

Silicon Valley Advanced Water Purification Center and Potable Reuse Opportunities

Potable Reuse Opportunities
Workshop

DECEMBER 4, 2015



Silicon Valley Advanced Water Purification Center



Presentation will cover:



Santa Clara Valley Water District &
Water Supply Picture



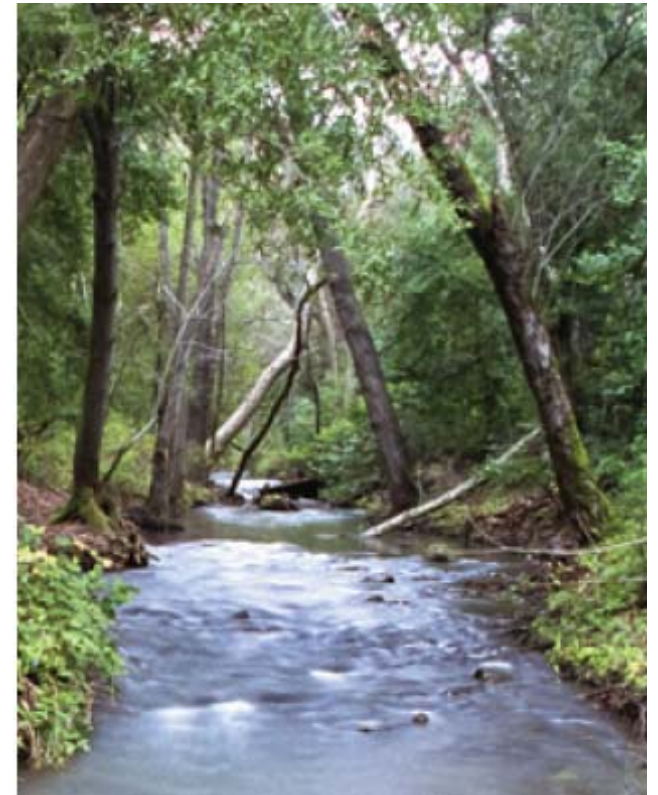
Silicon Valley Advanced Water Purification
Center



Potable Reuse - Moving Forward

County's Water Resources Manager

- **Santa Clara Valley Water District:** Providing Silicon Valley safe, clean water for a healthy life, environment and economy



Headquarters in San Jose, California



Santa Clara Valley Water District Serves:

