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Supplemental Supply and Demand Management Update

DERWA Board Meeting

July 23, 2018

Presentation Outline

- Demand Management
- Short-term storage
- Potential use of potable water
- Near-term supply and storage development
- Longer term supply and storage alternatives

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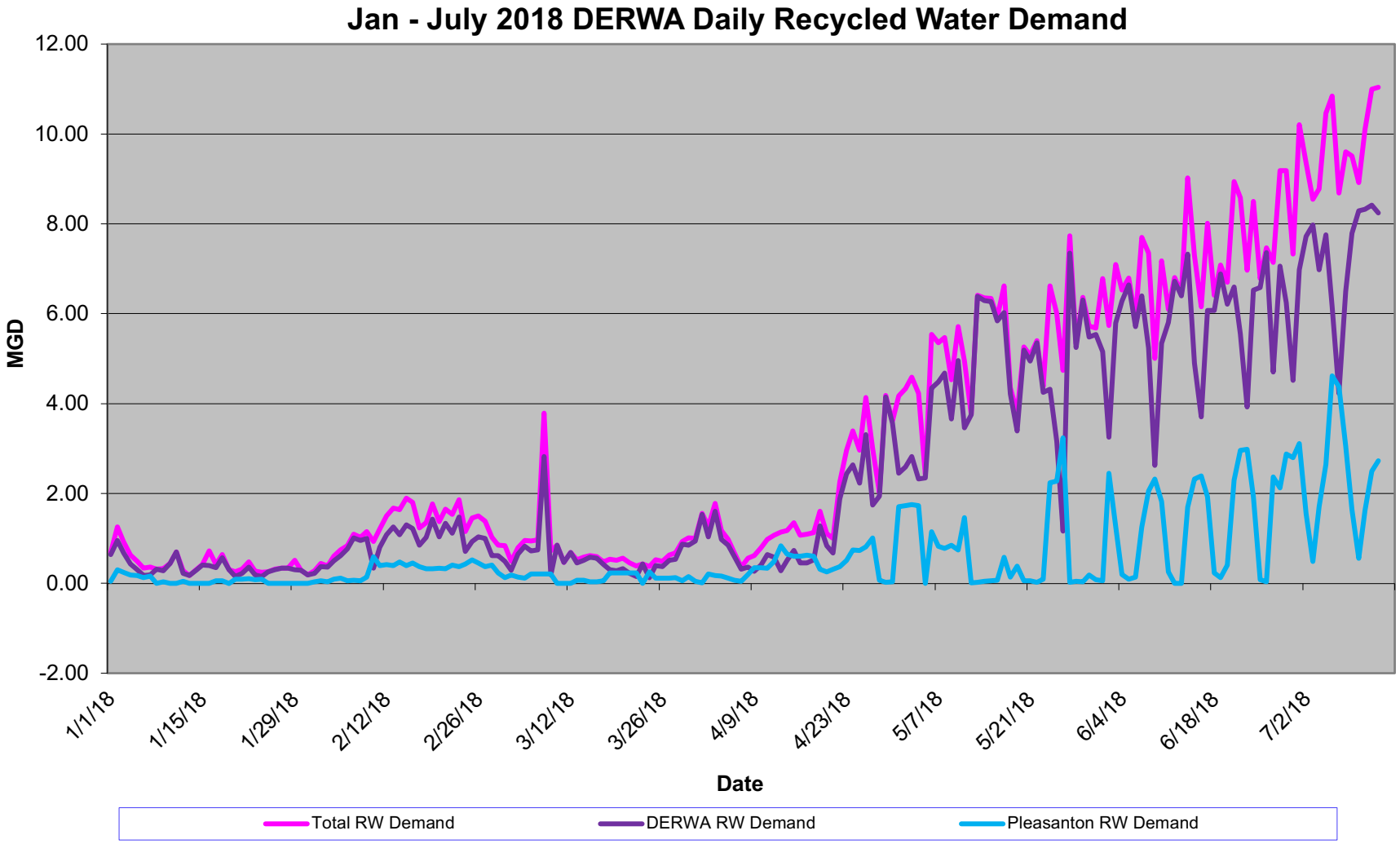
Demand Update



