

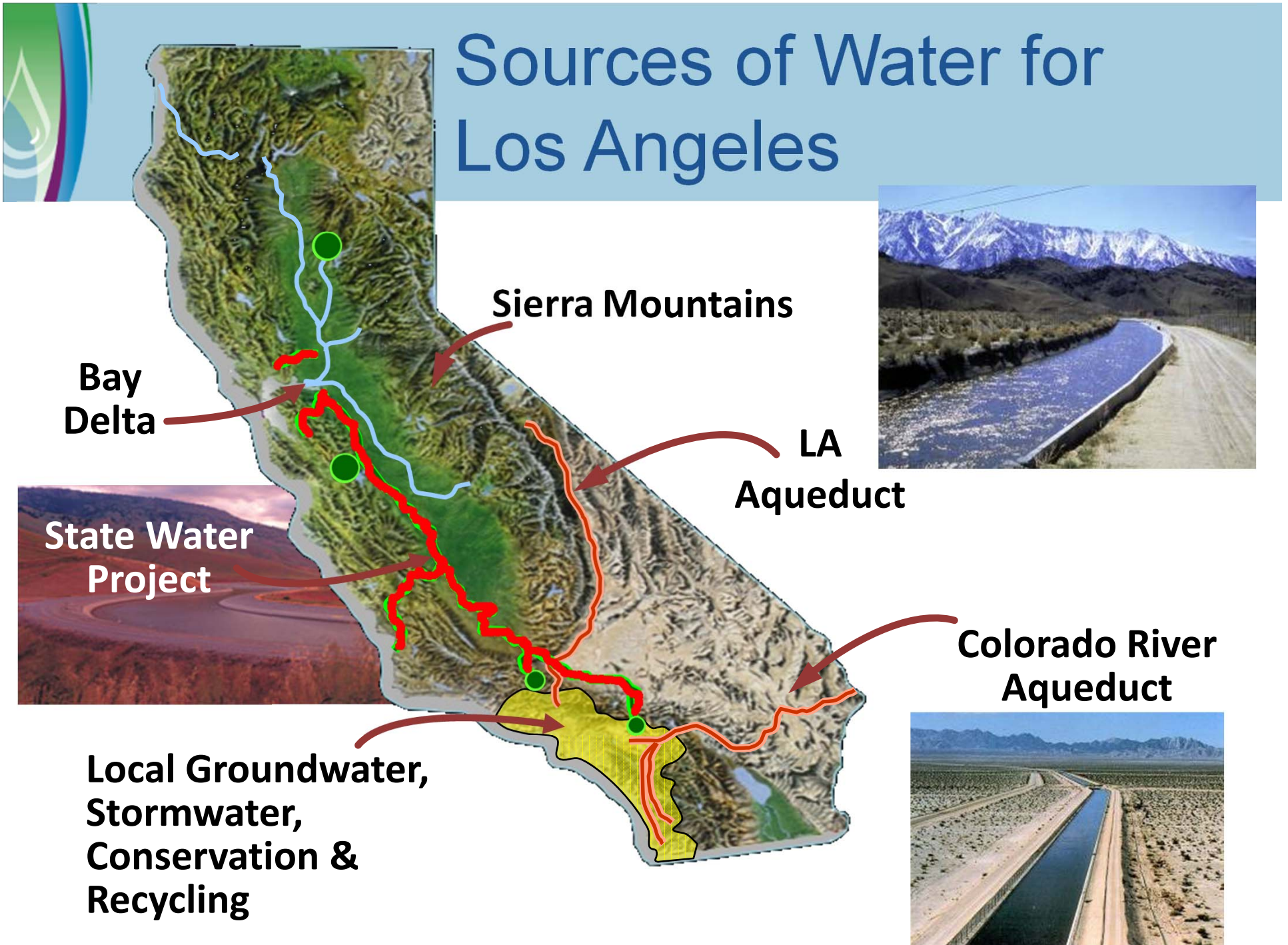


Los Angeles Groundwater Replenishment Project



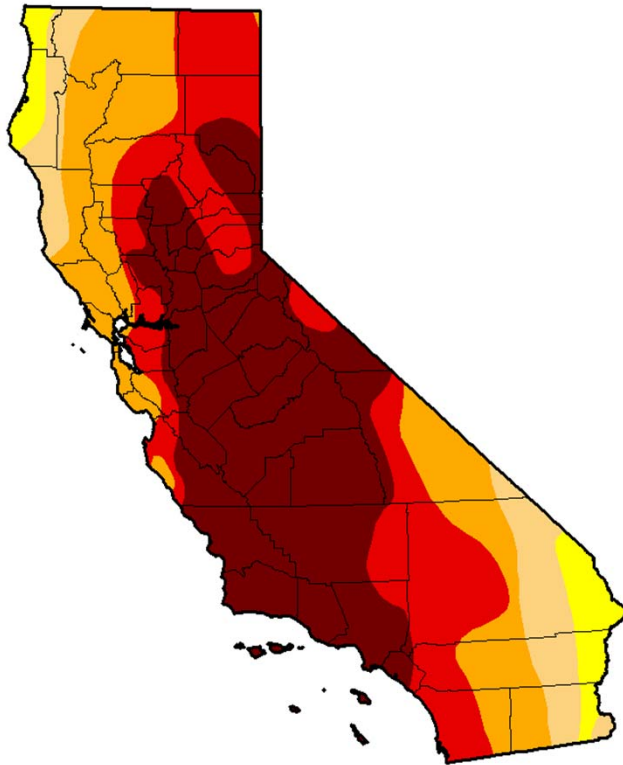
L.A.'s Water Supply Situation

Sources of Water for Los Angeles



Recent Dry Conditions

U.S. Drought Monitor West



- CY 2013
Driest on Record
- WY 2014
4th Lowest Runoff
- 2014 Temps
Record High
- April 2015
Lowest statewide snowpack

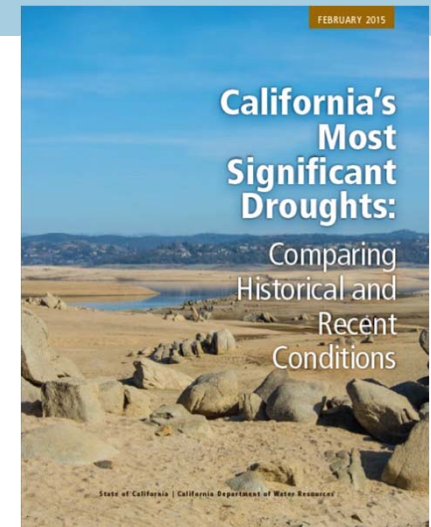


Intensity:



