Santa Clara Valley Water District

Recycled and Purified Water Development in Santa Clara County

WateReuse Chapter Meeting
August 21, 2015

Garth Hall, Deputy Operating Officer
Water Supply Management Division

Presentation Outline

- **District Water Supplies**
- **Recycled Water**
- **Potable Reuse**
- **Silicon Valley Advanced Water Purification Center**
- **Drought Response: Launch IPR**

Secure Existing Supplies & Infrastructure

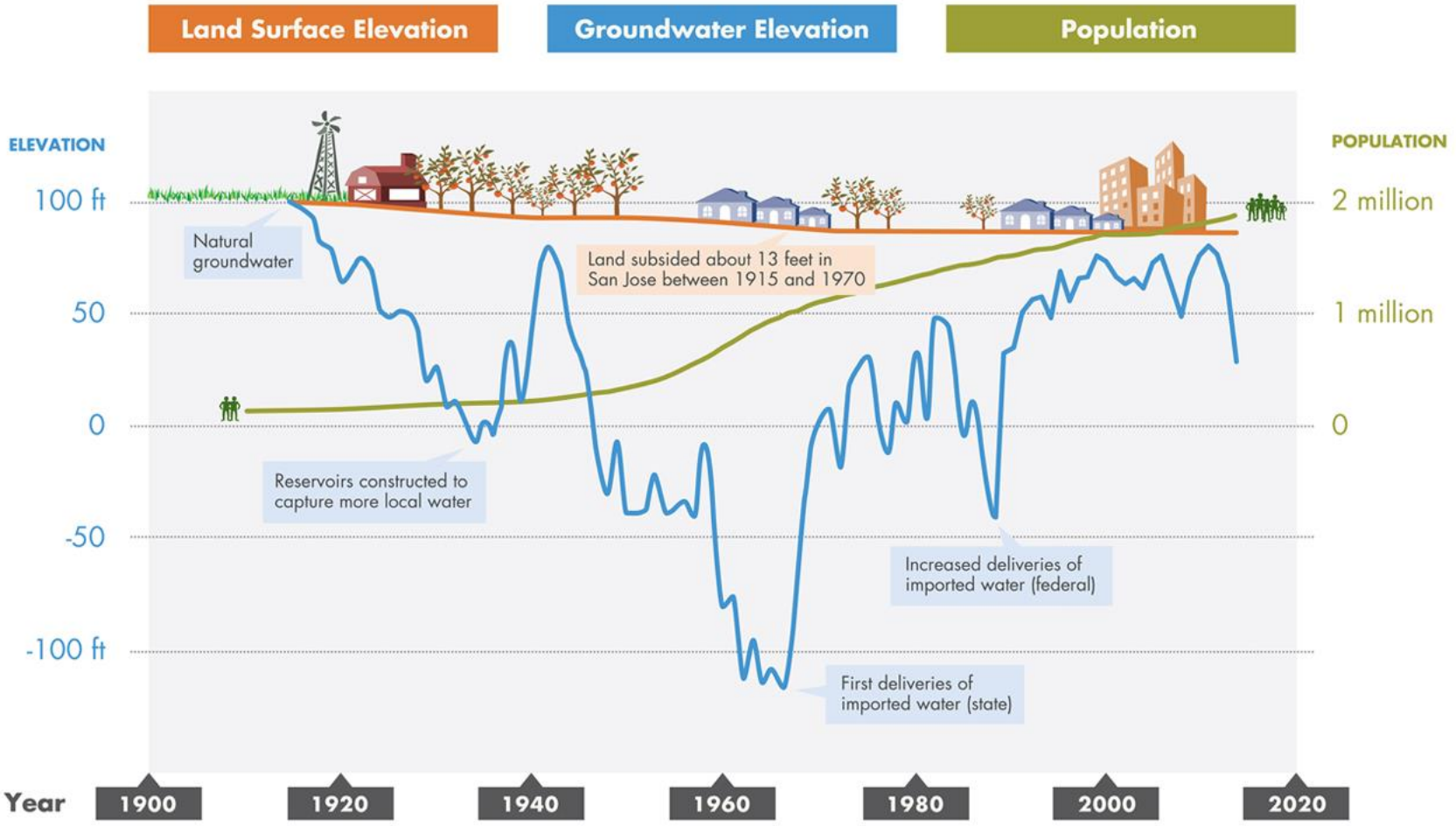
Maintain and rehabilitate existing infrastructure and supplies

