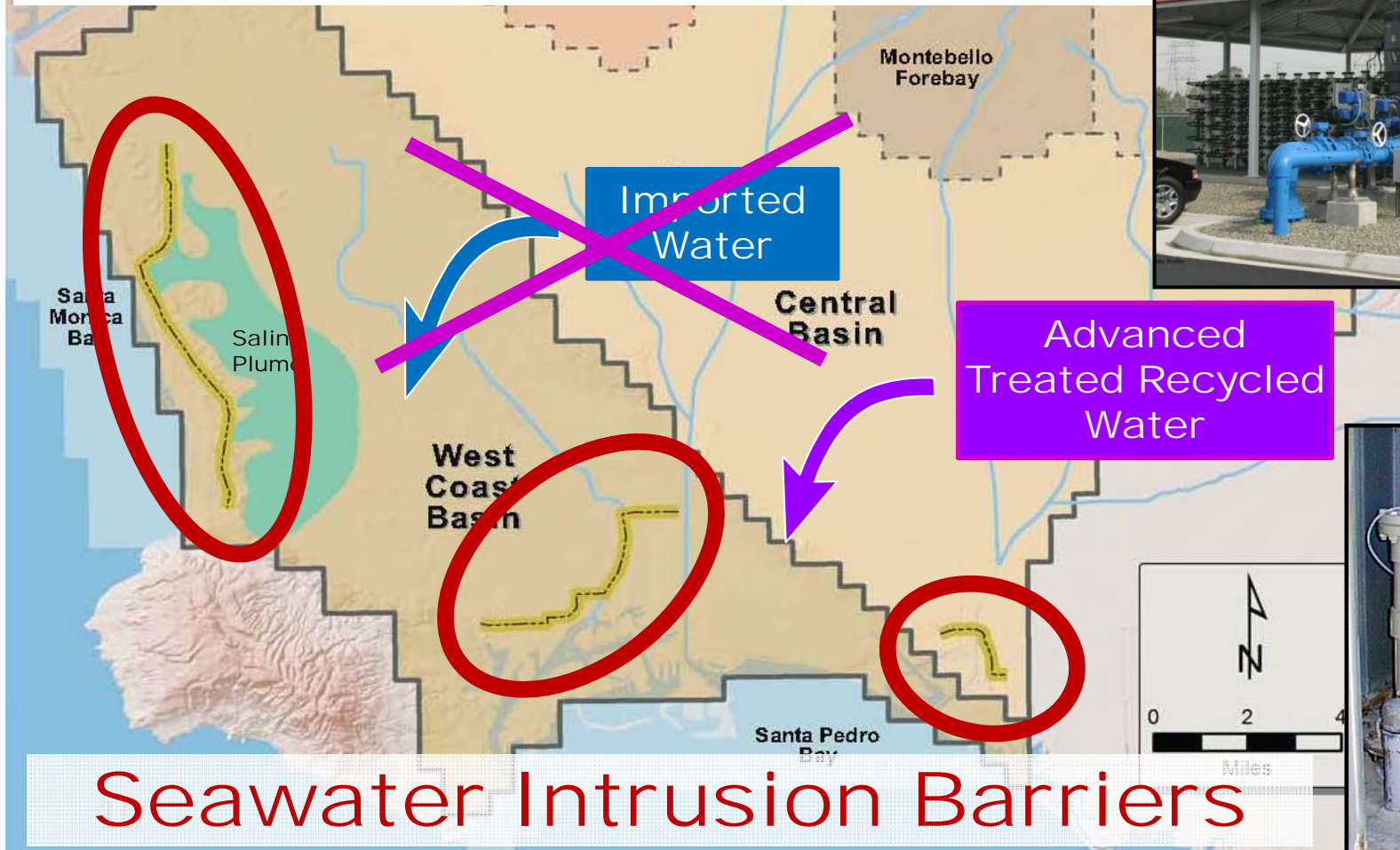
	TDS (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
Advanced Treated Recycled Water (RW)	65 - 98	9 - 37	0.26 - 1.13
Stormwater	259 - 297	40 - 46	1.16 - 1.58
Treated Imported Water	218 - 481	25 - 84	0.09 - 0.61
Spreading Grounds Influent	286 - 492	37 - 107	1.45 - 3.07
Untreated Imported Water	251 - 624	68 - 88	0.21 - 0.67
CB Groundwater Avg	529	67	0.28
CB WQO	700	150	10
Tertiary RW @ Spreading Grounds	533 - 626	105 - 149	3.41 - 6.31
Tertiary RW Irrigation	533 - 825	109 - 211	1.01 - 5.63
WCB Groundwater Avg	890	306	0.05
WCB WQO	800	250	10