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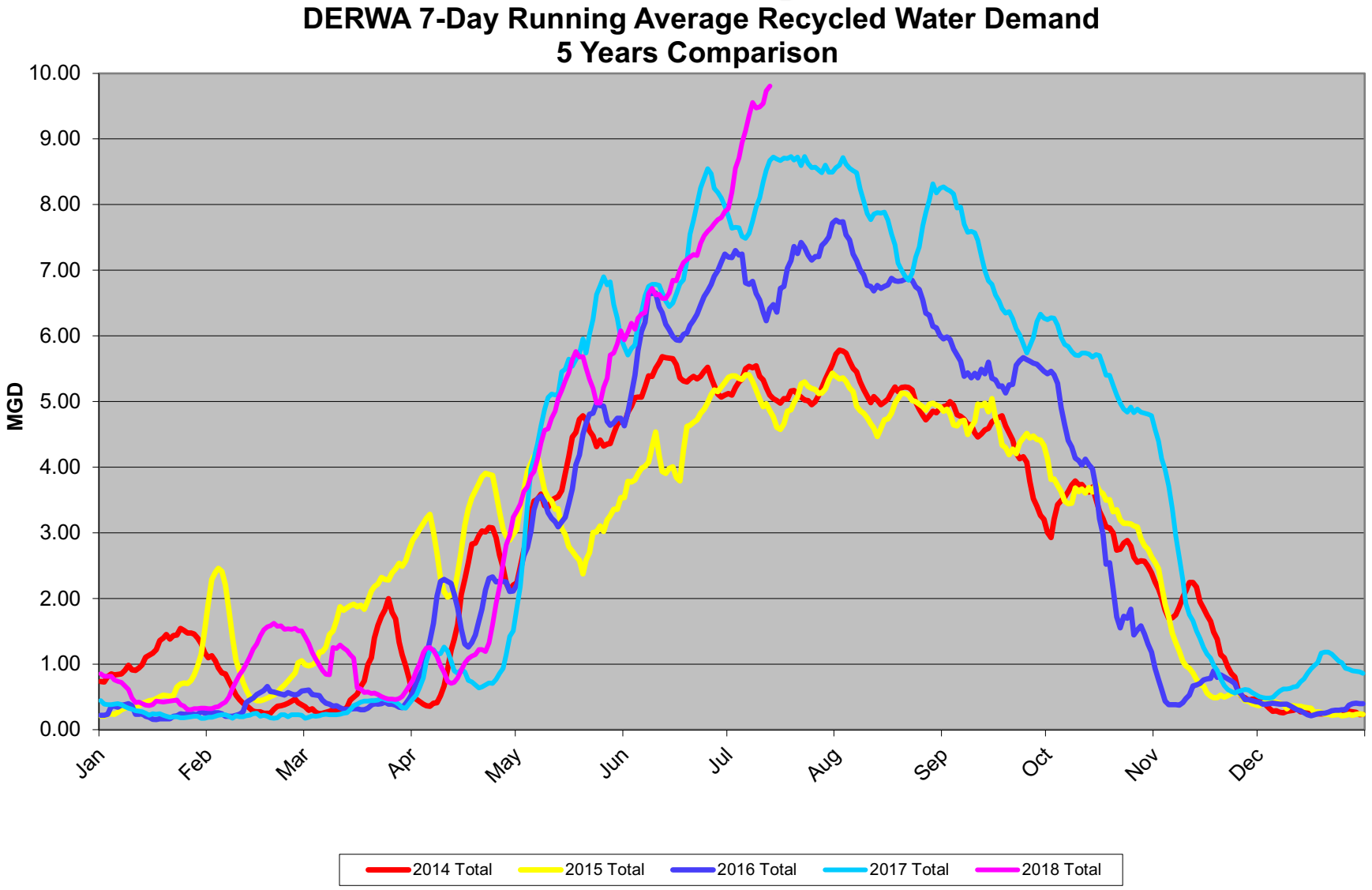
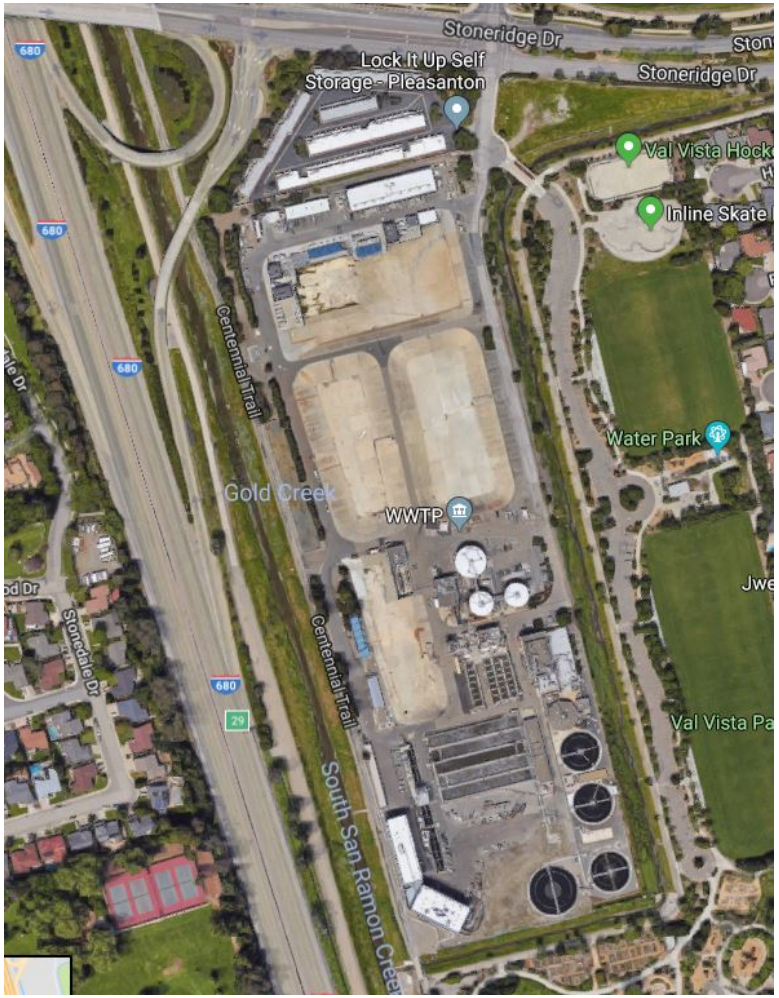


Demand Management

- Customer emails - June 2018
  - Coordinated with all three agencies
  - Encouraging wise use of recycled water
- Customer account reviews
- If necessary, contact large users to shift demands on peak days
- Ask member agencies to consider pricing strategies
- Consider customer cutbacks during droughts (may be required)

Short-term storage to level out peak daily demands

- Tassajara Reservoir
  8 million gallons
- 4 storage basins at treatment plant
  (18.6 million gallons total)



Potable Water Supplies

- From Pleasanton at treatment plant
  - 1.1 MGD capacity, interruptible
  - Temporary agreement during construction
- From DSRSD at Tassajara Reservoir
  - 1 MGD capacity
- From EBMUD at R100
  - Not available in 2018, Amador Reservoir out of service
  - Could provide 0.5 MGD