2 million people

15 cities

4,700 well owners

13 water retailers



Diversified portfolio for a reliable supply

Imported water



Local surface & groundwater



Conservation



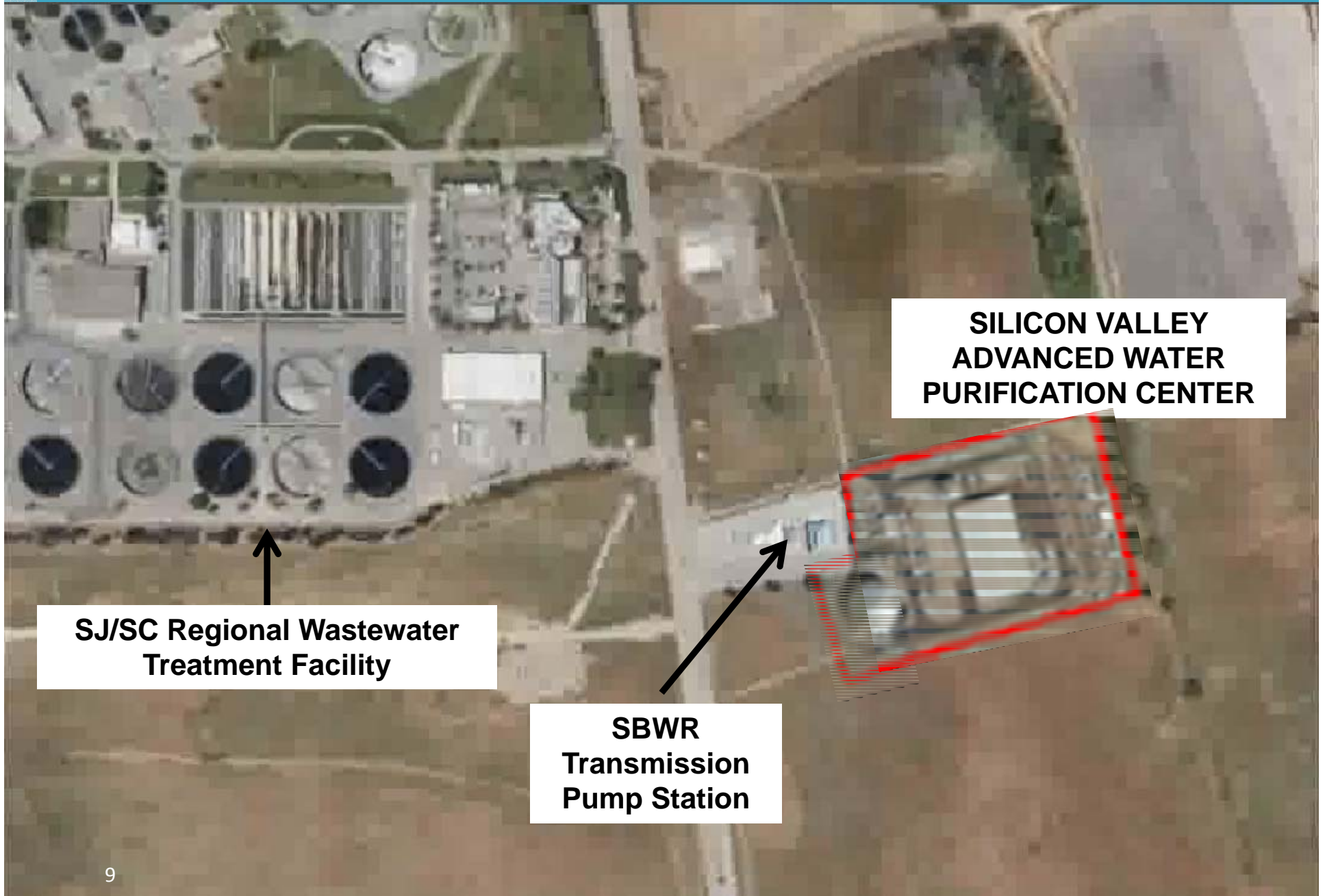
Recycled Water



Water Shortages –Almaden Reservoir, San Jose



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Santa Clara Valley Water District constructed & owns a new recycled water purification facility – completed in early 2014

- 8 million gallons per day of purified water
- Built in partnership – Santa Clara Valley Water District & the City of San Jose
- Serves Silicon Valley