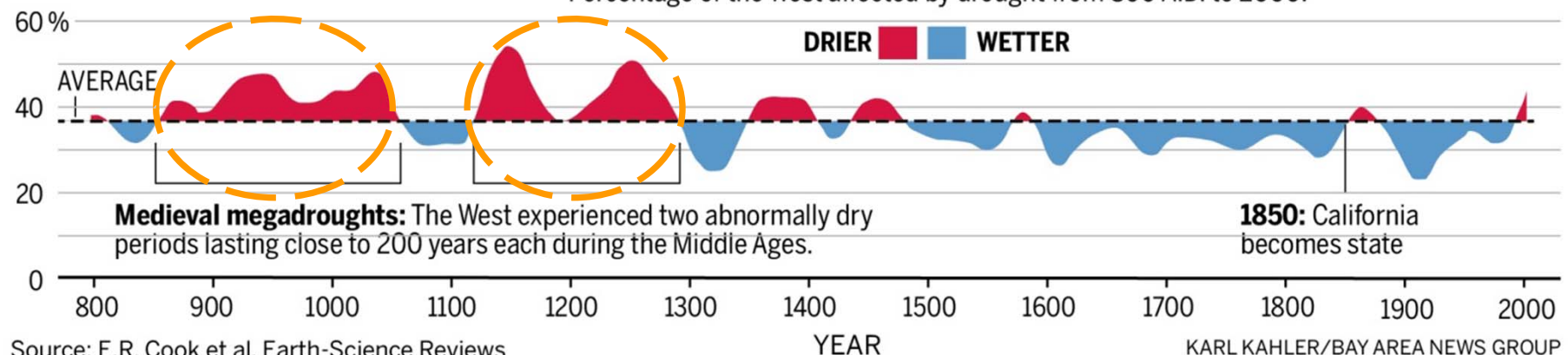
Prolonged Drought Potential

- Tree ring data suggests potential for a series of decade long droughts and/or prolonged “megadroughts” in the West
- Potential for current four year drought to be a prolonged event



A 200-year drought?

Evidence from tree rings shows that drought was historically much more widespread in the American West than now, while the 20th century was wetter than normal. Percentage of the West affected by drought from 800 A.D. to 2000:



Source: E.R. Cook et al, Earth-Science Reviews

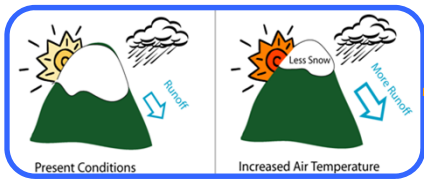
KARL KAHLER/BAY AREA NEWS GROUP

State and Local Drought Response

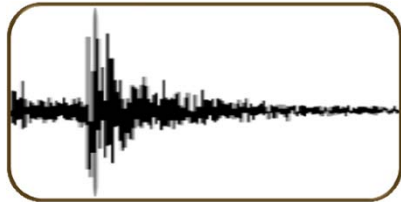
- **Mayor's Executive Directive Order #5**
 - Reduce GPCD 20% by 2017
- **Governor's Executive Order**
 - 25% Conservation Statewide
- **LA's Sustainable City pLAN**
 - Reduce GPCD 20% (2017), 22.5% (2025), 25% (2035)
 - 50% Reduction of imported purchased by 2025
 - 50% of water locally sourced by 2035
- **State Emergency Conservation Regulations Extended**
 - Executive Order calling for extension of restrictions if drought persists