Near-term Supply Options

- Need about 4 MGD supply or 250 MG storage in 4 years based on 2018 demand projections
- Potable addition
- Central Contra Costa SD Diversion
- Groundwater production in the Fringe Basin

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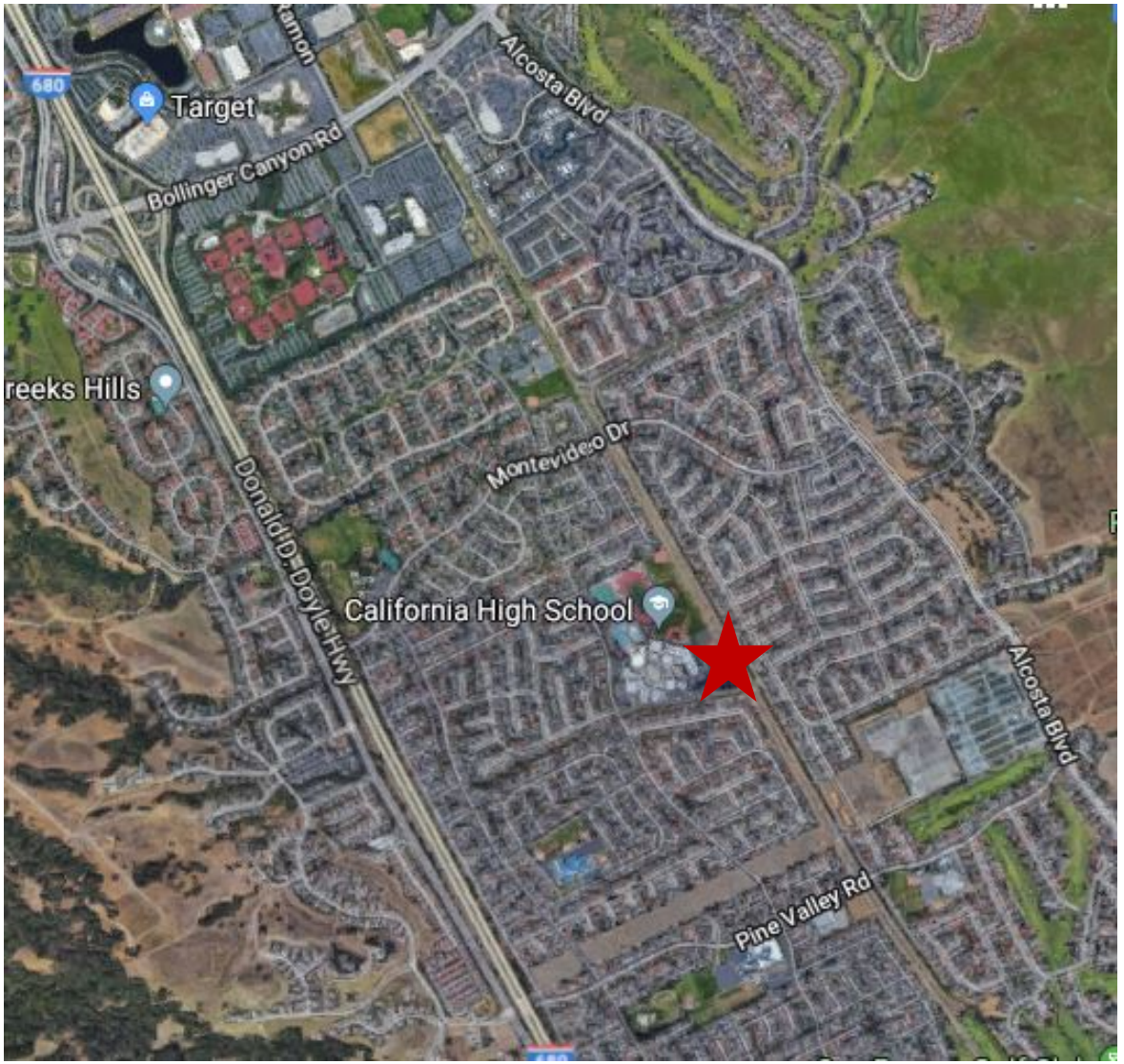
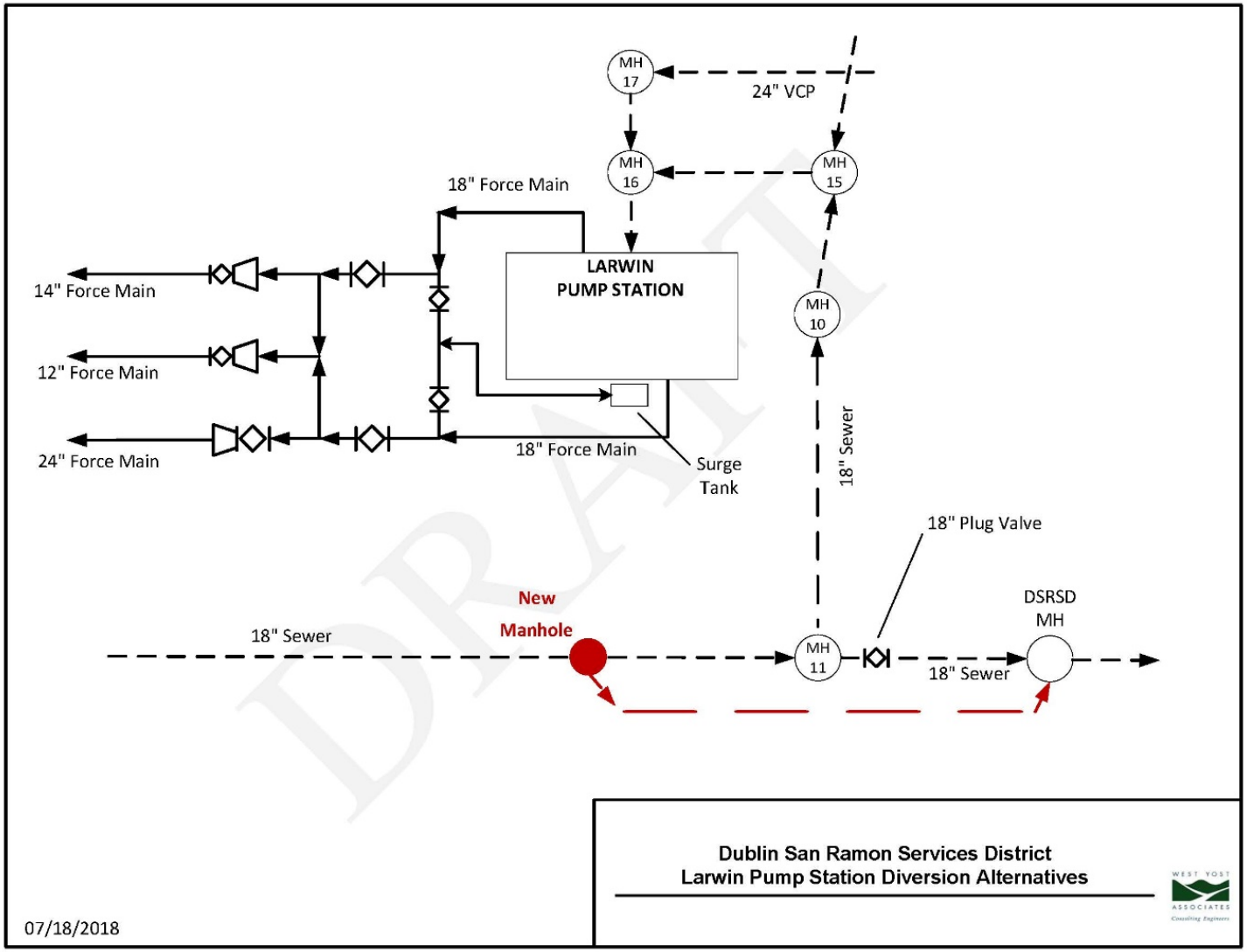
CCCSD San Ramon Diversion