Increase non-potable recycled water use to 30,000 acre-feet per year

save20gallons.org

Increase annual conservation savings to 99,000 acre-feet per year

Santa Clara County Groundwater At-A-Glance

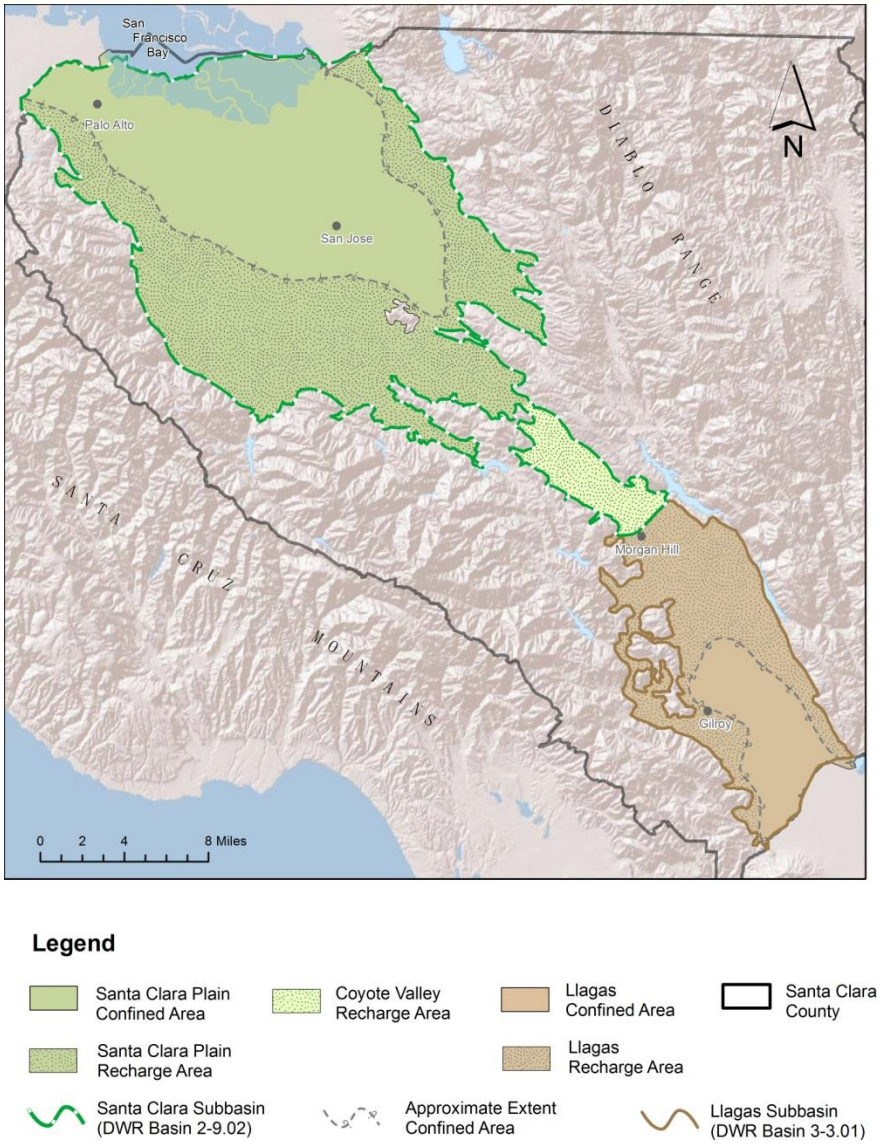


Last updated January 26, 2015

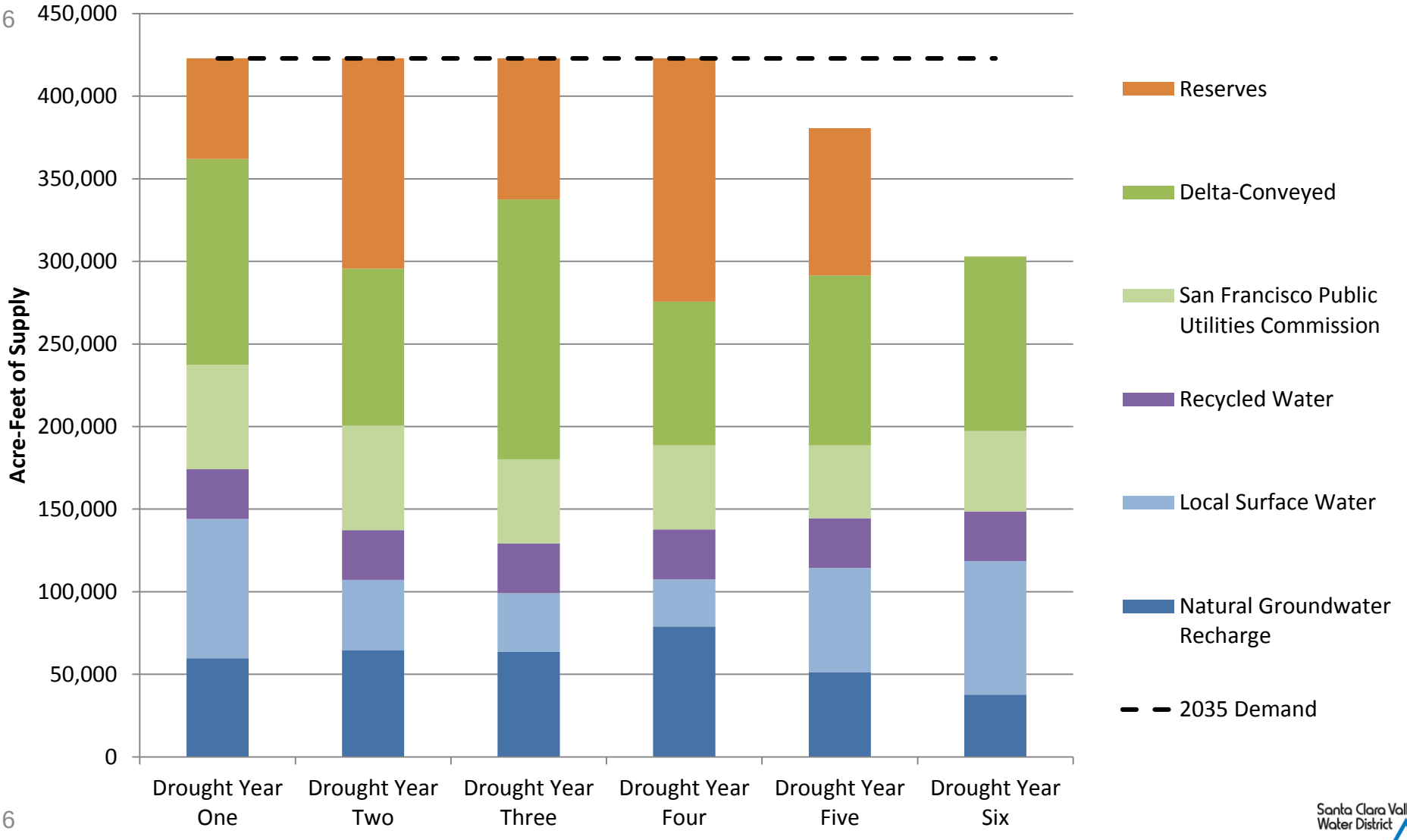
Santa Clara Valley Water District

Santa Clara County Groundwater

- Nearly half the water used in the county (150,000 AFY)
- Primary reserve for multi-year droughts
- The District protects and augments groundwater per our governing act and Board policy