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MICROFILTRATION

0.1 micron



Incoming TDS = 900 ppm

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REVERSE OSMOSIS

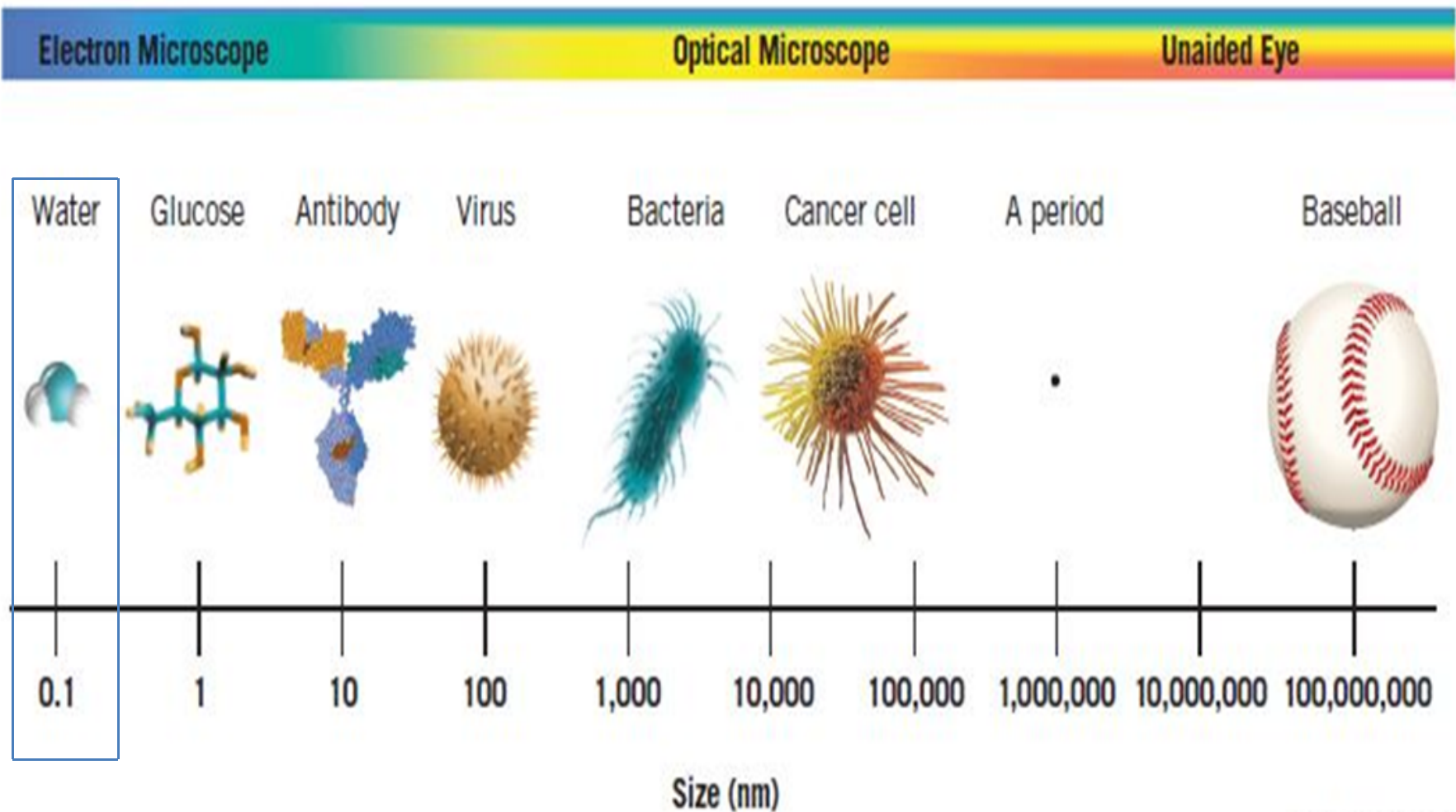
0.0001 micron



Outgoing TDS= 20-30 ppm

Filtration: Pore Size Matters

SIZE COMPARISON



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Ultraviolet light disinfection

Pilot Scale Testing – UV AOP for Potable Reuse



Tested for...

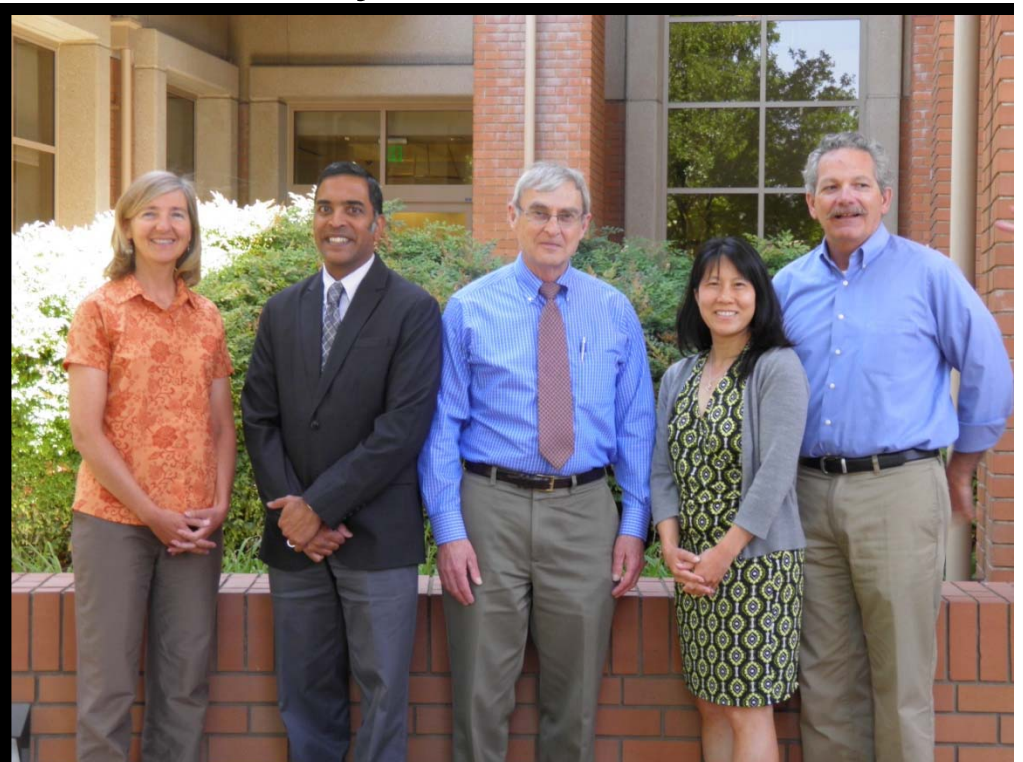
- NDMA Destruction
- 1,4-dioxane Destruction
- Trace Pollutant Destruction
- AOP Oxidant Optimization
- Surrogate Analysis