CCCSD San Ramon Diversion



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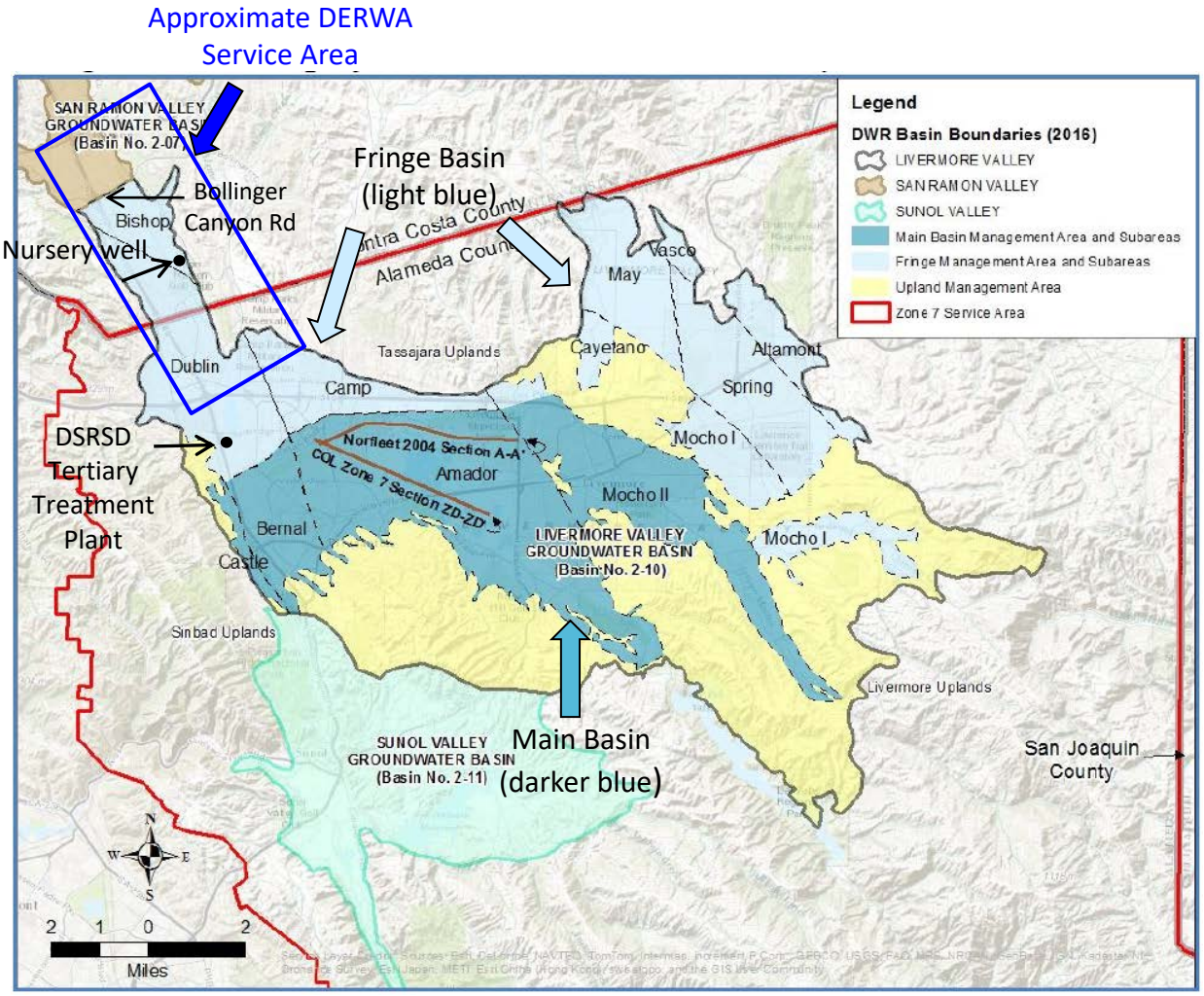
CCCSD San Ramon Diversion Timeline

