

Barriers and Bridges



Pure Water Silicon Valley



Water: Now and in the Future

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Project Director
April 22, 2016



Santa Clara Valley
Water District



A Diverse Portfolio Has Enhanced Reliability



Recycling Initiated 20 Years Ago Due to Wastewater Flow Cap and Improved Water Supply Reliability

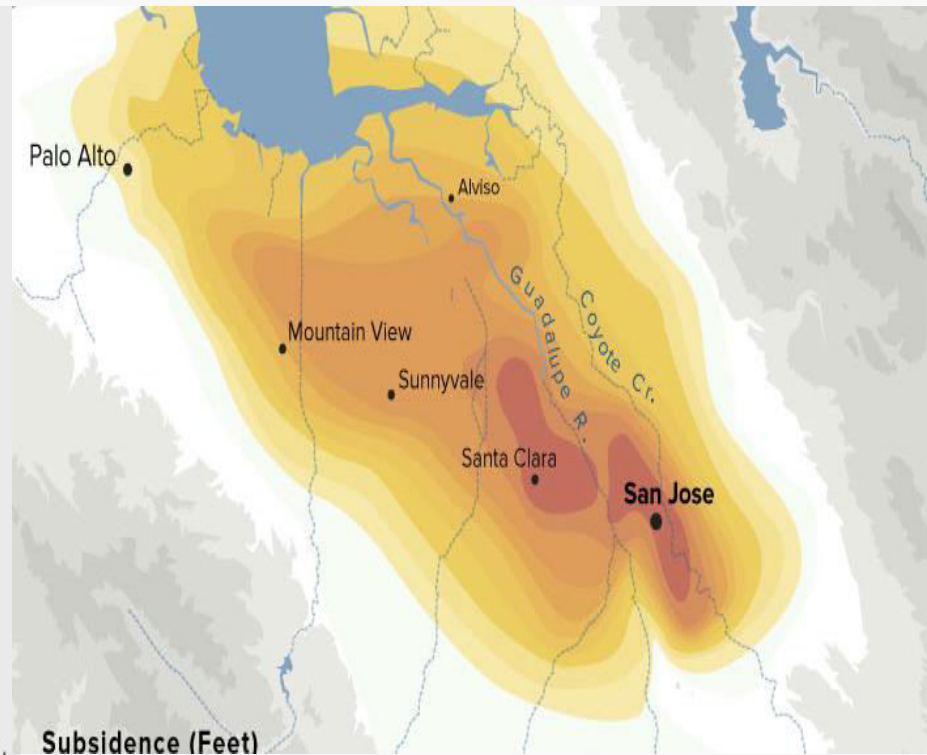
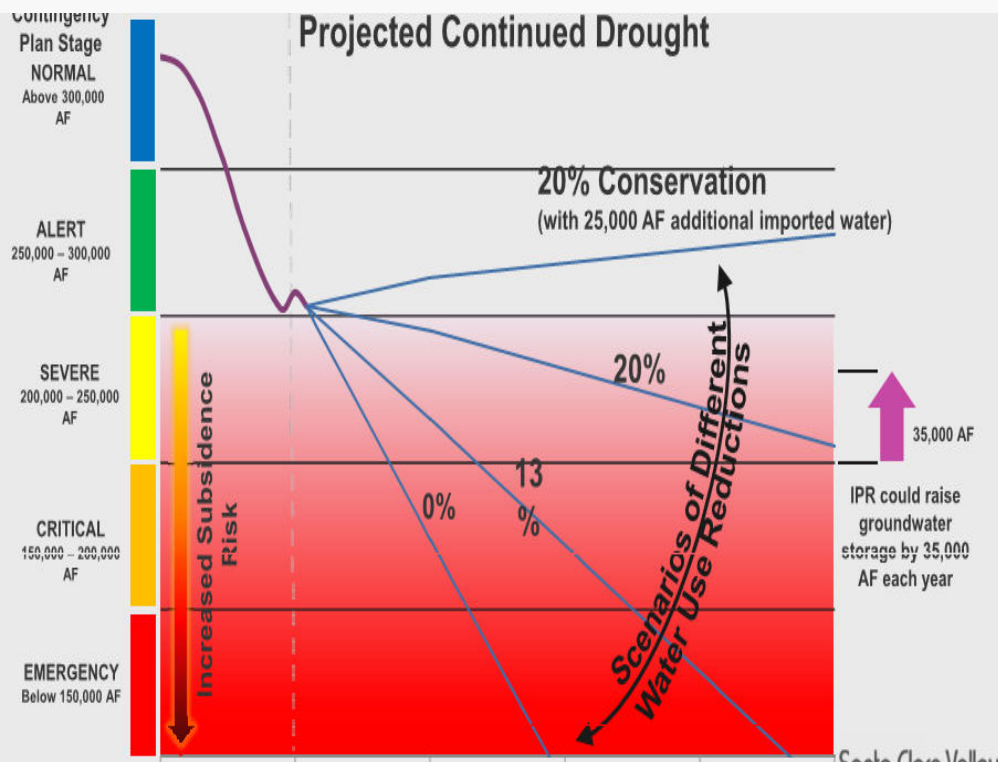