Proposed Major Projects Modeled in the SNMP



Proposed Major Projects Modeled in the SNMP

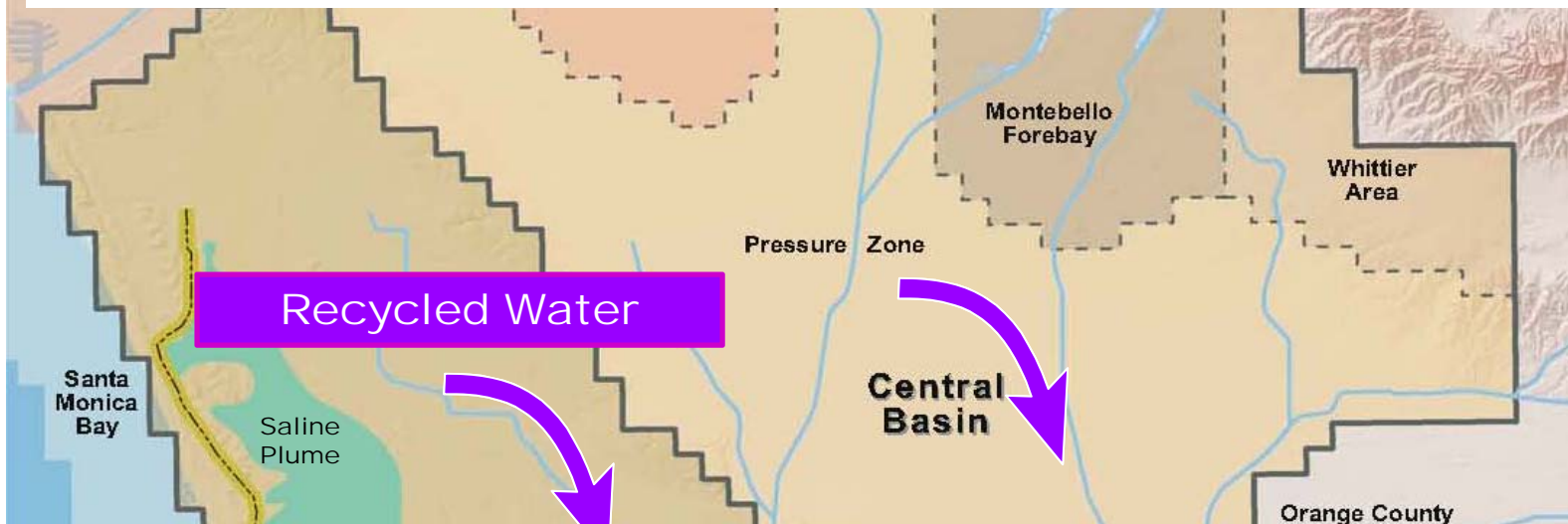
- Total advanced treated recycled water will increase from 9,500 to 31,700 AFY by 2019
- TDS and chloride concentrations significantly decrease in both basins
- In West Coast Basin, achieve Water Quality Objectives (WQOs) by ~2035
- Nitrate remains significantly below WQO in both basins



Seawater Intrusion Barriers

Proposed Major Projects Modeled in the SNMP

- Recycled water use anticipated to increase from 10,600 to 23,100 AFY by 2025 (replacing imported water & groundwater usage)
- Minimal impact on TDS and chloride loading in both basins
- Nitrate remains significantly below WQO in both basins