	2018						2019				
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Design											
Agreement											
Construction											

Groundwater Basins Map

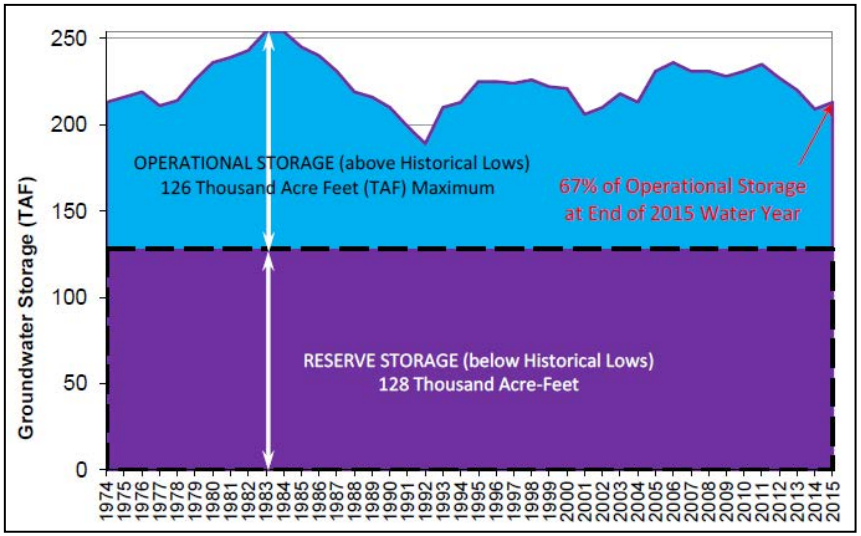


- Main Basin has Upper and Lower Aquifer Zones separated by clay aquitard ~50 ft thick. Upper Zone is an alluvial aquifer ~80-150 ft bgs. Lower Aquifer most significant for GW supply.
- Zone 7 interprets Fringe Basin as only having Upper Zone (~50-125 ft thick) with limited GW storage, low well yield, and poor WQ.

Groundwater Storage & Production

- Main Basin
  - Storage Capacity ~250 TAF
  - GW production ranged from 13–29 TAF per year between 2007–2017
- Fringe Basin, North-Dublin, Camp, and Bishop Subbasins
  - Storage ~76 TAF based on average depth of 100 feet
  - Limited GW use, primarily for irrigation
  - GW production information not available
  - Estimated well yields in Dublin Subbasin: 20–980 gpm

Main Basin Storage



Groundwater Quality

- Zone 7 samples annually for inorganic COCs
- GW quality objectives of COCs:
  - TDS, Main Basin: ambient or 500 mg/L
  - TDS, Fringe Basin: ambient or 1000 mg/L
  - Nitrate: 10 mg/L (primary MCL)
  - Boron: 1 mg/L (agricultural supply target)
  - Total chromium: 0.05 mg/L (primary MCL)

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2017 TDS Concentrations Upper Aquifer