But Recent Conditions Have Prompted the Need for Additional Action

Drought realities

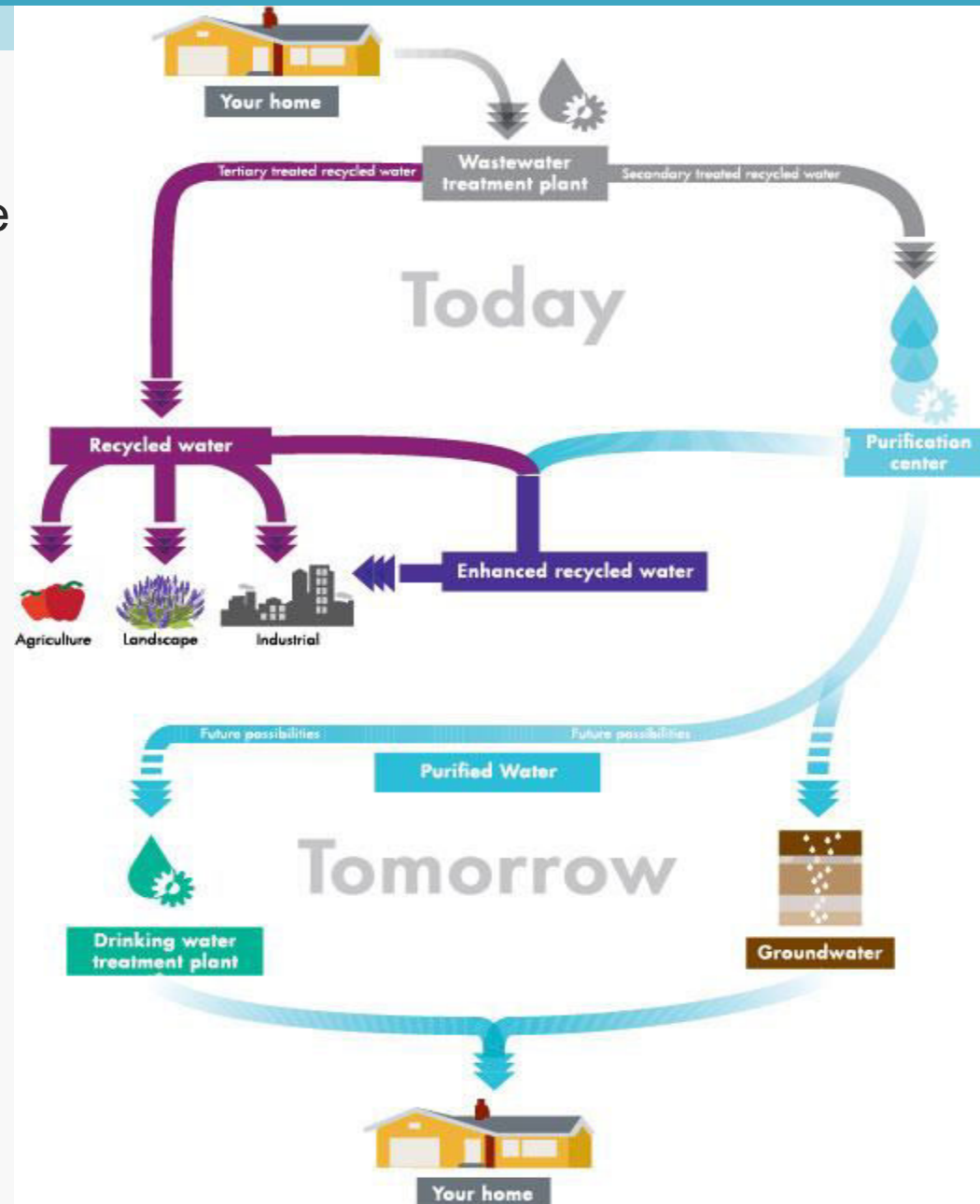
Economic impacts

Land subsidence risk

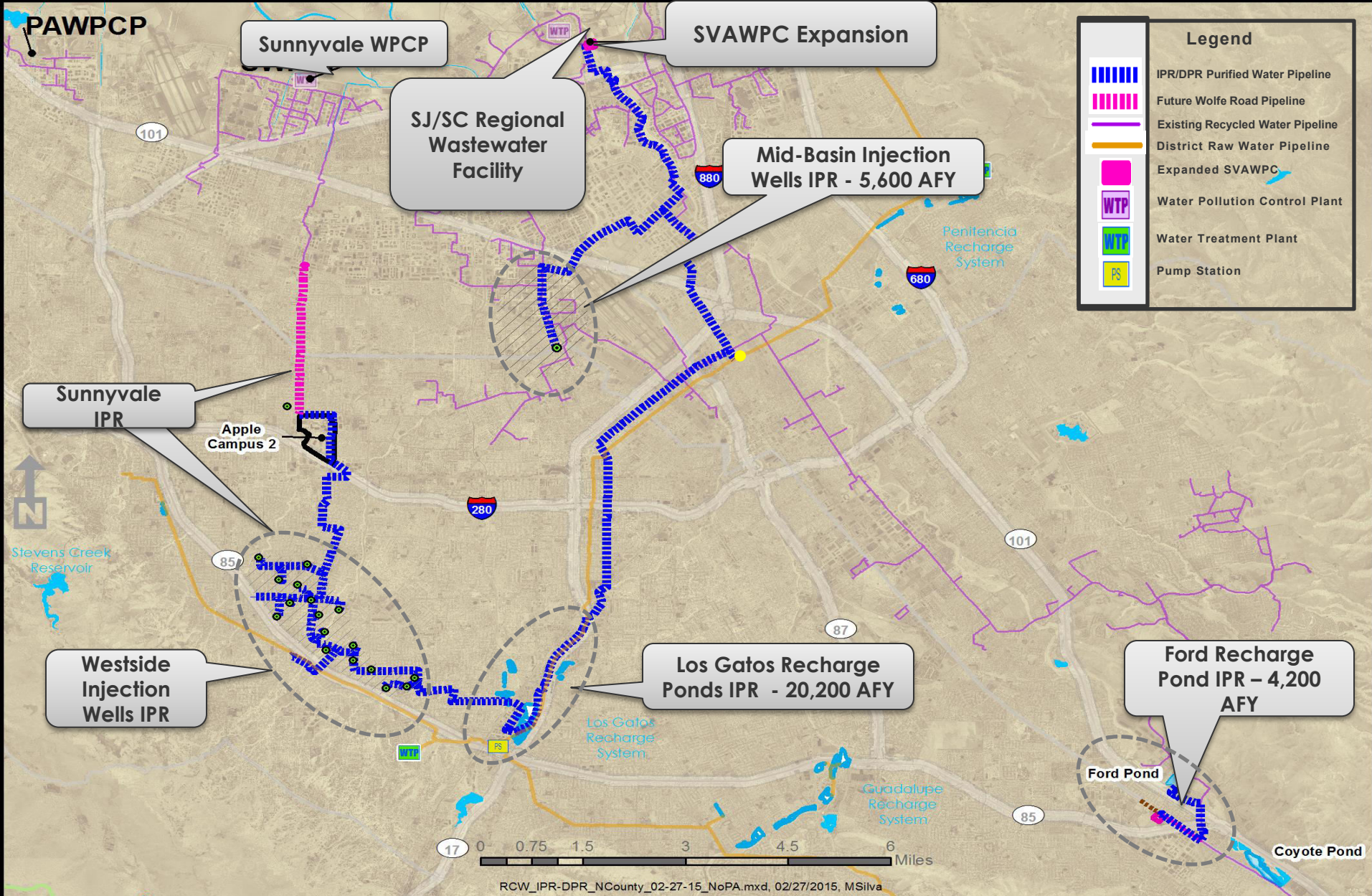


Pure Water Silicon Valley: The Board Charge

- ▶ Turning *up to* 45,000 acre-feet a year of what normally goes to the Bay into drinking water
- ▶ Accelerating a 20 year plan for potable reuse into 5 years
- ▶ Delivering ~ \$1B of advanced treatment technology, pipelines and injection facilities



Pure Water Silicon Valley Program Components



Got Barriers?

- ▶ Public Perception
- ▶ Economics
- ▶ Schedule-Financing
- ▶ Environmental
- ▶ More



Barrier #1: Negative Public Perception

Mayor Opposes 'Toilet-To-Tap' Water Supply Proposal

POSTED: 2:05 AM, Sep 13, 2007



Mayor Jerry Sanders Thursday restated his opposition to using treated sewage to supplement San Diego's drinking water supply, dubbed "toilet-to-tap" by detractors. "I'll oppose any effort to bring about toilet-to-tap," Sanders said. "There is neither the money nor the public will to support such a program."



Although water does not contain the proteins or sugars that would enable microbes to break it down like they do with food, its chemical composition does change.



A big no to toilet-to-tap water plan

SCITECH/SCIENCE/ENVIRONMENT | 29 October 2012 at 10:01am

Is Drinking from the Toilet Bowl the Best Way to Deal with Water Shortages?

Facing the Yuck Factor

How has the West embraced water recycling? Very (gulp) cautiously

Peter Friederici | Sept. 17, 2007 | From the print edition



Facing the yuck factor
PAUL LACHINE



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Water Recycling Efforts Spark Policy Debate in California