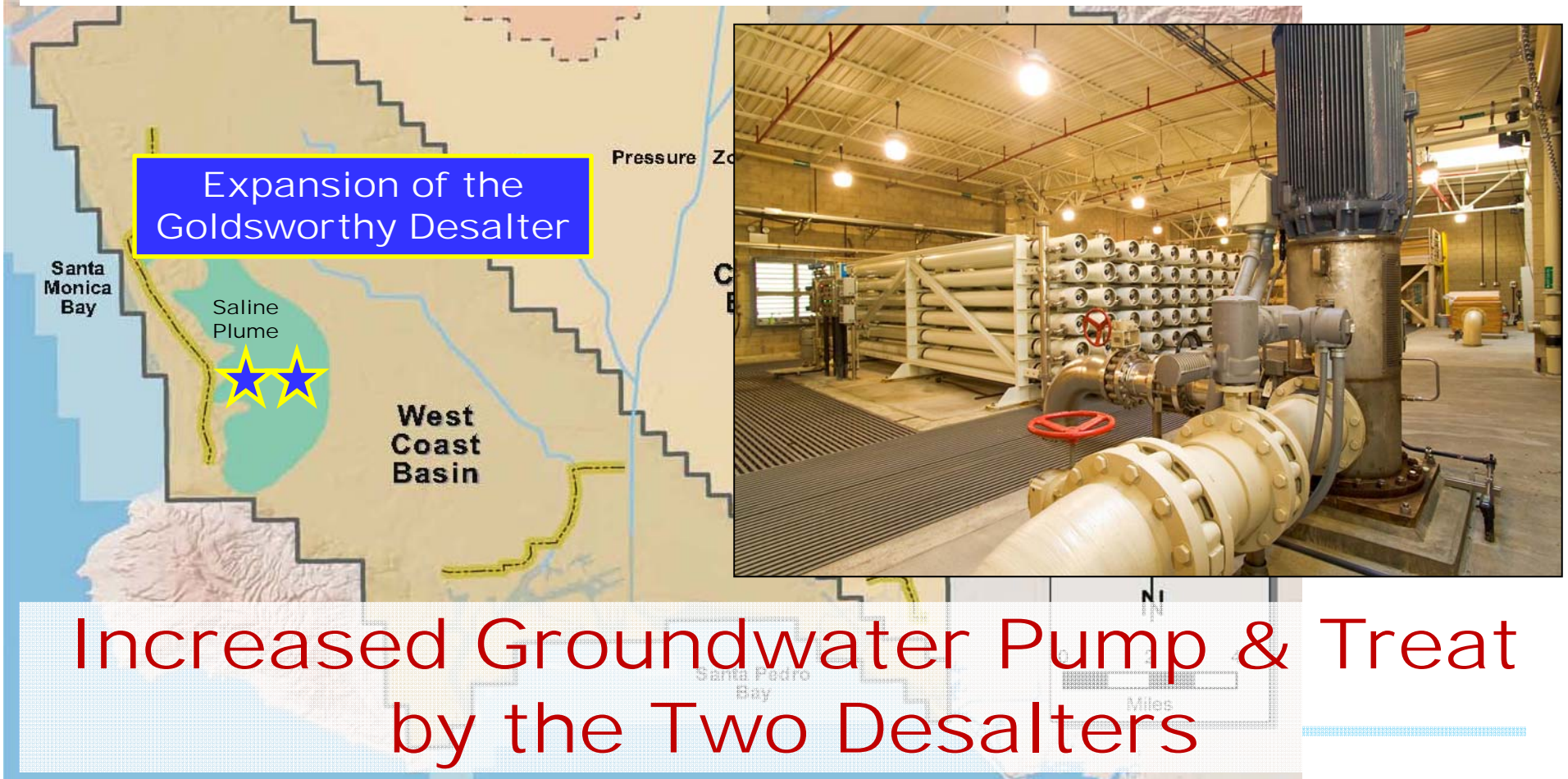


Increased Use of
Recycled Water
for Irrigation

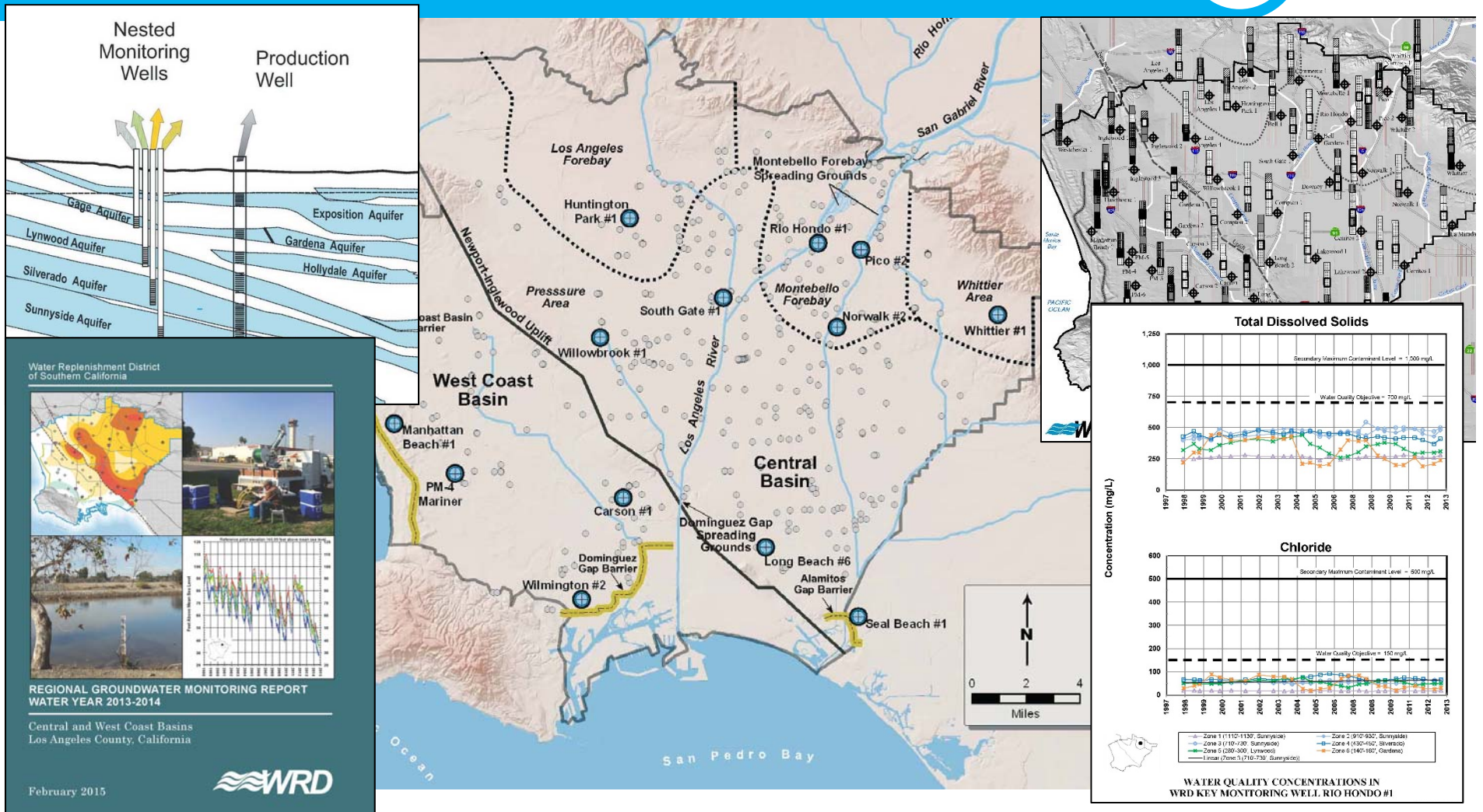


Proposed Major Projects Modeled in the SNMP

- Goldsworthy Desalter will be expanded in 2016
- Total groundwater pump & treat by desalters will increase from 2,400 to 6,400 AFY
- Significant decrease of TDS and chloride concentrations; anticipated to achieve Water Quality Objectives by ~2035 (includes all implementation measures)
- No impact on nitrate loading in West Coast Basin



SNMP Monitoring Plan



70 Nested groundwater monitoring wells at 13 locations throughout the most critical areas of the basins

Summary of SNMP Results

- In Central Basin, salt concentrations are below WQOs & not expecting exceedance of WQOs in the future
- In West Coast Basin, water quality is improving and salt concentrations will be below WQOs in the future
- Nitrate (nutrient) concentrations remain significantly below the WQO in the CBWCB
- On February 12, 2015, Resolution No. R15-001 was adopted by the LARWQCB to amend the Basin Plan for the Los Angeles Region to incorporate stakeholder-proposed groundwater quality control measures for salts and nutrients in the Central and West Coast Groundwater Basins
- On July 21, 2015, the SWRCB adopted Resolution No. 2015-0048, which approved LARWQCB's Resolution No. R15-001

A photograph of a sunset over a body of water. The sun is low on the horizon, creating a bright glow and reflecting on the water. The sky is filled with soft, golden clouds. In the background, there are silhouettes of trees and utility poles. The foreground shows the dark, rippling water of the lake.

Questions?

Thank You

For more information visit www.wrd.org