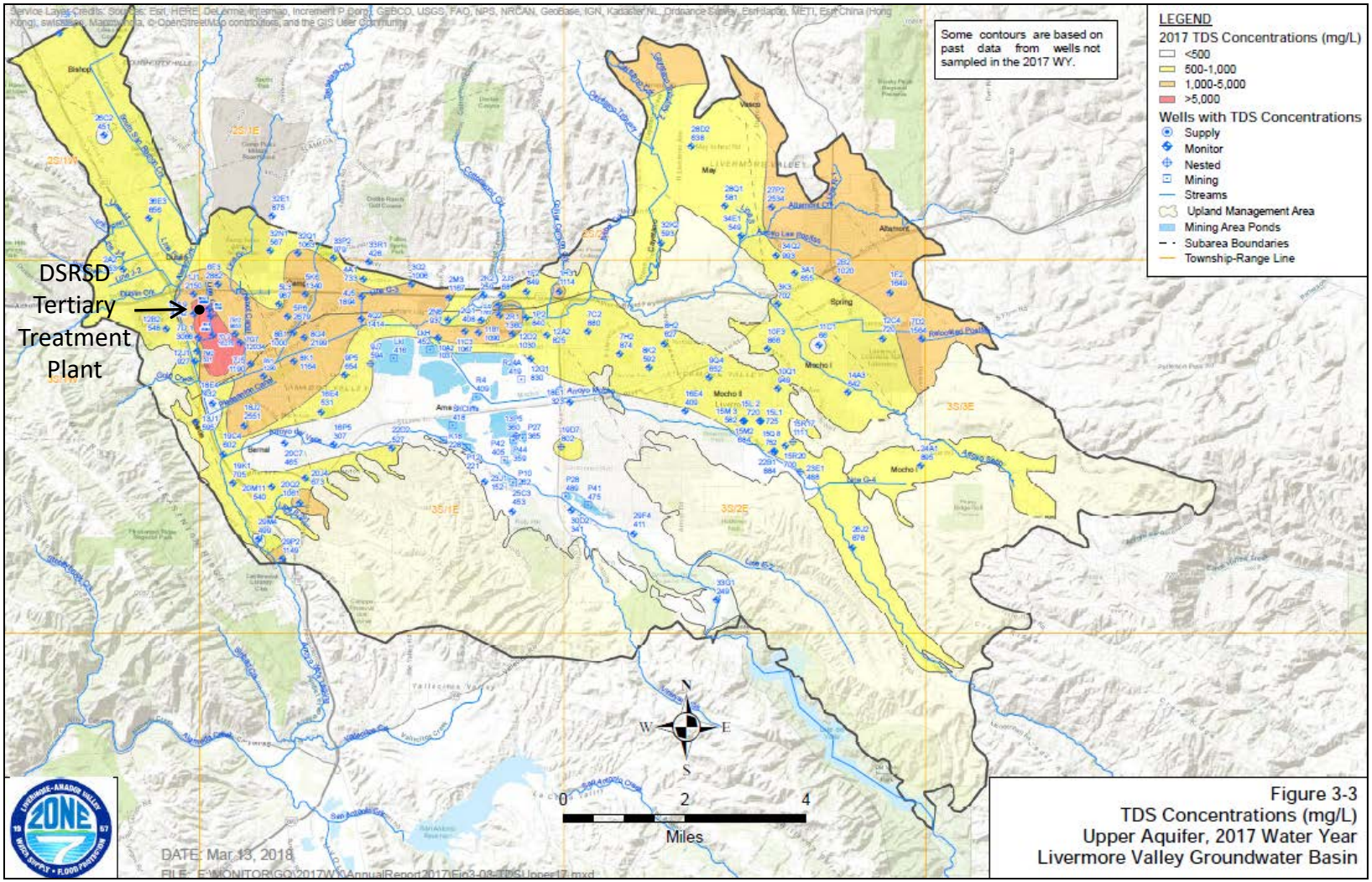

Figure 3-3
TDS Concentrations (mg/L)
Upper Aquifer, 2017 Water Year
Livermore Valley Groundwater Basin

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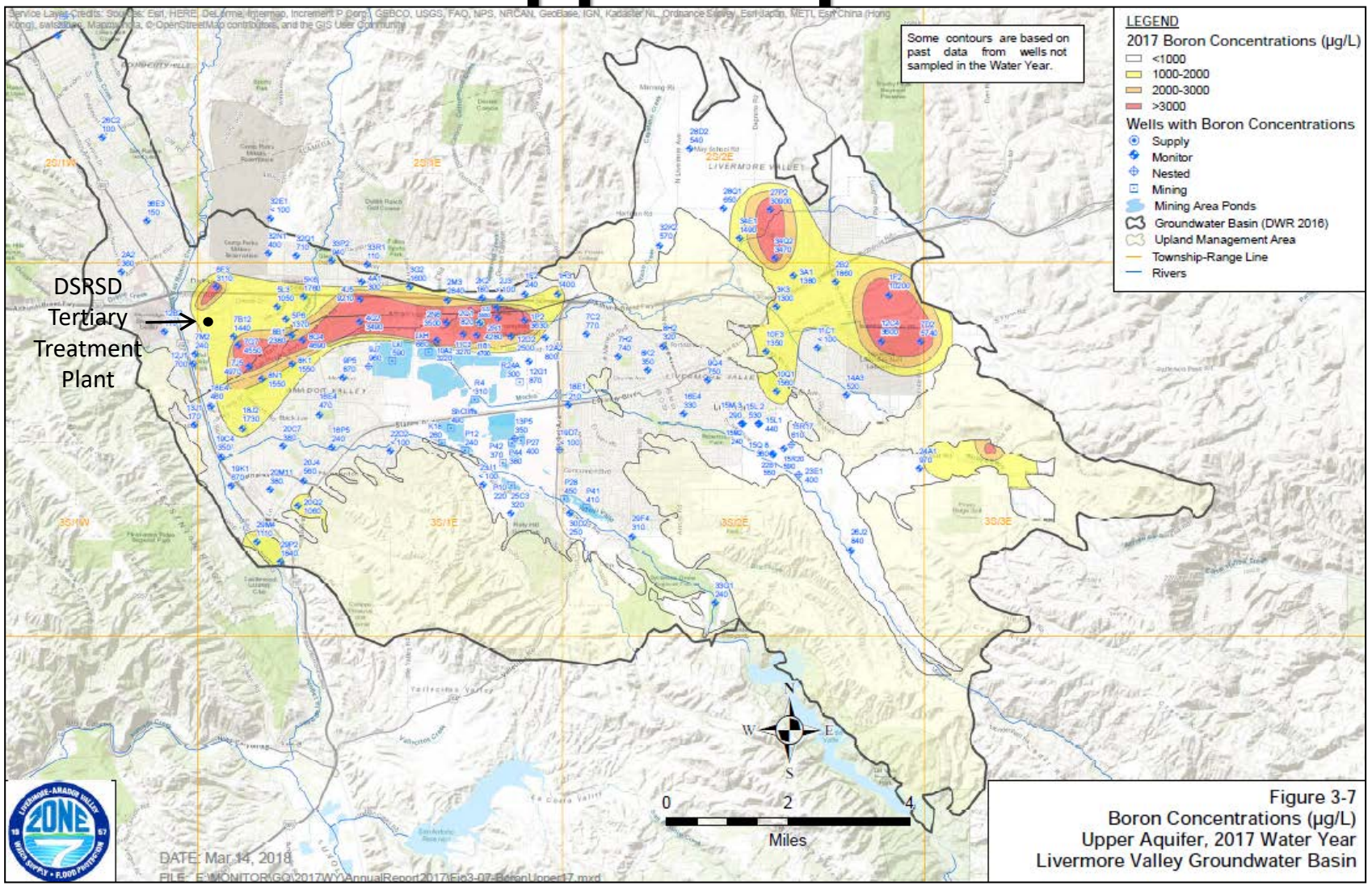
2017 Boron Concentrations Upper Aquifer