March 24, 2008 at 6:45 PM EST

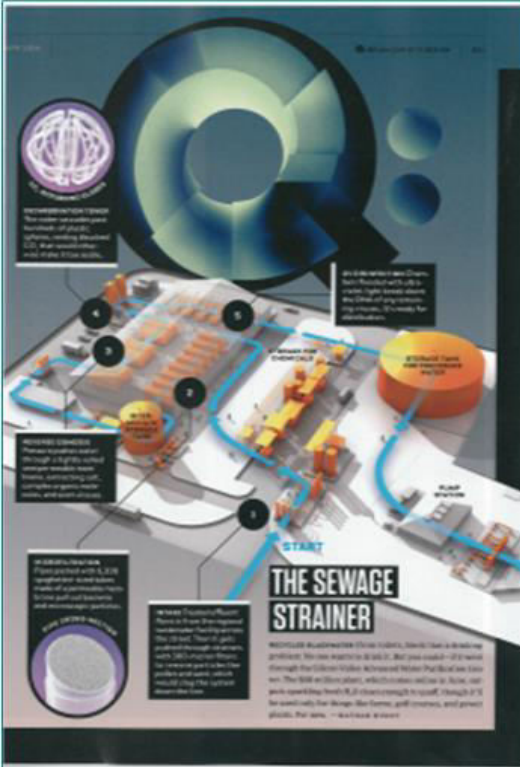


UNION-TRIBUNE EDITORIAL No toilet-to-tap

Special water rate hike unwarranted

September 8, 2008

Bridge: District Outreach Building Public Support



QUEST The Science of Sustainability

Water Food Energy Climate Biodiversity Mo

Water Recycling Comes Of Age In Silicon Valley

Audio Report by *Amy Standen* for *QUEST Northern California* on Jul 19, 2013

NBC Bay Area: New Water Treatment Plant Coming to Silicon Valley
 March 12, 2014



'TOILET-TO-TAP' WATER PURIFYING HITS CALIFORNIA

'Cleaner than all of our other water sources'

Published: 07/23/2013 at 2:26 AM

Robin Wilkey Become a fan
 robin.wilkey@huffingtonpost.com

Silicon Valley Advanced Water Purification Center To Turn Sewage Into Drinkable Water (VIDEO)

KQED NEWSROOM: Silicon Valley Thirsty for Recycled Water
 March 7, 2014



Water, water everywhere:
 By 2025, the Santa Clara Valley Water District expects 10 percent of its supply to come from recycled water, says Martin Grimes, program administrator.

Secretary Laird visits the Silicon Valley Advanced Water Purification Center
 Dec. 9, 2013

Cupertino COURIER
 Volume 65, Number 8 • February 1, 2013 • Cupertino, CA • Est. 1947