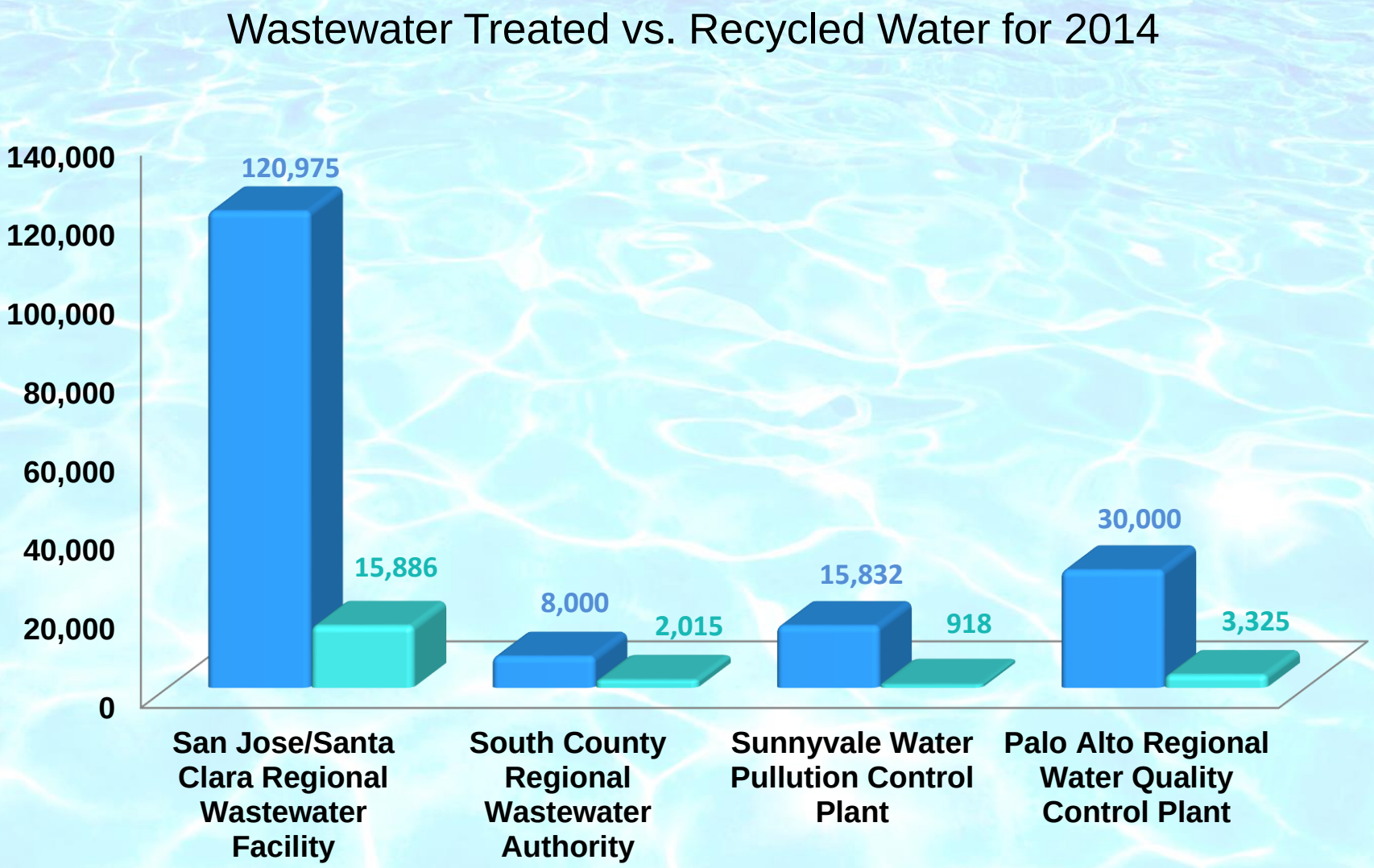


Extended Droughts are the Greatest Challenge to Supply Reliability



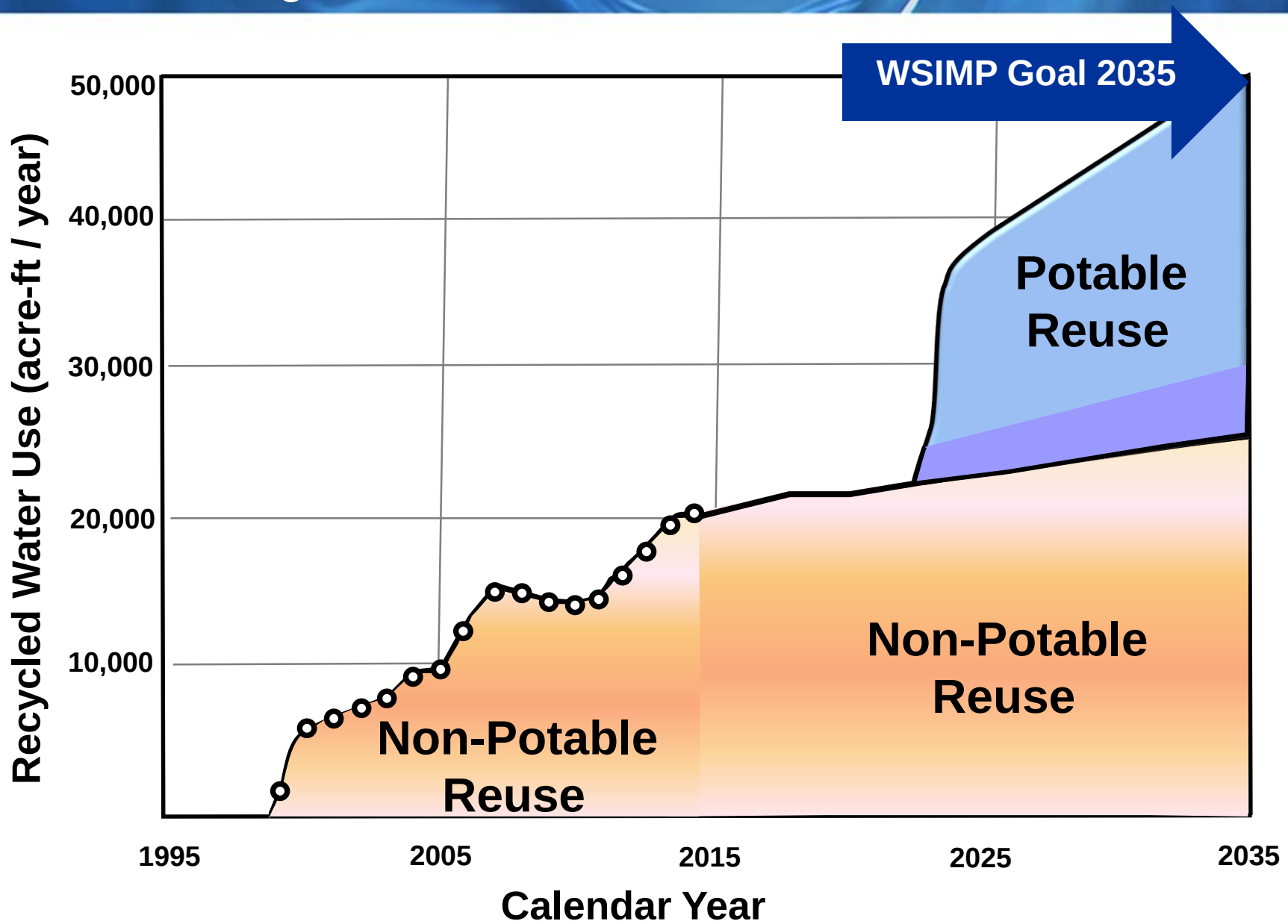
Recycled Water

Wastewater Treated vs. Recycled Water



Background

Goals and Targets



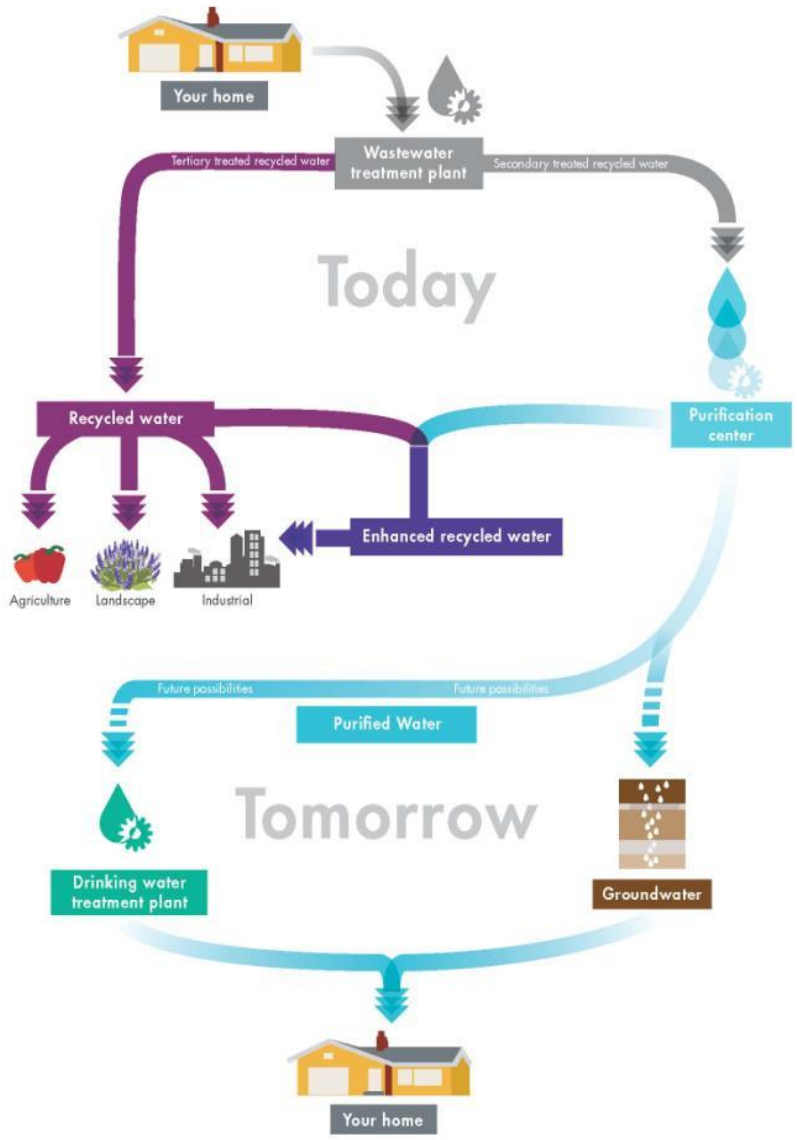
Potable Reuse

Rationale for Potable Reuse

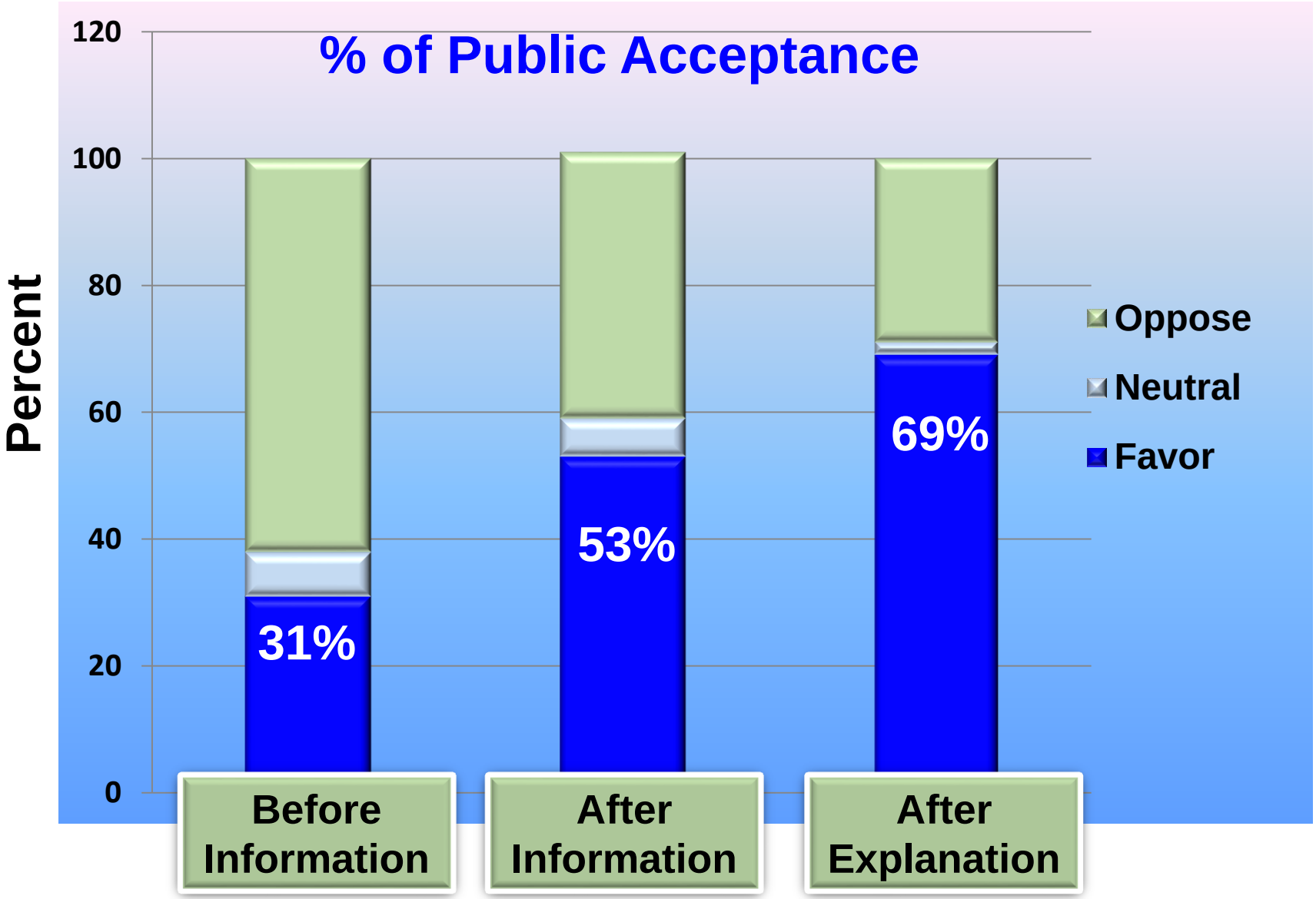
- Non-potable recycled water (purple pipe) expansion insufficient to meet future needs
- Additional water conservation efforts insufficient to meet future needs – need the "wet stuff"
- Potable reuse (using purified water) identified as most reliable and cost-effective option, per the District's Water Supply & Infrastructure Master Plan

Public Outreach

- Expand Tour Program
- Further Develop Community Outreach Program
- Develop Stakeholder Outreach & Engagement Program
- Produce Collateral Materials
- Provide Optional Support Services



Education Leads to Public Acceptance



Silicon Valley Advanced Water Purification Center

Silicon Valley Advanced Water Purification Center (SVAWPC)