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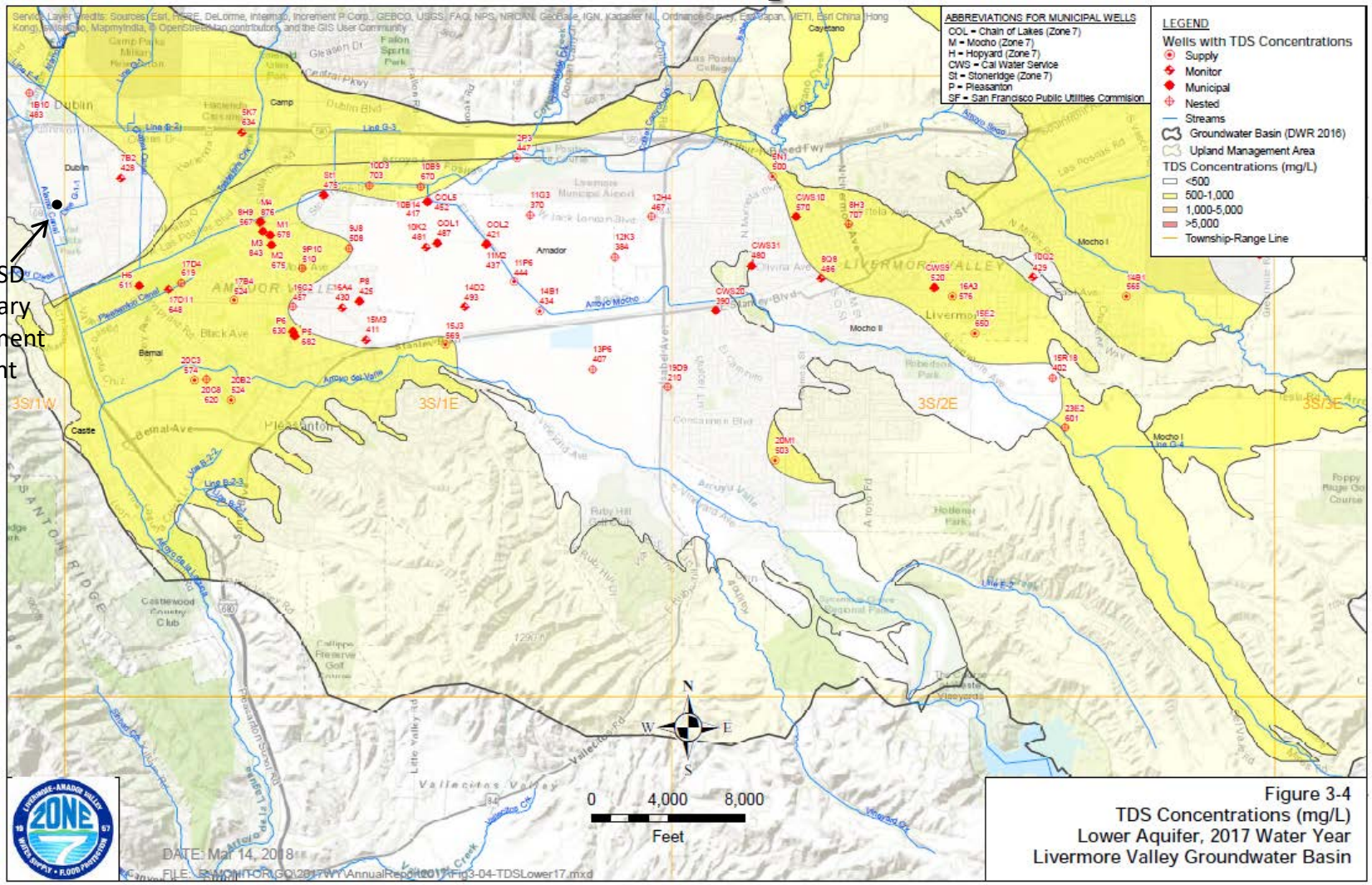
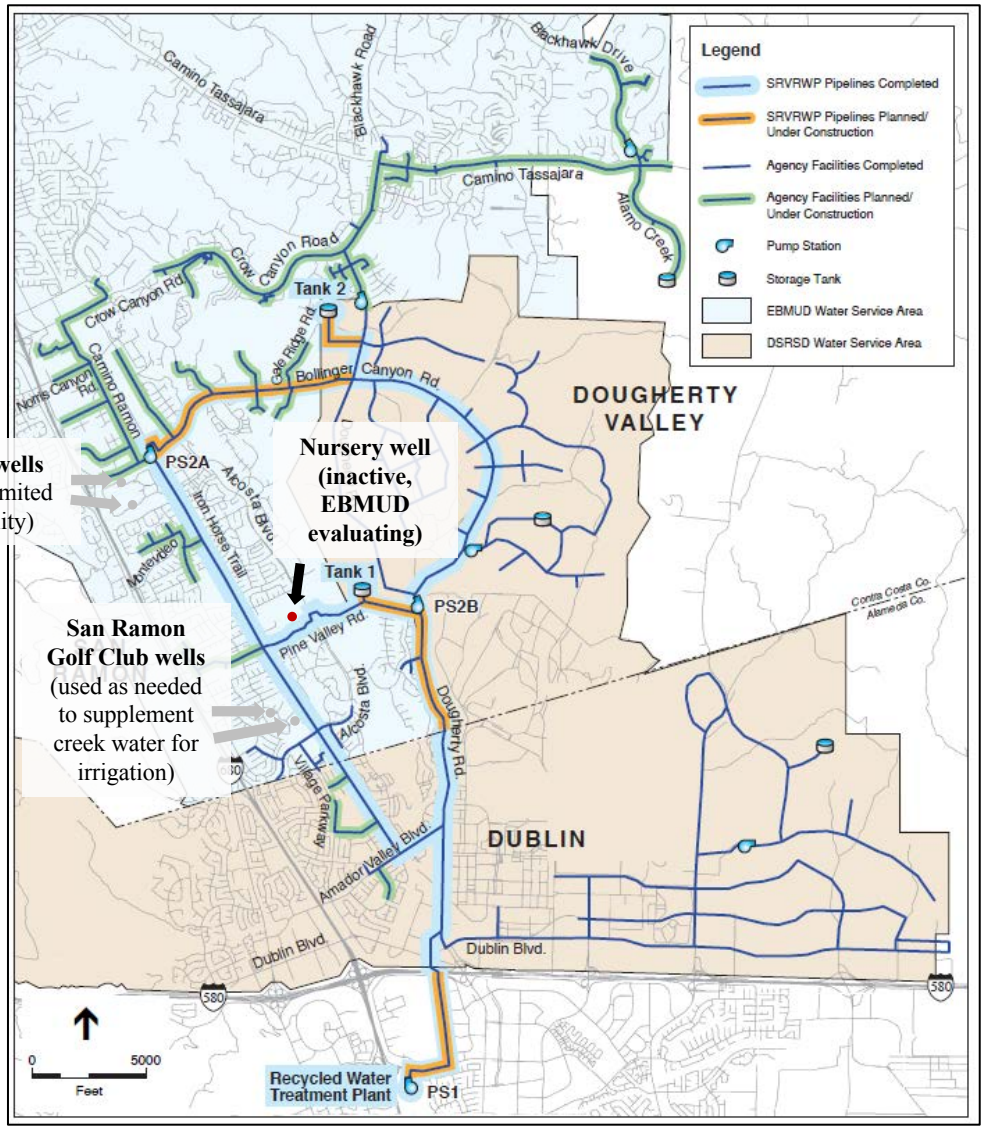
2017 TDS Concentrations Lower Aquifer