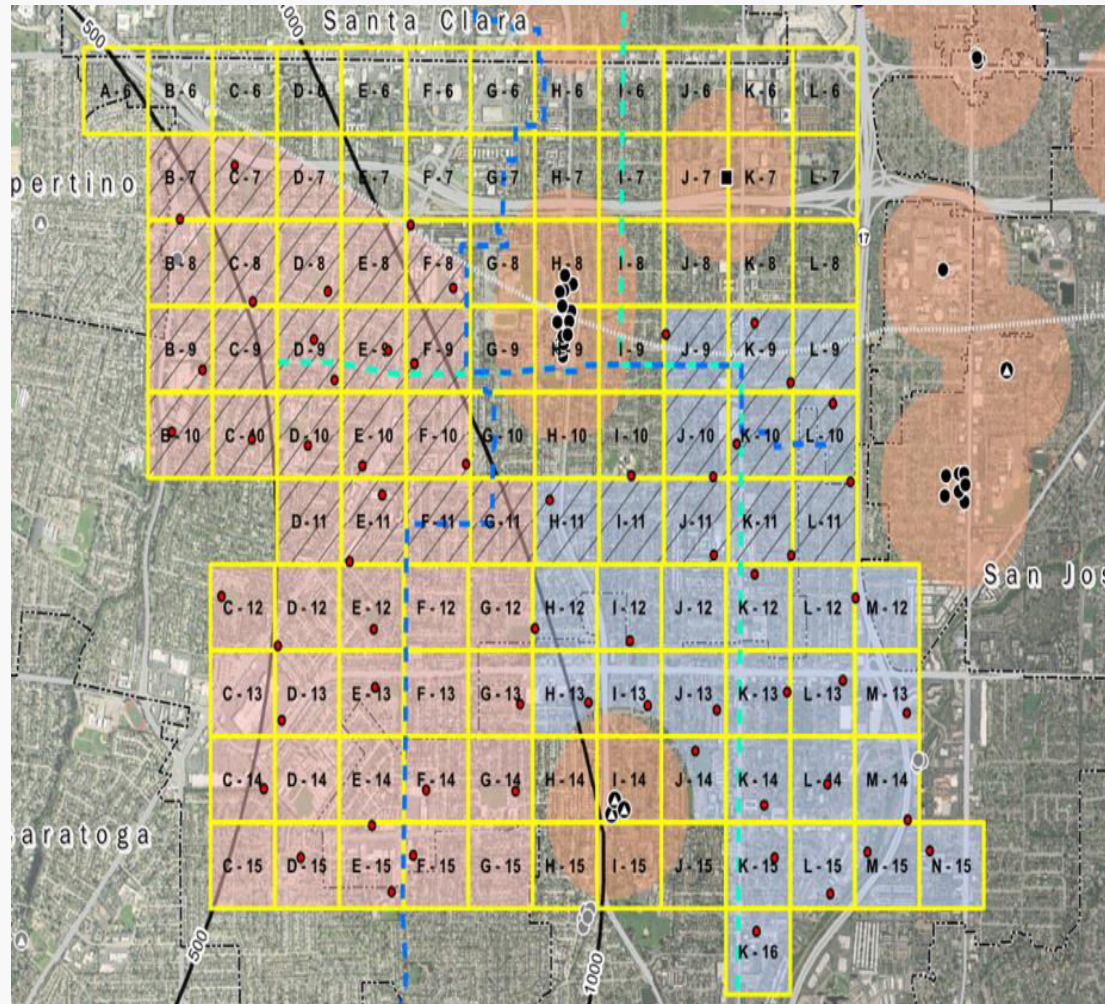
Clean & Clear

Water treatment plants undergo

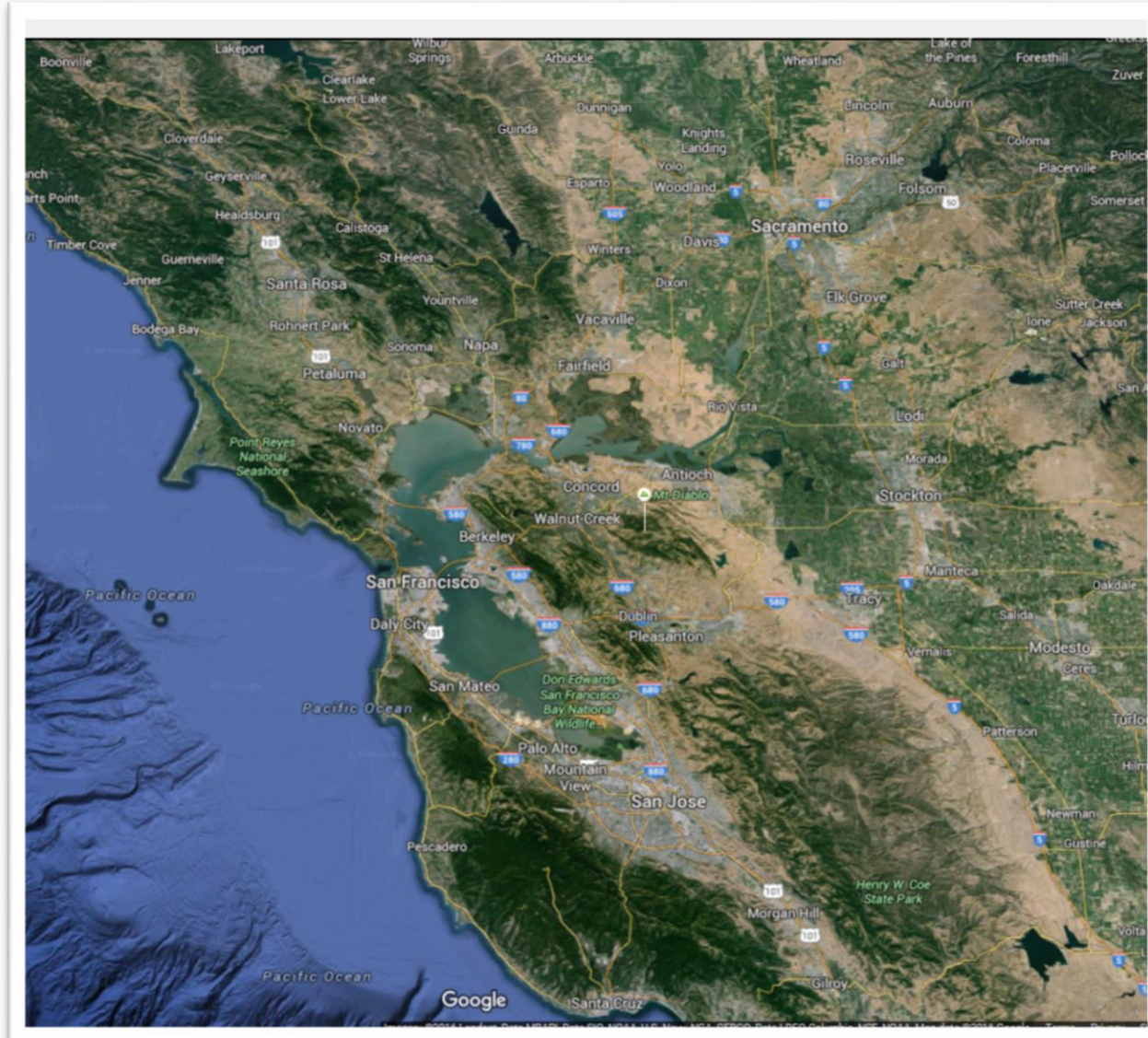
Here, Drink A Nice Glass Of Sparkling Clear Wastewater

all want to start recycling water or ing for recycled water projects, the for business and landscaping ne

Barrier #2: Economics of Inherently Expensive Process Coupled with "Utilization" rate