Long Term Water Supply & Reliability Challenges



Climate Change



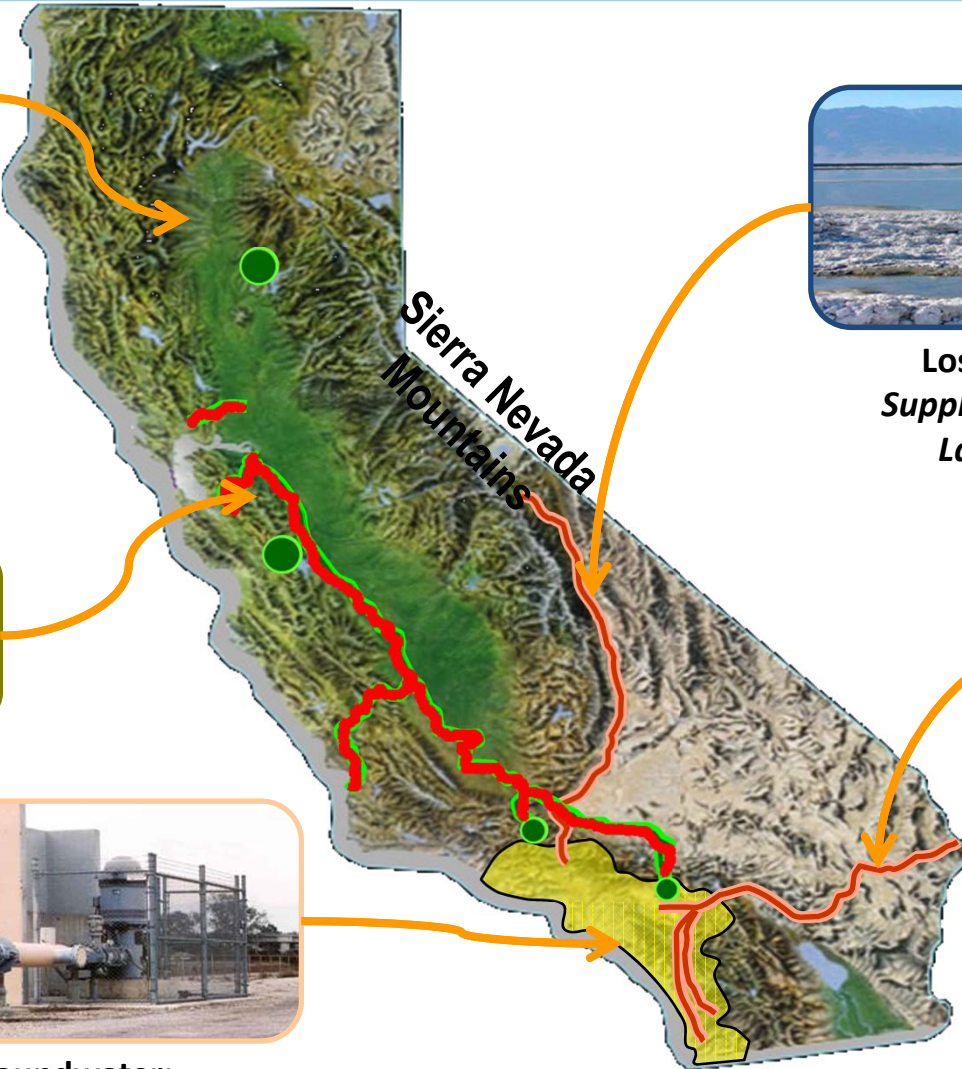
Seismic Risk to Imported Supplies



Bay-Delta Uncertainty



Local Groundwater: Contamination in the San Fernando Basin



Los Angeles Aqueduct: Supply reduction due to Owens Lake dust mitigation



Colorado River Aqueduct



Rising MWD Water Costs

Long Term Solution for Reliable Water Supply



Recycled Water



Stormwater Capture



Water Conservation

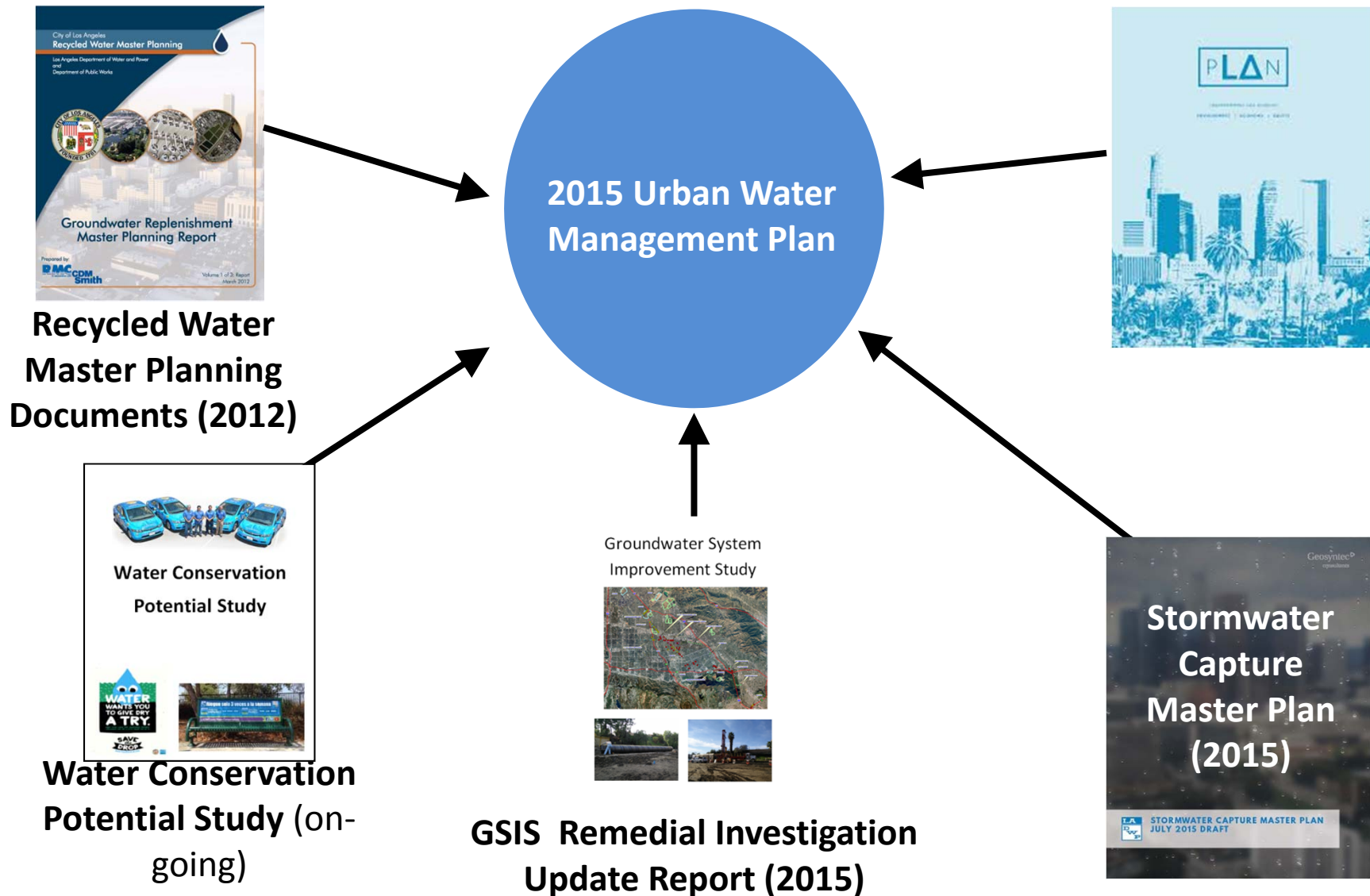


SF Groundwater Basin Remediation



Local Water Supply Reliability

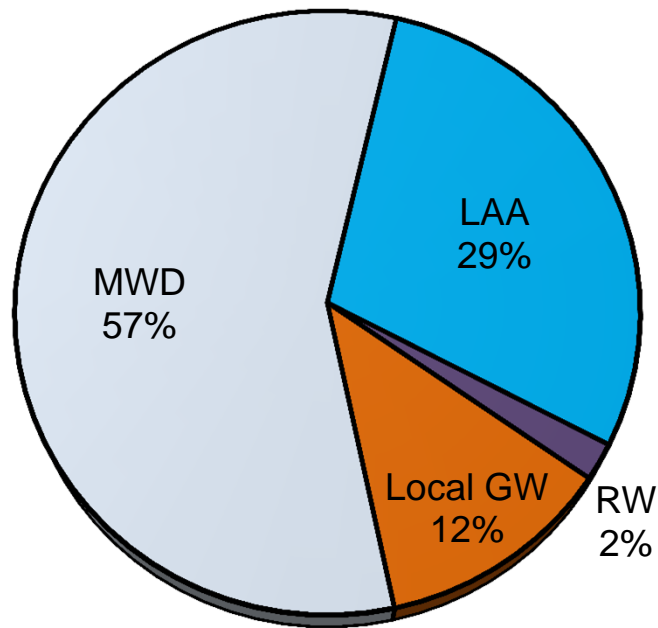
UWMP Planning Efforts



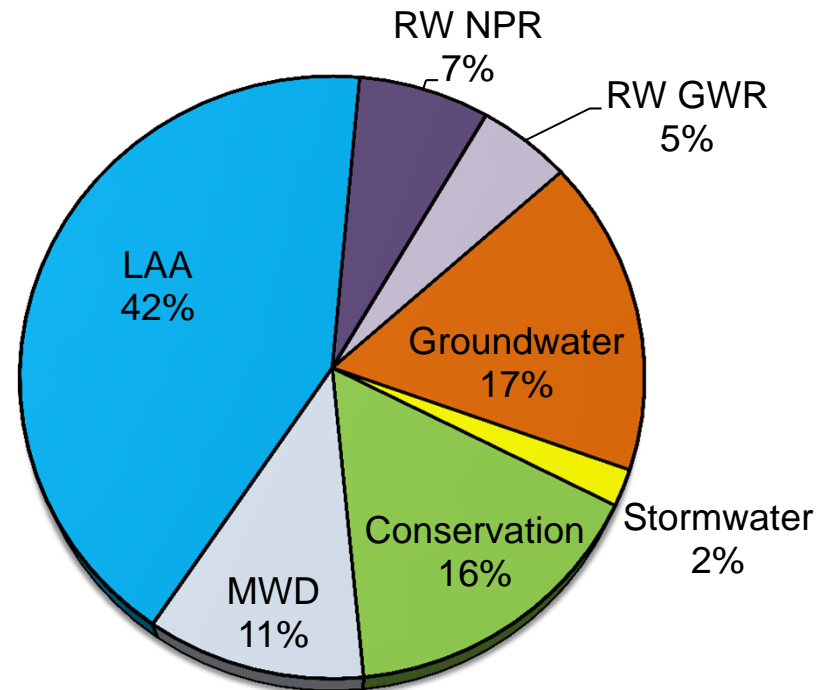


Comprehensive Strategy for Future Reliability

FY 2011-15 Average
Total Demand: 550,130 AFY



FY 2039-40 Average
Total Demand: 675,700 AFY





Local Supply Development: Stormwater Capture



Local Supply Development Stormwater Capture

Dam Improvements



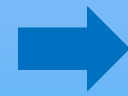
Cisterns



Centralized



CAPTURE



Distributed



Spreading Basins