Santa Clara Valley Water District

Benefits of the SVAWPC

Water quality benefit

Operational benefit

Demonstration of potable reuse benefit

The highest quality water tomorrow from the best available technology today

Silicon Valley Advanced Purification Center

0.1 micron

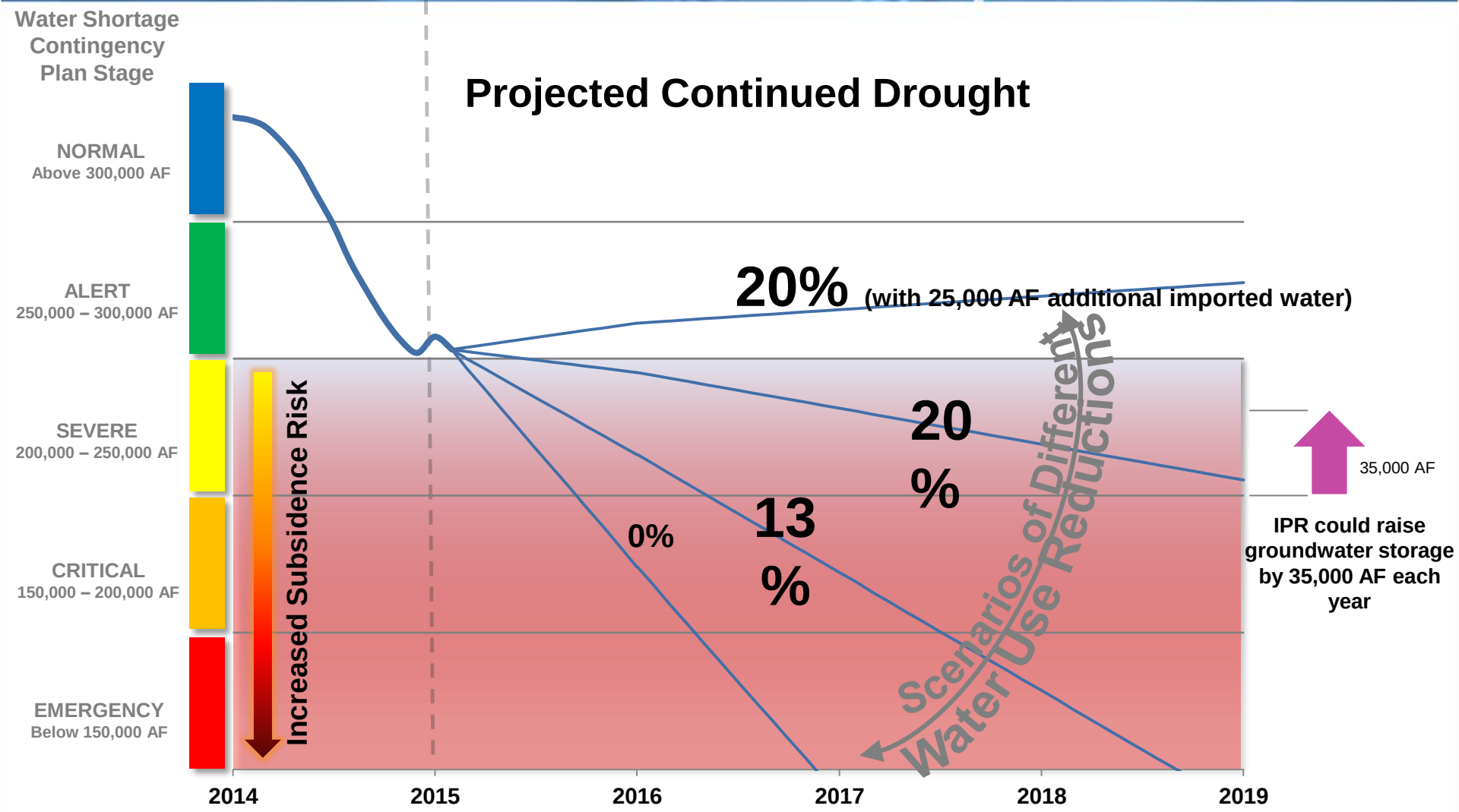
Incoming TDS = 750 ppm

0.0001 micron

Outgoing TDS= 40 ppm

Drought Response: Launch IPR

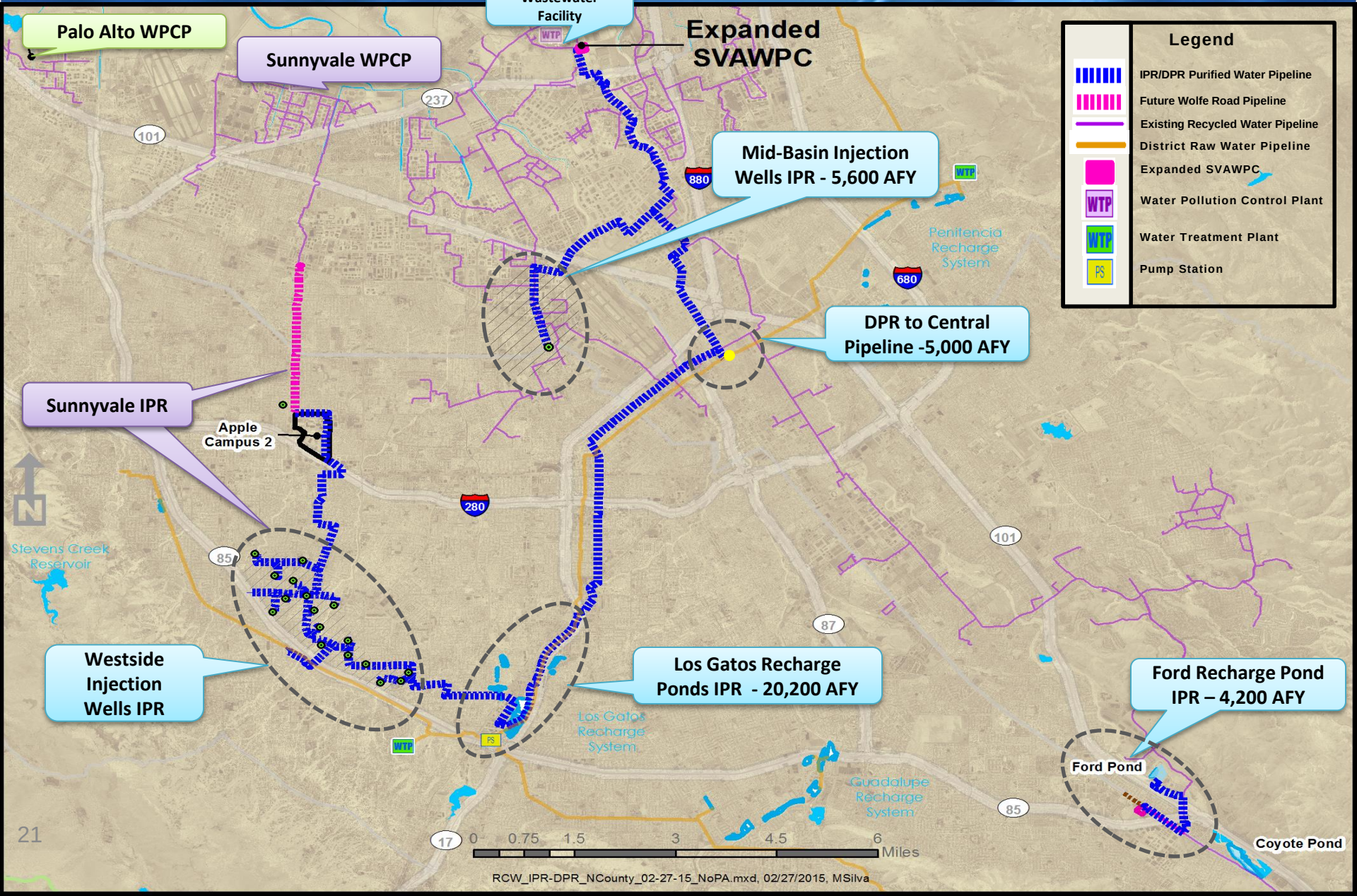
Potential Groundwater Impacts Due to Extended Drought