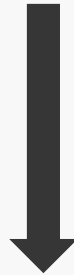


Bridge: Potential Storage/Exchanges/Partnerships

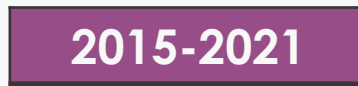


Barrier #3: Urgency Driving Need for Speed

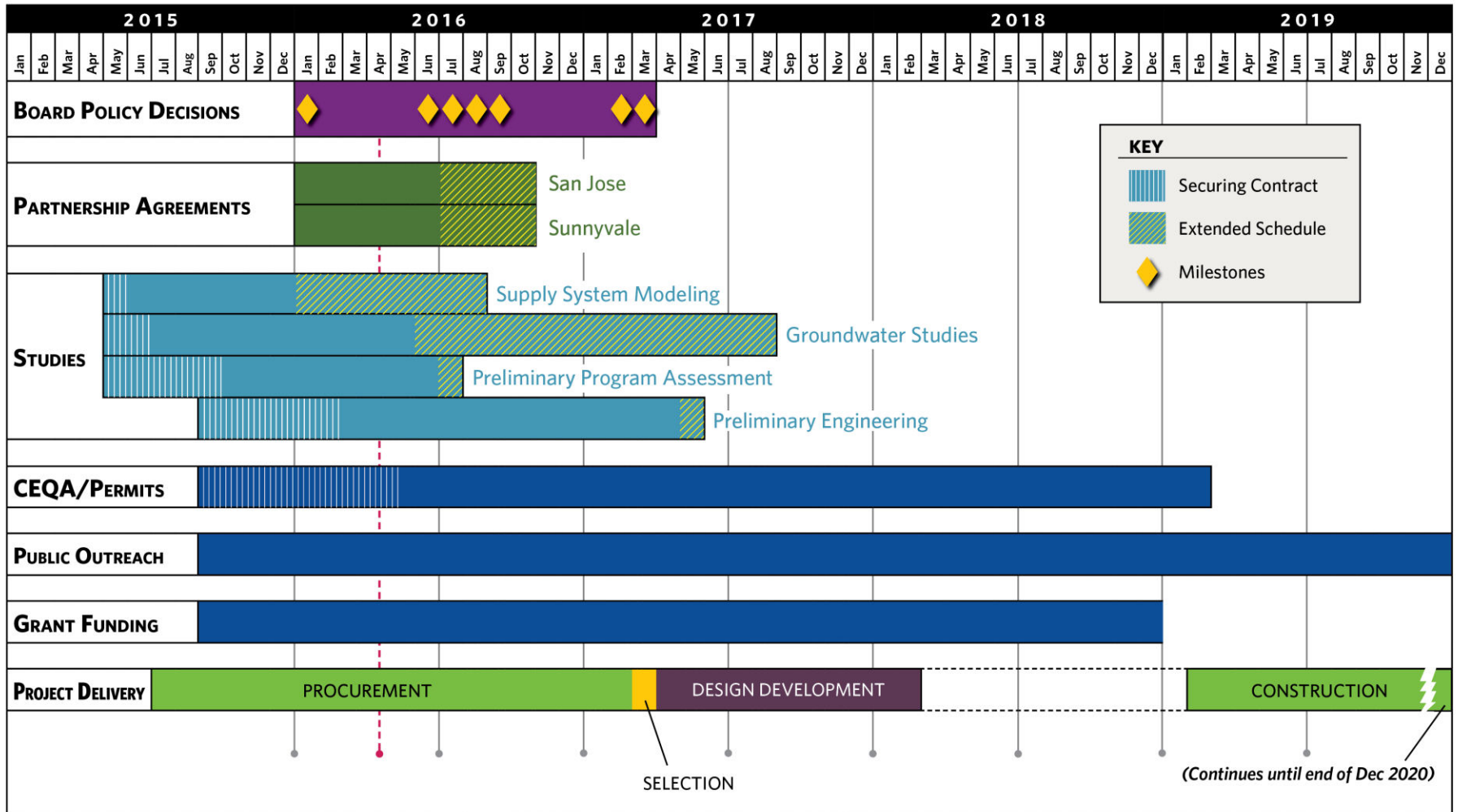
The Original Plan



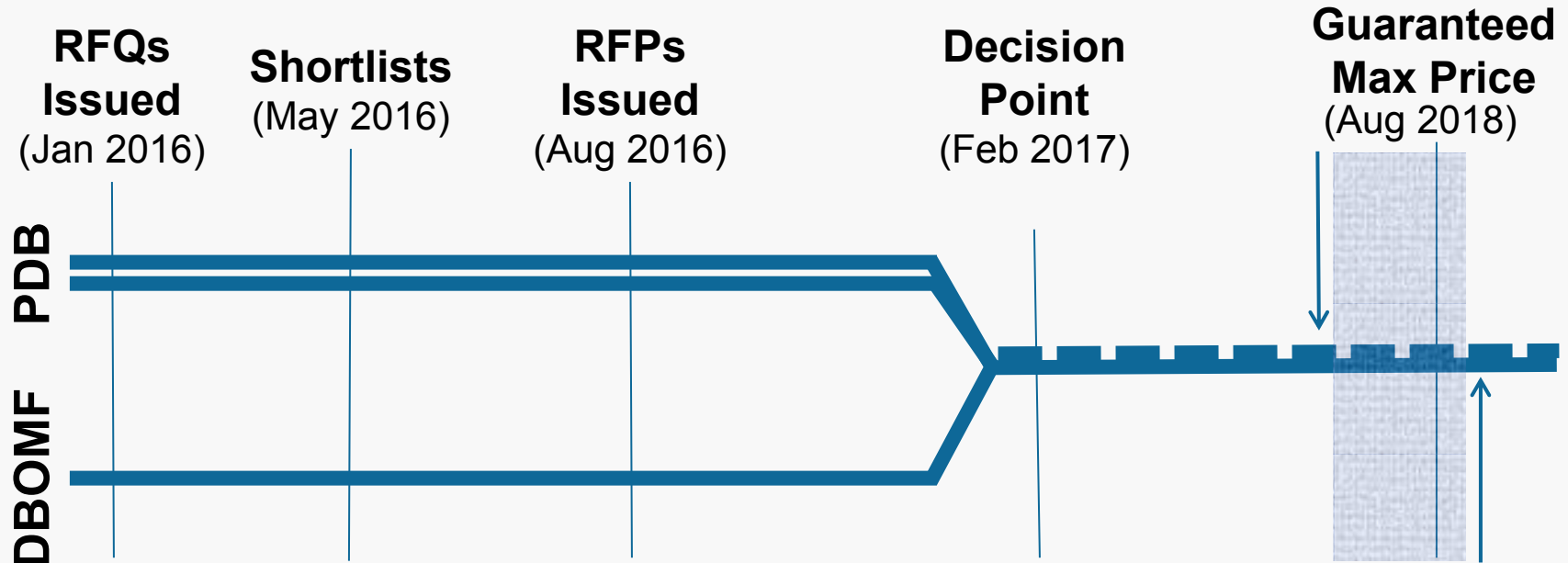
The Current Plan



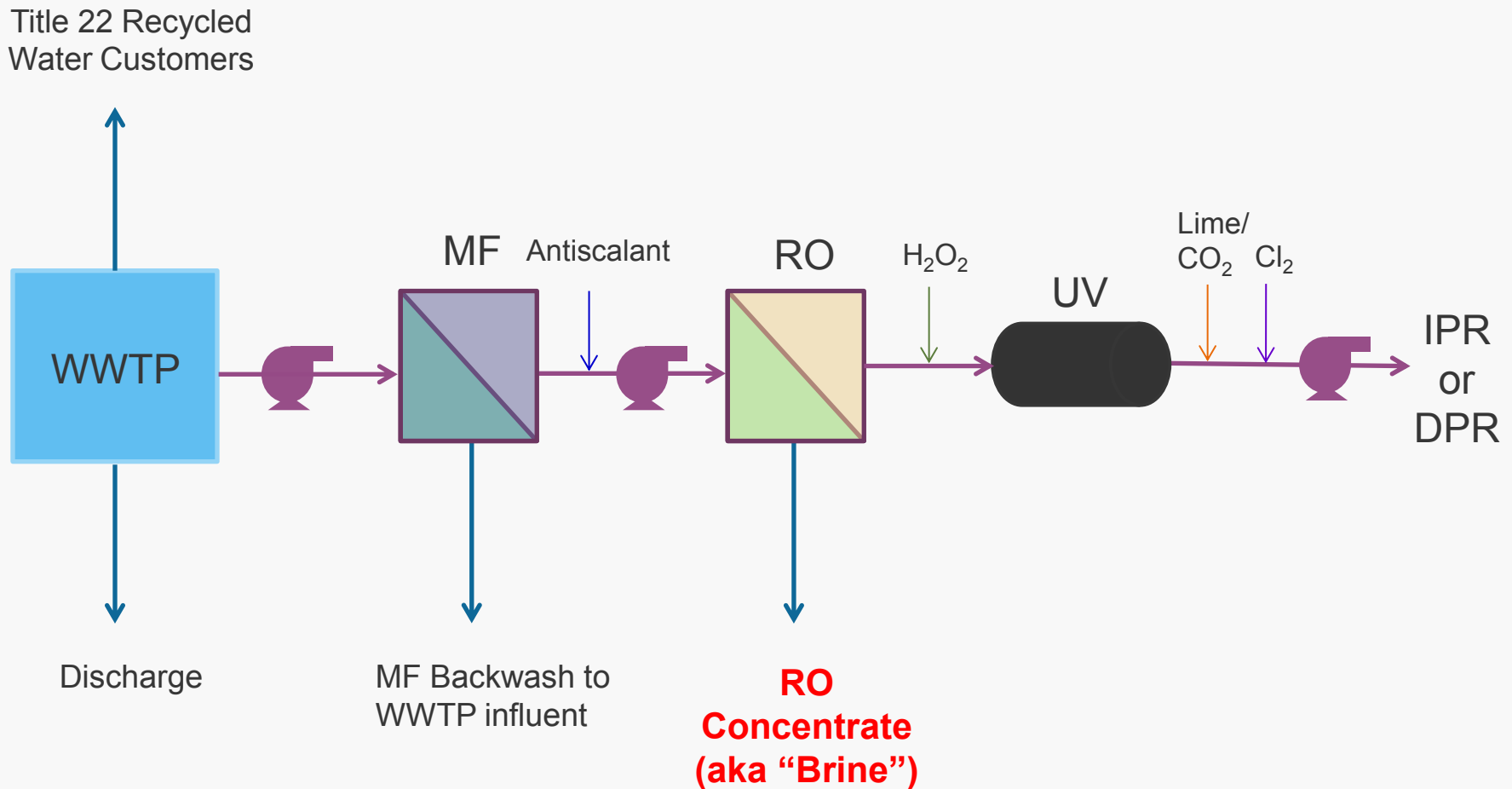
Bridge: Concurrent Rather Than Sequential Approach