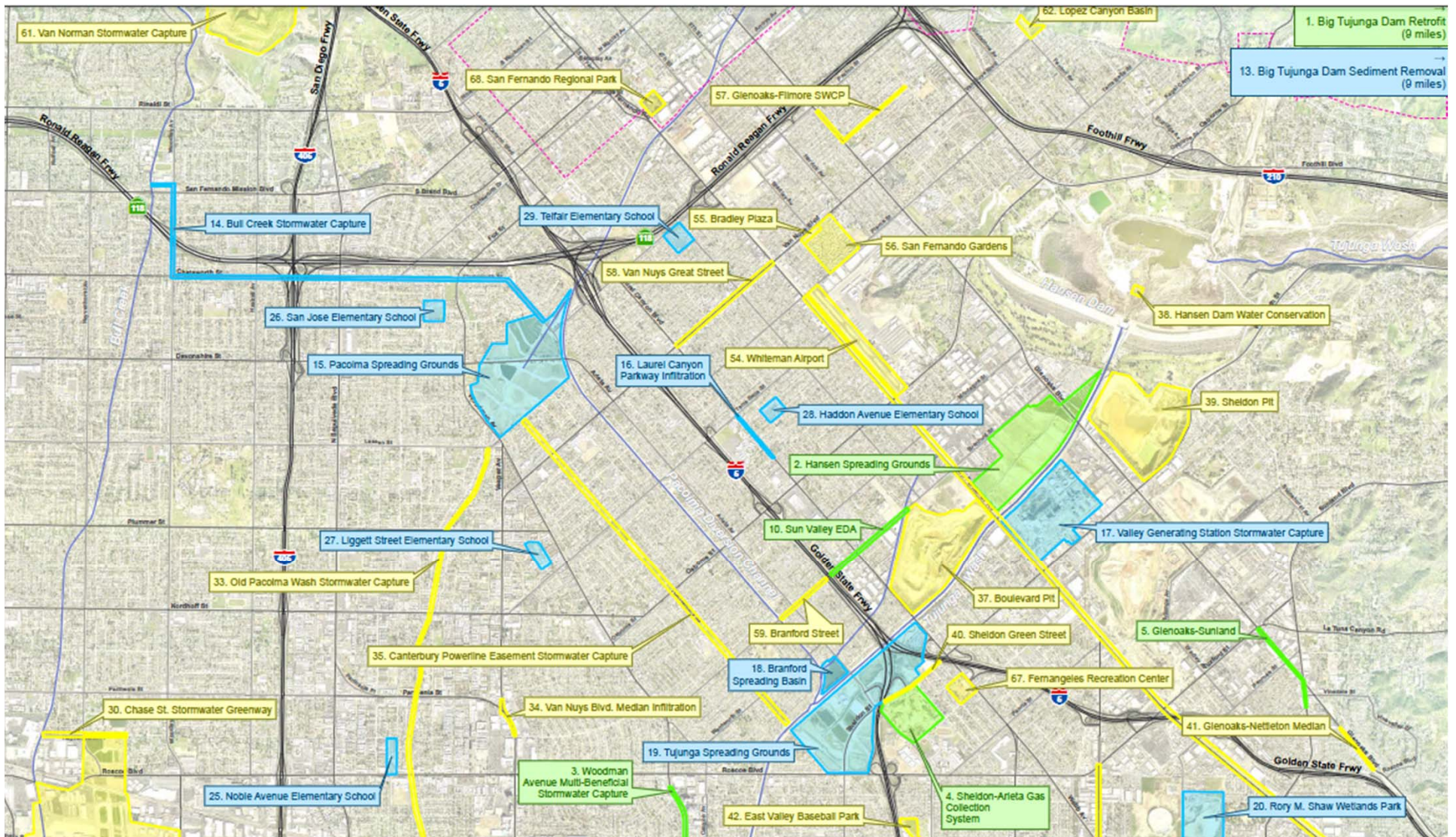


Green Streets



Rain Barrels

Project Map



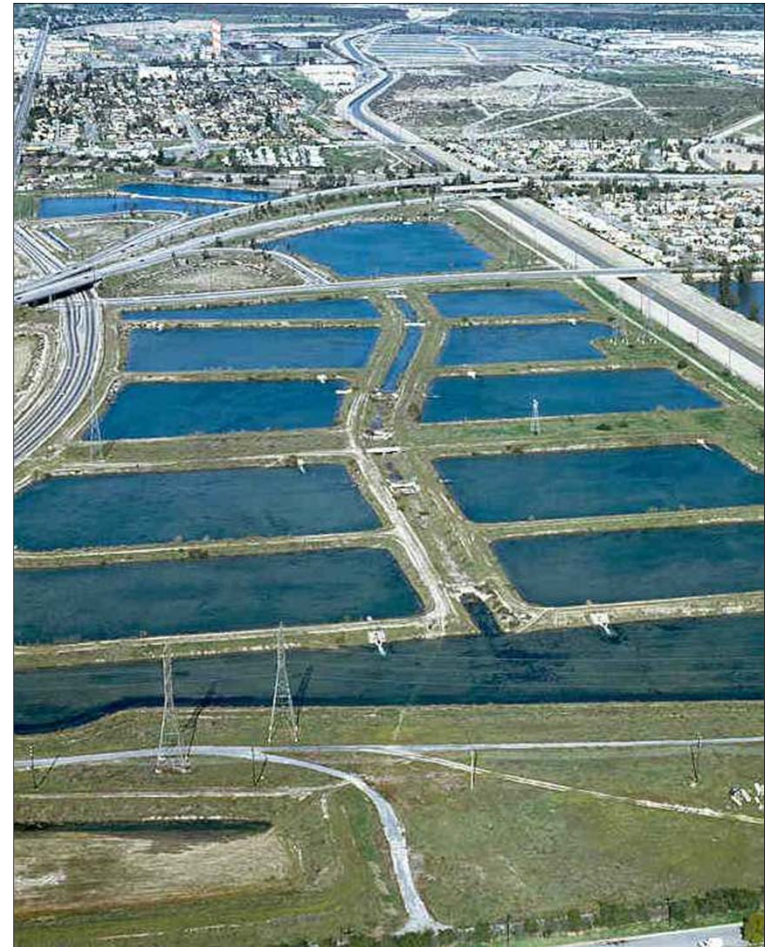


Project Summary

| Project Name | Yield (AFY) |
|-------------------------------|-------------|
| Tujunga SG Improvements | 4,200 |
| Pacoima SG Improvements | 5,300 |
| Canterbury Powerline Easement | 1,335 |
| Old Pacoima Wash | 1,350 |
| Bull Creek Stormwater Capture | 3,000 |

Tujunga Spreading Grounds Improvements

- Project consists of deepening and consolidating existing 20 basins into 9 large spreading basins
- Install two high flow intakes and modify existing intake to improve water quality
- Installation of control houses, slide gates and spillways, and a remote control telemetry system
- Incorporates community access and open space for passive recreation
- **Estimated recharge:**
4,200 AFY



Pacoima Spreading Grounds Improvements

- Project will replace intake canal with four 54-inch diameter RCPs
- Replace radial gate with rubber dam
- Deepen and reconfigure recharge basins to better capture stormwater