Independent Advisory Panel Assures Quality

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

April 30, 2013

May 29, 2014



Overview: Three Phases of Testing

Phase I: evaluate on-going operational data at SVAWPC

- MF: filtrate turbidity, cleaning intervals, integrity tests
- RO: permeate EC, specific flux,
- UV: UVT, UV dose, sensor intensity

Phase II: detailed challenge & pilot testing

- Virus removal
- CECs removal
- surrogates

Phase III: quarterly testing over 1 year

- Confirm Phase II results over long-term

FOCUS

Pilot Ozone-BAF



Tested for...

- NDMA Destruction
- Trace Pollutant Destruction
- Virus Disinfection
- TOC Reduction

SCVWD Operators



Large internal candidate pool



Career path mobility & cross-over training opportunities available



SVAWPC operators are T operators

Current Training Program



Public tours at the new facility – increases public confidence and acceptance for future potable reuse



Drivers 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** identified as most reliable and cost-effective option, per the District’s Water Supply & Infrastructure Master Plan



Potable Reuse

Indirect Potable

Percolation Ponds

Injection Wells

Surface Water

Augmentation- Reservoirs

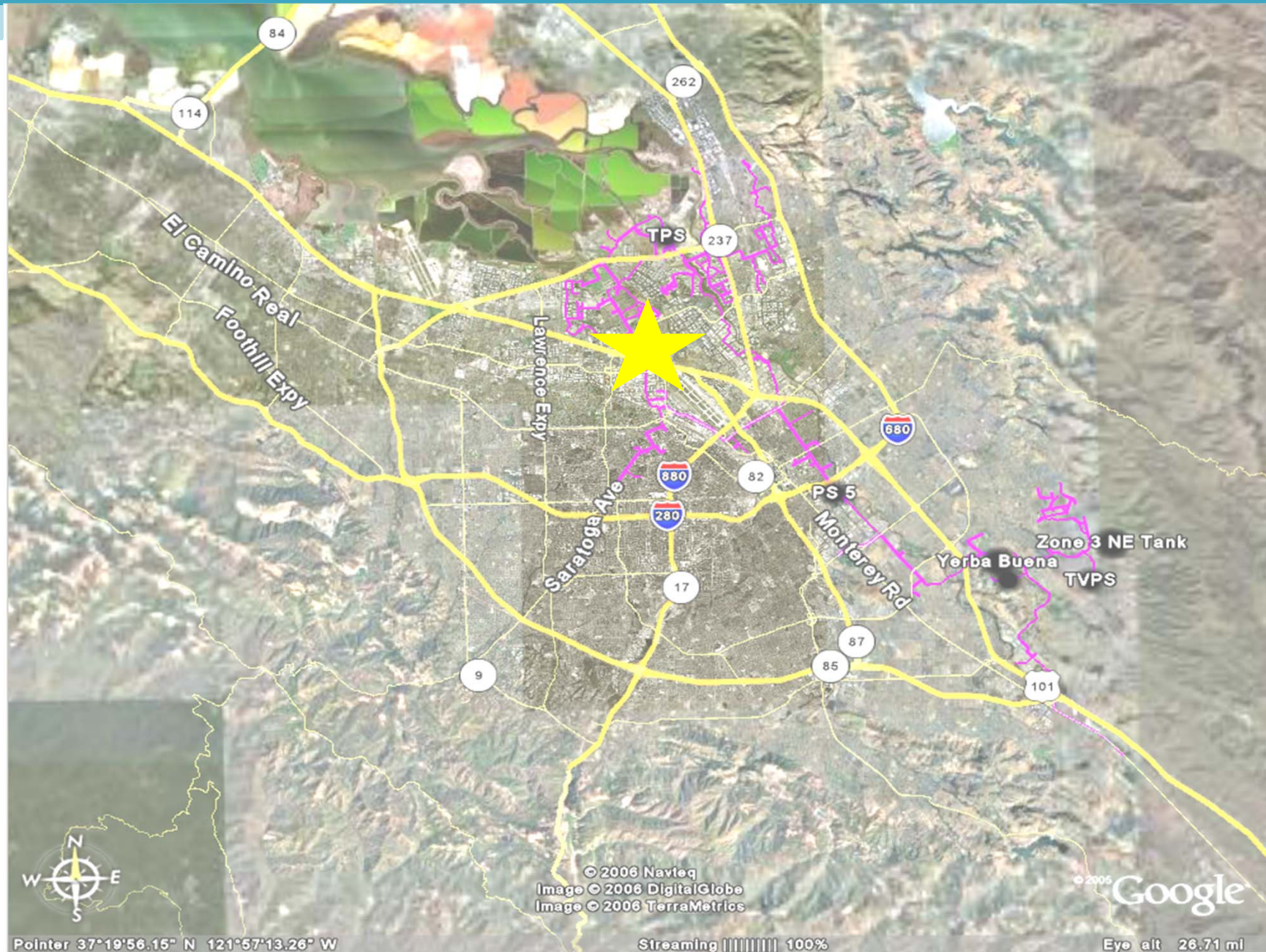
Direct Potable

Before Conventional
Drinking WTP

Potable reuse – Multiple locations available



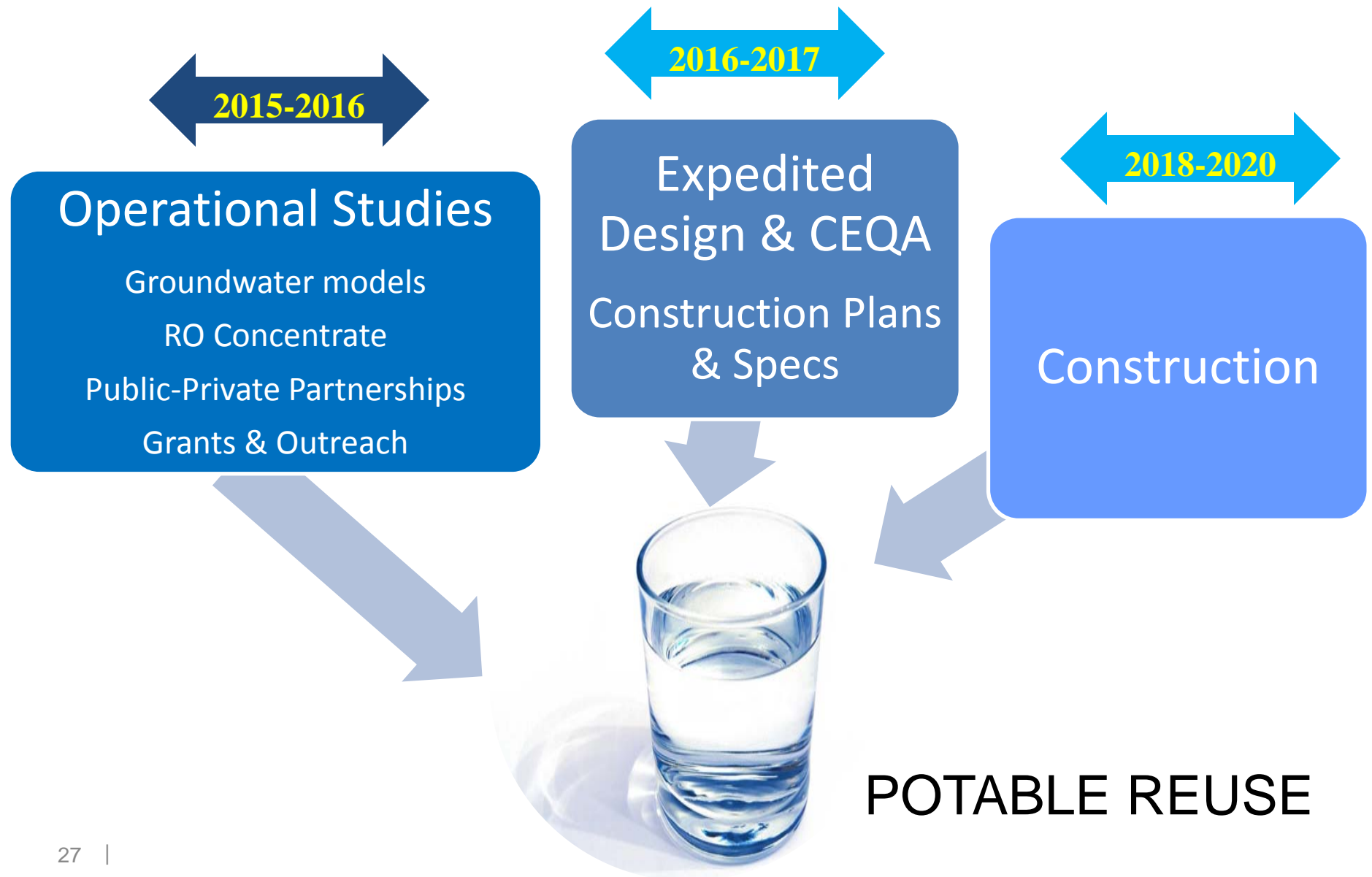
Potable reuse – Mid Basin Injection



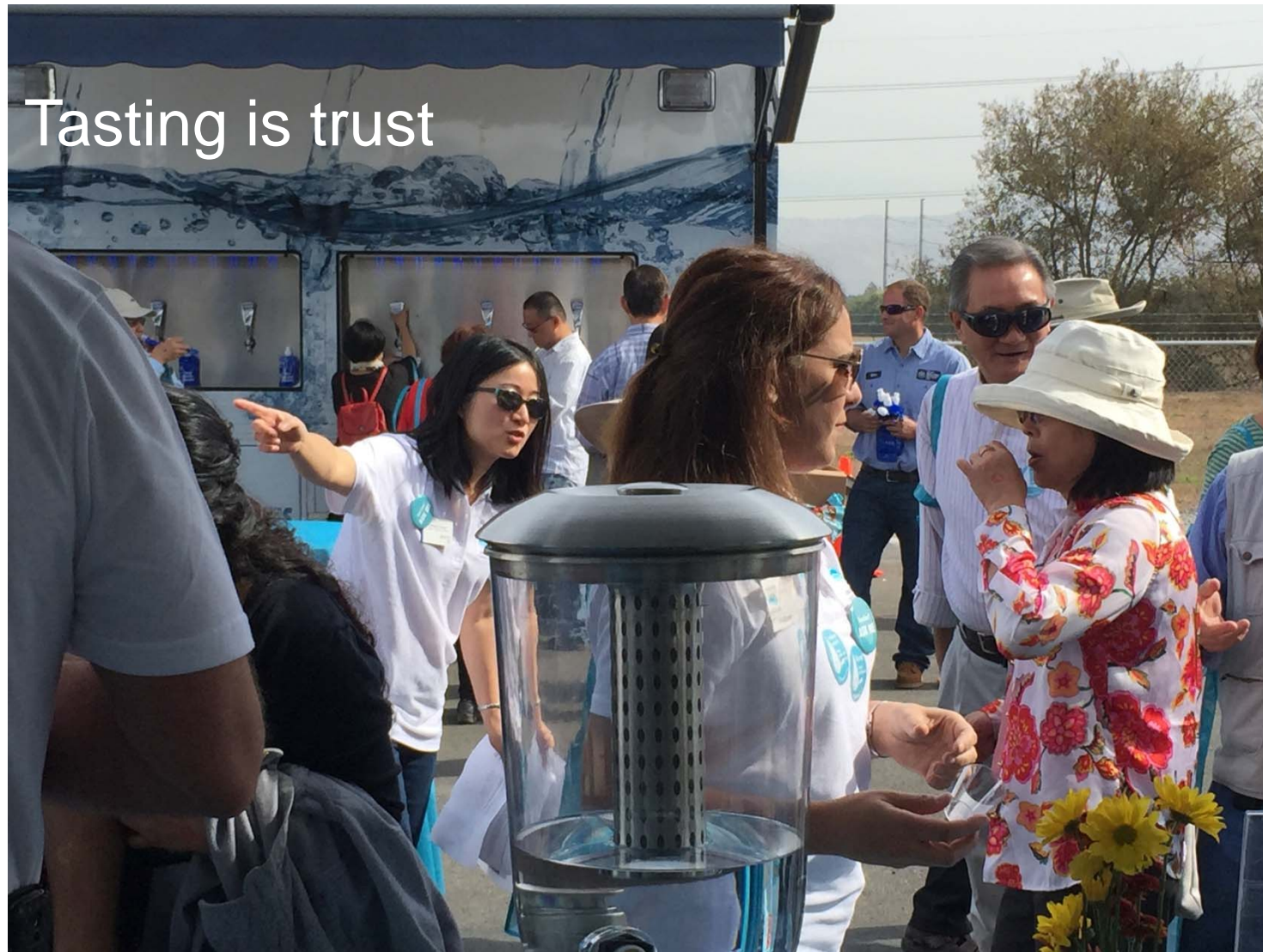
Future – Direct Potable Reuse Possibility ?



Preliminary Schedule



SVAWPC Open House October 2015



Labor Intense



There is no “I” in TEAM !

Going forward

The highest quality water tomorrow

***from the best available
technology today***

***with the best qualified
operators***



Questions?



www.purewater4u.org