Bridge: An Unusual Procurement Approach



Barrier #4: Environmental Concerns and the Challenge of RO Concentrate



Bridge: Sound Analysis of RO Concentrate Management Options



- City of San Jose/Santa Clara's existing shallow water outfall
- Existing deep water outfall

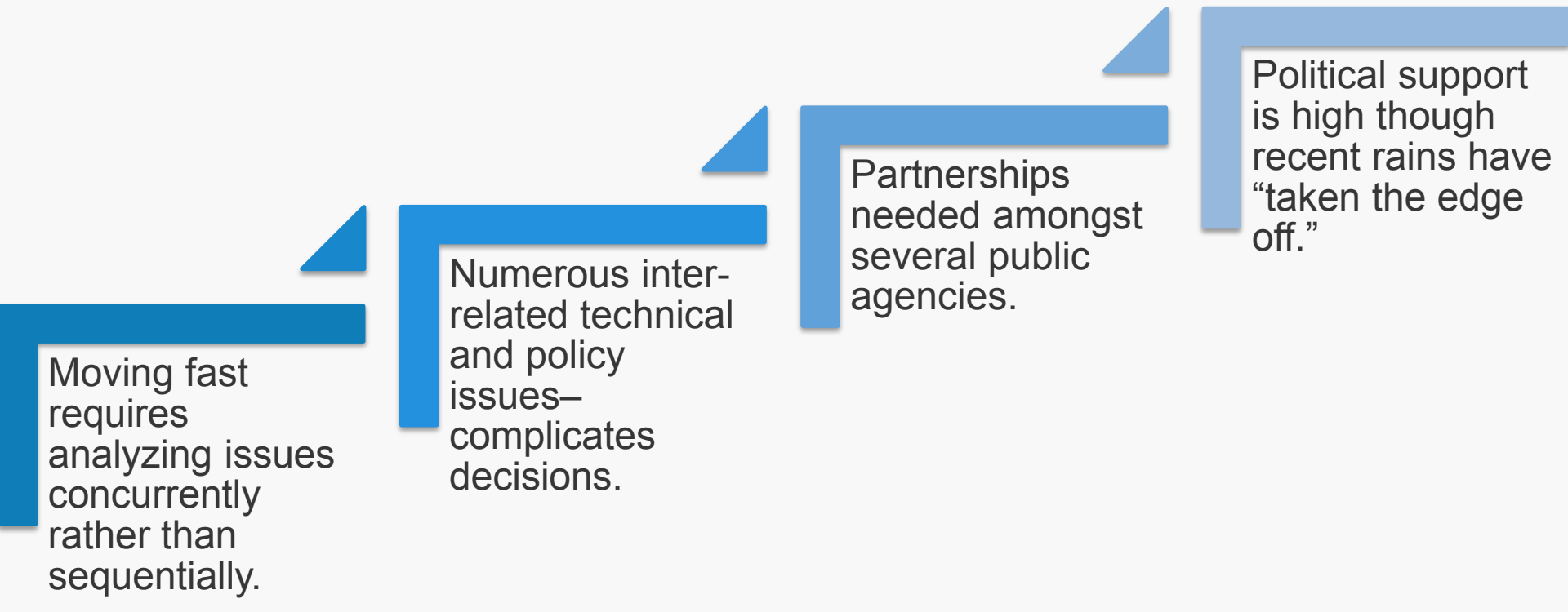
Bridge: Potential Use of San Jose-Santa Clara Regional Wastewater Facility Outfall

- ▶ Fundamental Premise: Continued compliance with NPDES Permit.
- ▶ Most expeditious and least cost
- ▶ Issues
 - Metals considerations
 - Chronic toxicity
- ▶ Approach
 - Mass balance analysis
 - Chronic toxicity testing
 - Assess hydrodynamics and potential for seeking dilution credits

Silicon Valley Advanced Water Purification Center



A Few Closing Thoughts



Moving fast requires analyzing issues concurrently rather than sequentially.

Numerous inter-related technical and policy issues—complicates decisions.

Partnerships needed amongst several public agencies.

Political support is high though recent rains have “taken the edge off.”