- Project will include passive recreation and native habitat improvements
- Estimated recharge:
5,300 AFY



Canterbury Powerline Easement

- Project located within 18.8 acres of Canterbury Avenue Power Line Easement
- Consists of 24 recharge basins to be excavated
- The basins would receive overflow from Pacoima Spreading Grounds and local flows from adjacent neighborhood
- **Estimated Recharge:**
1,335 AFY (335 AFY through Easement and 1,000 AFY through PSG)



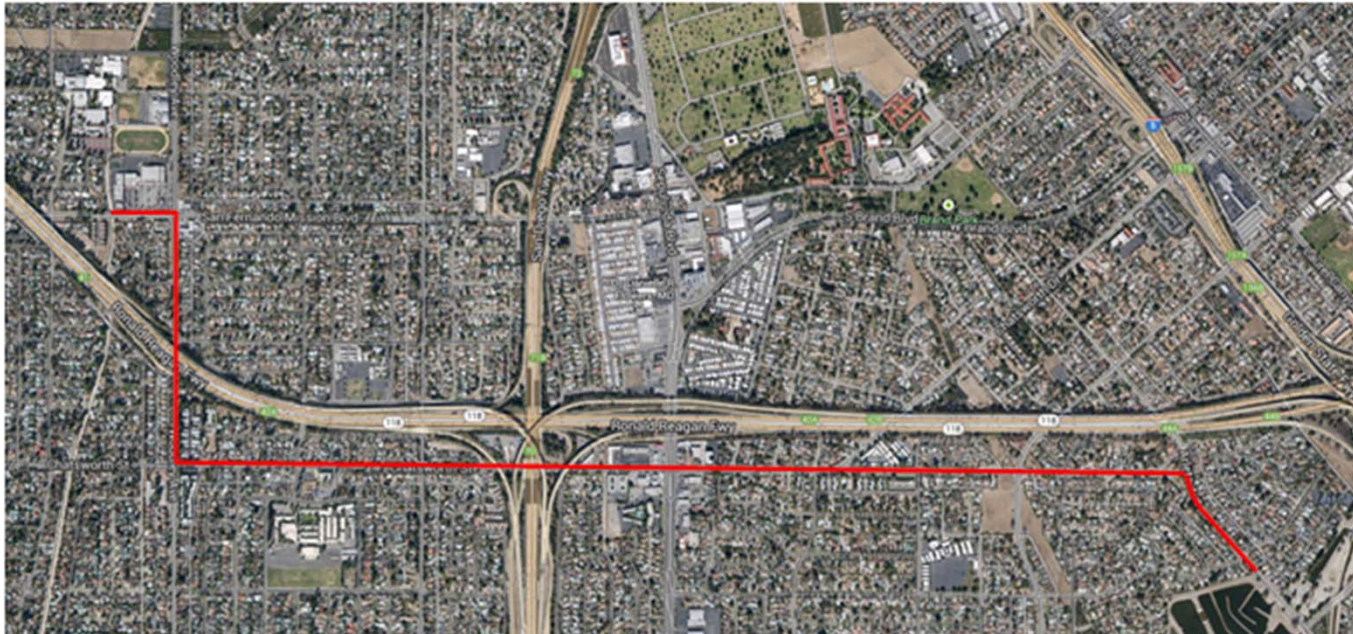
Old Pacoima Wash

- Project along 2 miles of Old Pacoima Wash
- Consists of a system in-stream infiltration basins created by installing rubber dams
- Would accept overflow from the Pacoima Spreading Grounds and local flows from adjacent neighborhood.
- **Estimated recharge:**
1,350 AFY (350 AFY through Wash and 1,000 AFY through PSG)



Bull Creek Stormwater Capture

- Divert flows from Bull Creek using a six-foot high rubber dam
- Convey diverted flows through a 60-inch pipeline to Pacoima Spreading Grounds, approximately 3 miles
- Estimated recharge: **3,000 AFY**