Additional Water Supplies for Santa Clara County

Expedited IPR projects could produce up to 45,000 AFY by 2020

Proposed Purified Water Projects



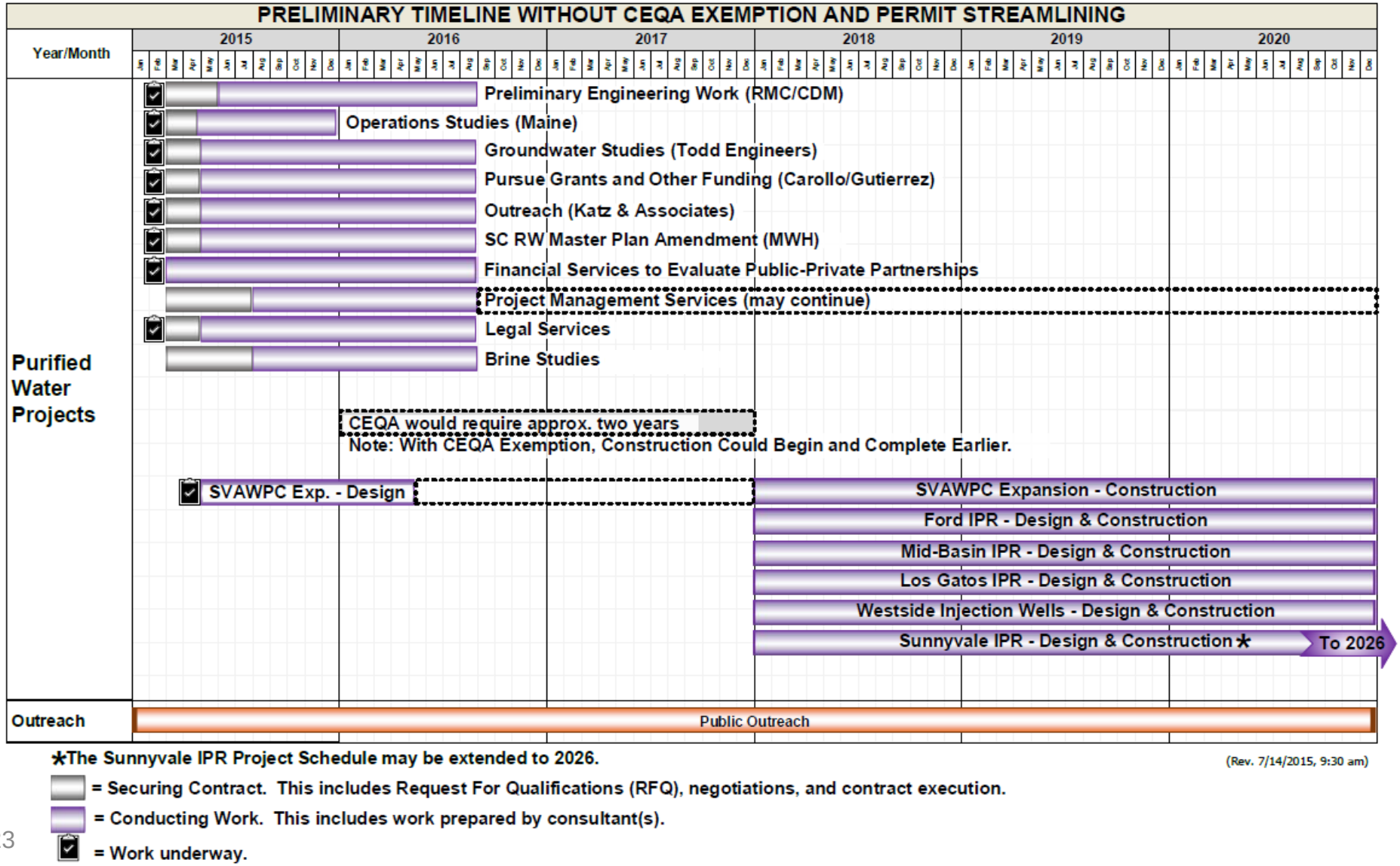
Proposed Purified Water Projects

Continued…

Proposed Projects for Purified Water Expansion			
Description	**Capacity (AFY)**	**Ext. Capital Costs ($M) [6]**	**Est. Total O&M Costs ($M/Year)**
Ford Recharge Ponds IPR [1]	4,200	$ 70	$ 4.0
Mid-Basin Injection Wells IPR [2]	5,600	$ 140	$ 3.5
Los Gatos Recharge Ponds IPR [3]	20,200	$ 260	$ 10.0
Westside Injection Wells IPR [4] (or Central Pipeline DPR)	5,000 (5,000)	$ 120 ($ 65)	$ 4.0 ($ 4.5)
Sunnyvale IPR [5]	10,000	$ 210	$ 2.0
Total	**45,000**	**$ 800**	**$ 23.5**

[1,2,3,4] South Bay Water Recycling Master Plan; [5] IPR Treatment Study, Carollo Engineers; [6] As presented in the March 12, 2015, agenda memo, these costs are at a planning level of development and should be considered within a range of -20% to + 100%

Preliminary Timeline



*The Sunnyvale IPR Project Schedule may be extended to 2026.