Local Supply Development: Recycled Water

How Los Angeles Uses Recycled Water

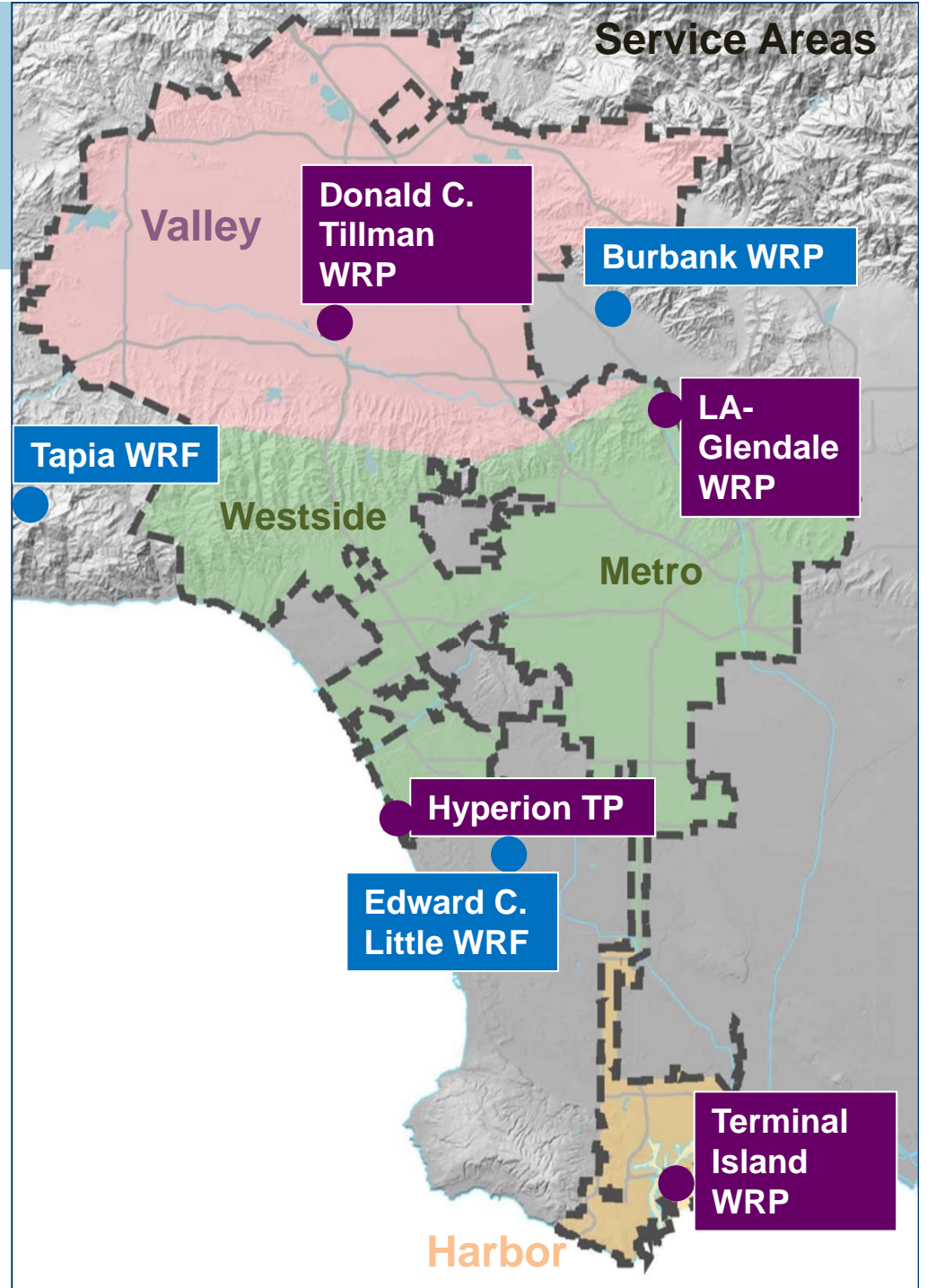


Where Recycled Water is Produced



*The City treats over
350 million gallons
of wastewater every day*

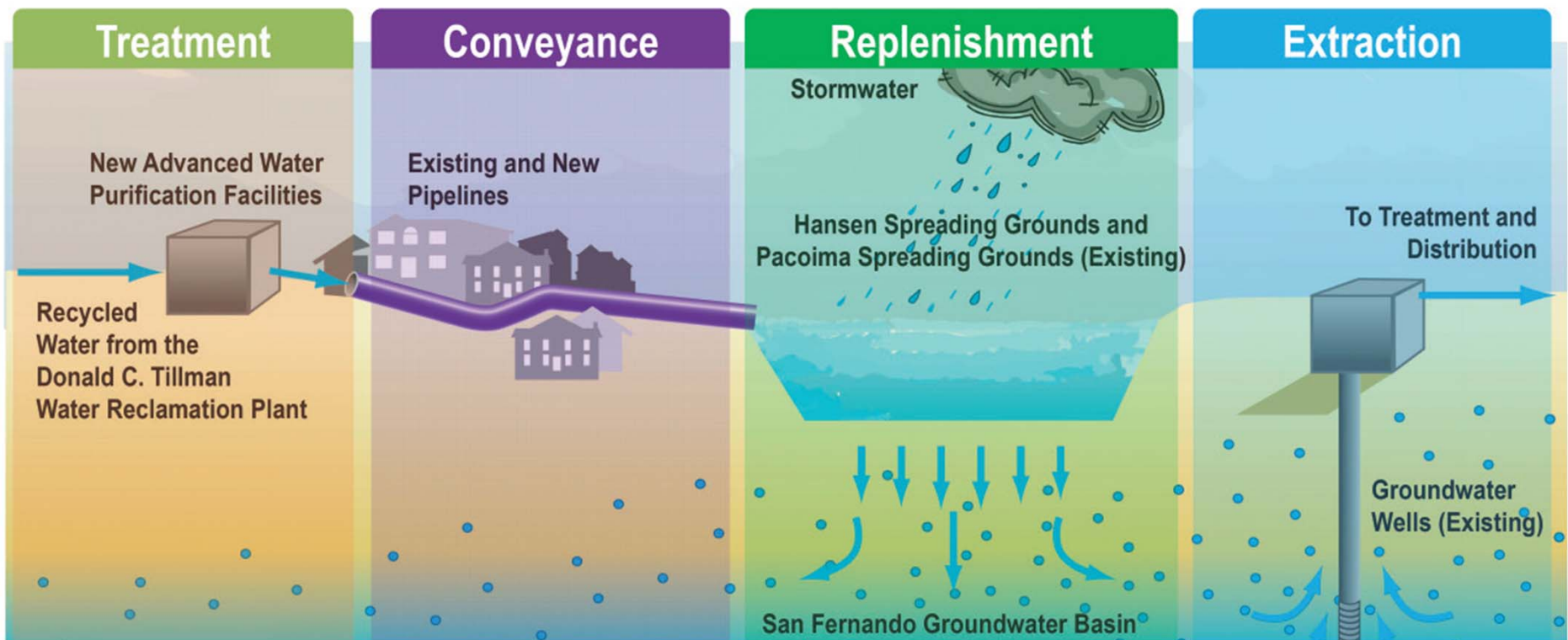
**MOST OF THIS RESOURCE
GOES
TO THE OCEAN**