(Rev. 7/14/2015, 9:30 am)

= Securing Contract. This includes Request For Qualifications (RFQ), negotiations, and contract execution.

= Conducting Work. This includes work prepared by consultant(s).

= Work underway.

Key Technical Questions

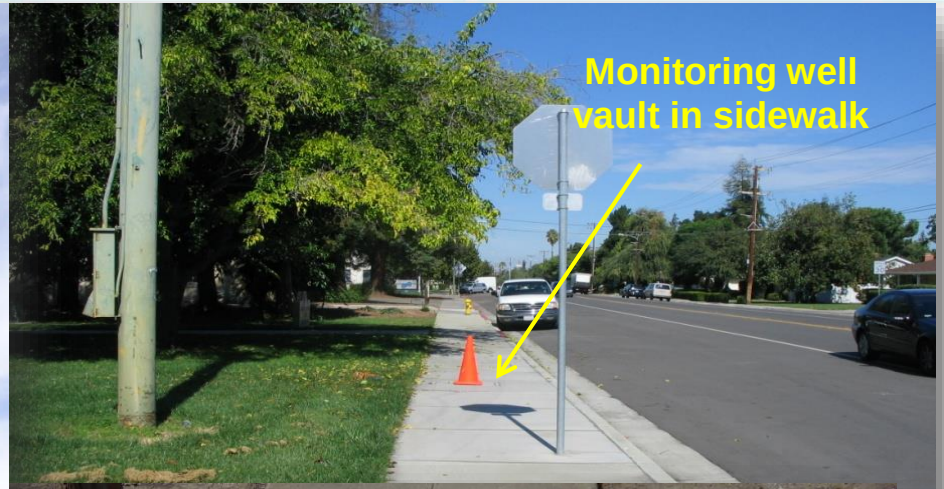
- Reverse Osmosis Concentrate Management
- Groundwater Analysis and Injection Well Siting
- Operational Studies

Groundwater IPR Technical Questions

- Use groundwater models to evaluate movement of purified water, retention time, and proximity to water supply wells

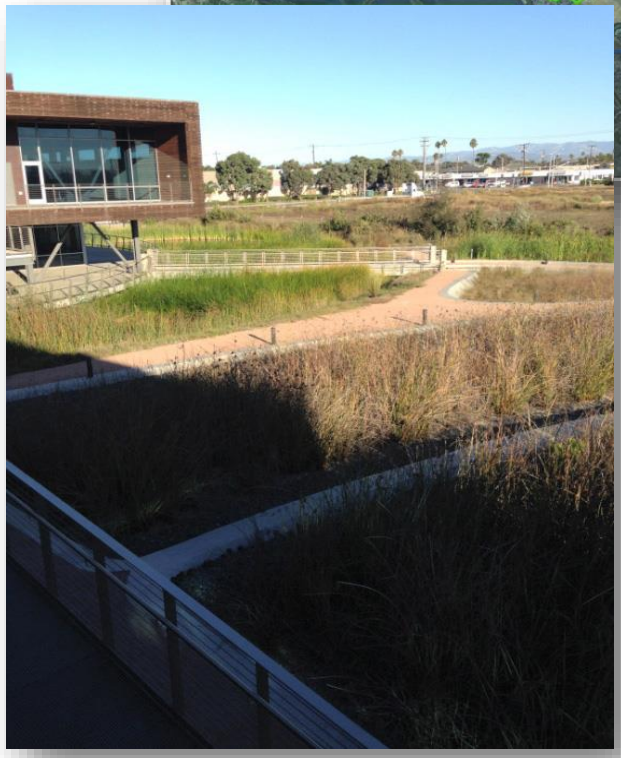
- Conduct lab testing of soil cores to assess potential effects on groundwater quality or permeability

Well Drilling and Monitoring Wells



RO Concentrate Management Alternatives

- Discharge to existing shallow water Bay outfall with dilution water
- Treatment wetlands, then discharge to the Bay
- Pre-treatment to produce a brackish supply for wetlands restoration
- Discharge to a sewer line that goes to a regional wastewater treatment plant
- Discharge to deep Bay outfall



Permitting

Permits	Required	Potential
CEQA	✓	
NPDES (Clean Water Act Section 402)	✓	
CA Fish & Wildlife Streambed Alteration Agreement CDFW (Section 1602 Agreement)		✓
Valley Habitat Plan		✓
Air Quality Control Permit		✓
Clean Water Act Section 404 Permit		✓
401 Water Quality Certification		✓
Report of Waste Discharge (ROWD)	✓	
Engineering Report-Approval under Title 22	✓	
401 Water Quality Certifications and Wetlands Program		✓
Public Water System (PWS) permits	✓	

Independent Advisory Panel Assures Quality

Nationally recognized experts review the District's approach to potable reuse – assess, review, and guide District's efforts

April 30, 2013

May 29, 2014

Santa Clara Valley Water District

Questions