Los Angeles Groundwater Replenishment Project

Groundwater Replenishment

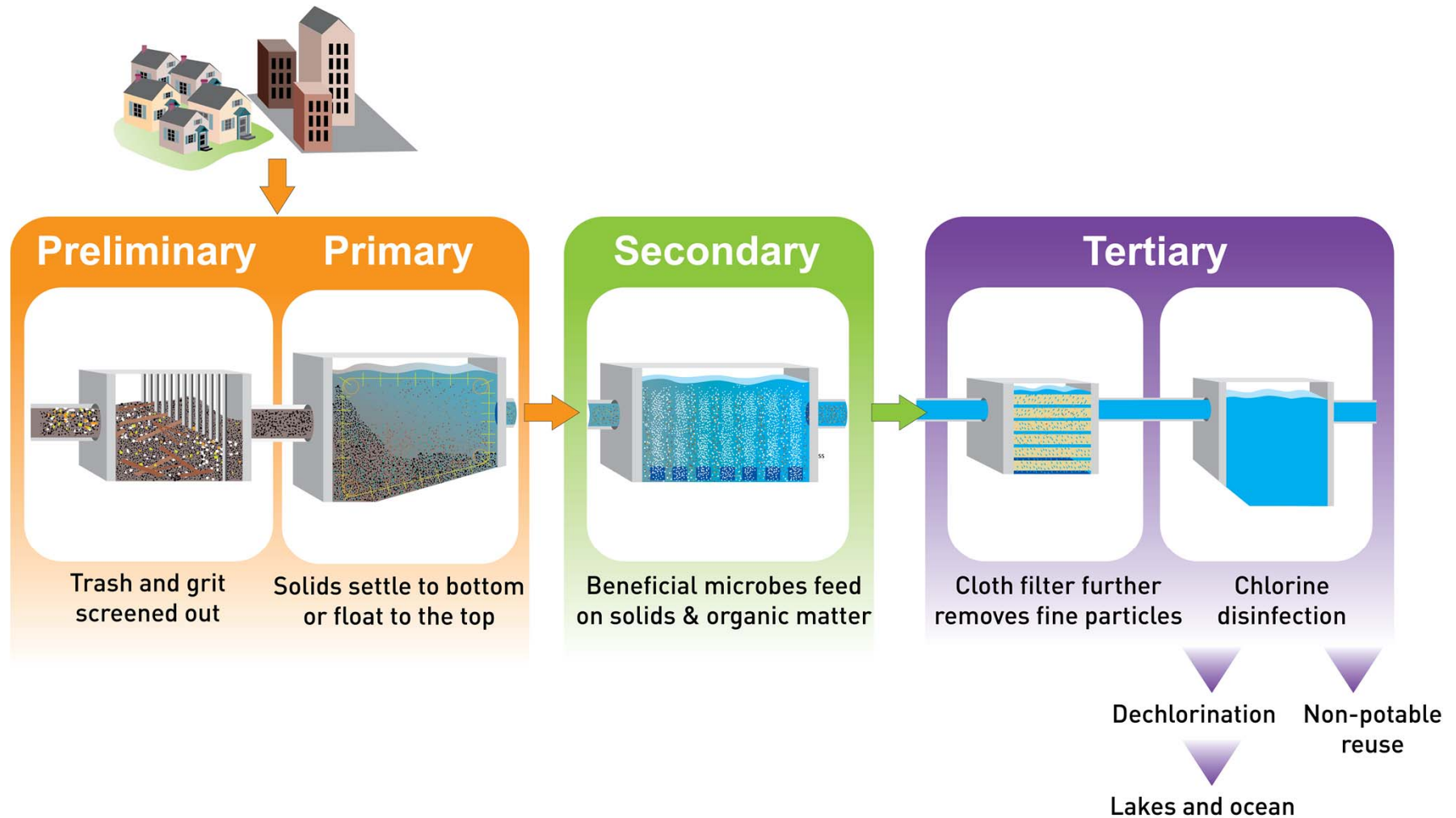




Spreading Grounds

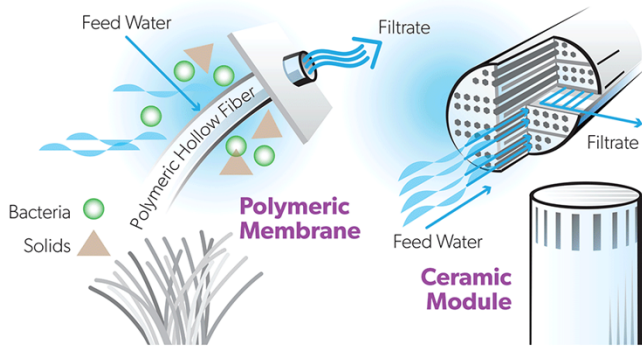


How Recycled Water is Produced

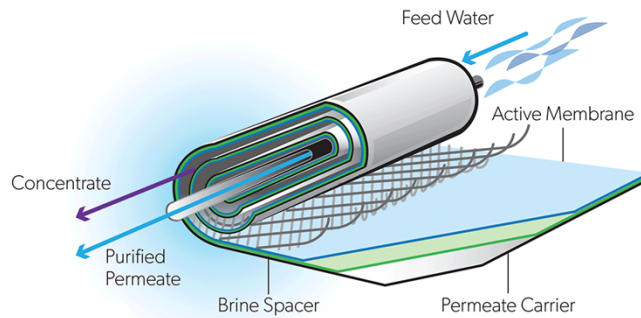


Treatment Process

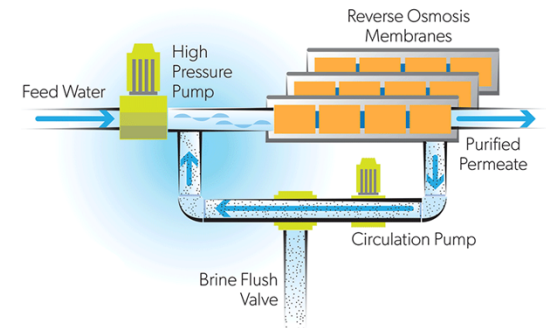
Microfiltration | Ultrafiltration



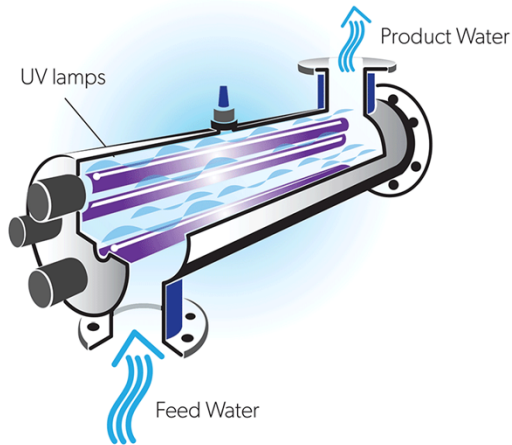
Reverse Osmosis



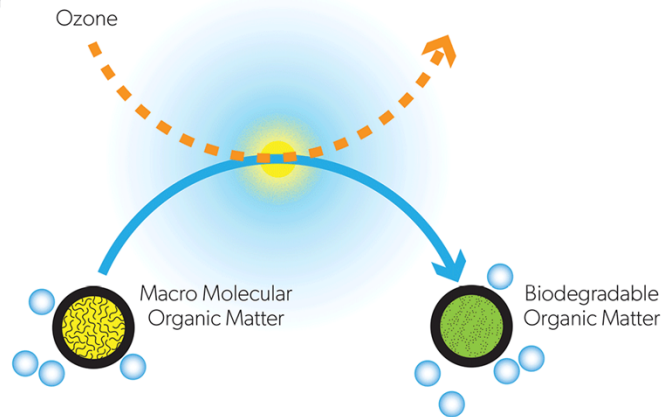
Closed Circuit Desalination



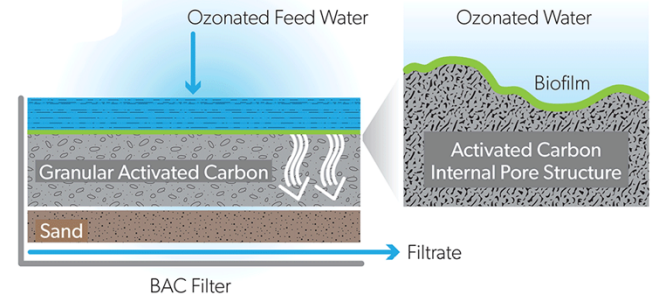
Advanced Oxidation Process



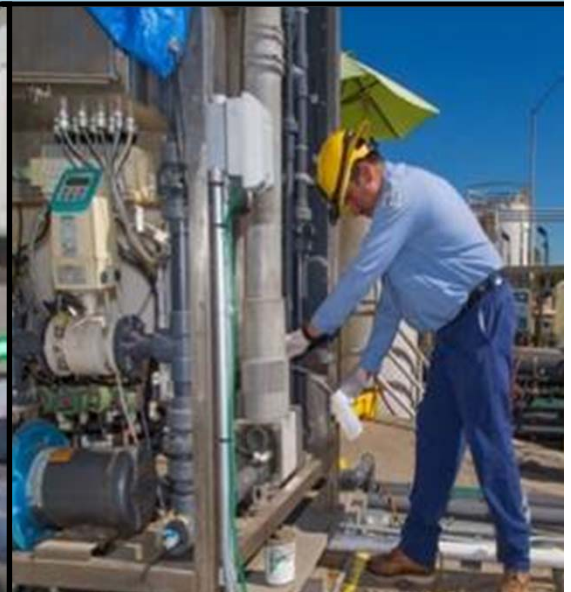
Ozone



Biologically Active Carbon



LA GWR Project Pilot Study Phase 2





Treatment Facilities at the Donald C. Tillman Water Reclamation Plant



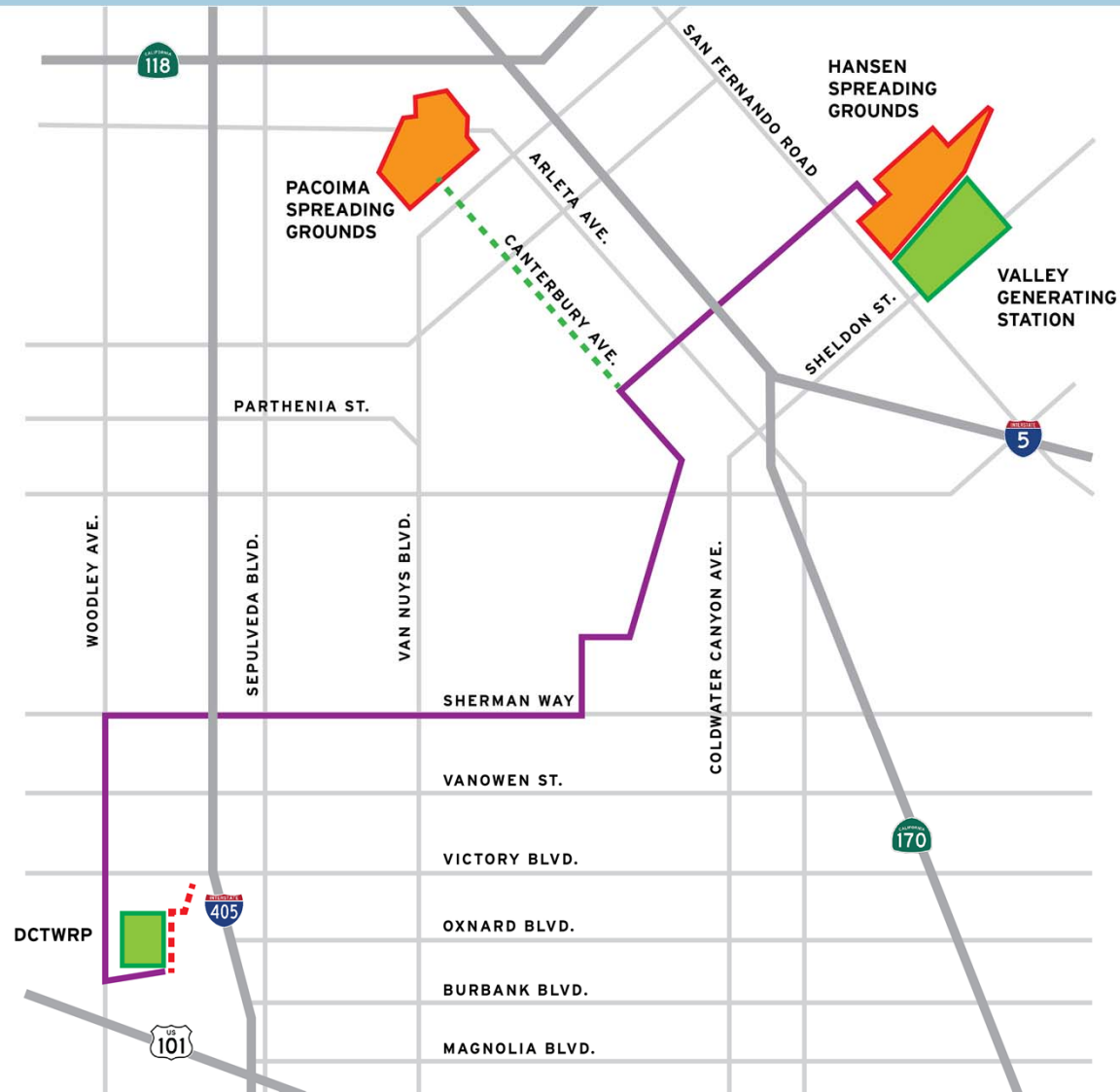
Proposed



Not Part of Project

New and Existing Pipelines

- LEGEND**
- Existing 54-in pipeline
 - Proposed 42-in pipeline
 - Proposed 24-in brine line





Project Schedule

- Draft environmental impact report (EIR) released: Spring 2016
- The final EIR released: Fall 2016
- Pilot testing and project development: 2016-2019
- Construction: 2019-2022
- Testing: 2022 (6 months)
- Spreading operations commence: mid-2023



THANK YOU QUESTIONS?

www.ladwp.com/GWR

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www.ladwp.com/stormwater