Existing Wells Near Transmission Lines

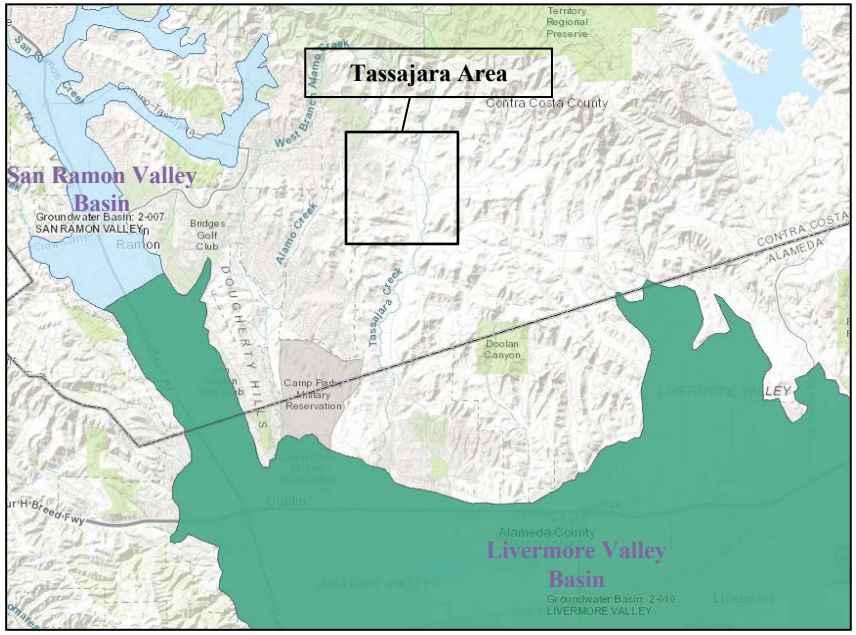


San Ramon Nursery Irrigation Well Evaluation

- Identified well using DWR's well completion report database
- Property owned by PG&E but leased to Devil Mountain Nursery
- Well installed in 1990 by prior nursery, but not used because of water quality issues
- Performed well video survey and found debris at 21 feet (April)
- Removed debris and conducted subsequent well video log (May)
- Conducted pump test and collected samples for water quality testing (July)

Tassajara Area Groundwater

- Outside of delineated DWR groundwater basin
- Groundwater used by rural residents and for irrigation
- Mostly low permeability material including clays, clay with sand, shales, and siltstone
- Low well yields (2.5–12 gpm)
- Area is not suitable for groundwater storage based on the geology and low well yields



Next Steps

- Decide whether nursery well can be used based on production and water quality and negotiate a use agreement
- Identify additional well sites and locations to test drill for new wells
- Determine whether groundwater is a viable supplemental supply option

Longer-Term Supply & Storage Considerations

- Groundwater storage in the Fringe or Main Basin
- Groundwater wells in the Main Basin
- Tri-Valley Potable Reuse
- Livermore
- LAVWMA/EBDA

Groundwater Storage

- Fringe Basin has low storage potential based on currently available information
- Sites will be evaluated for seasonal storage of recycled water
- Storage of recycled water in the Main Basin is under Zone 7 jurisdiction expect for potable reuse

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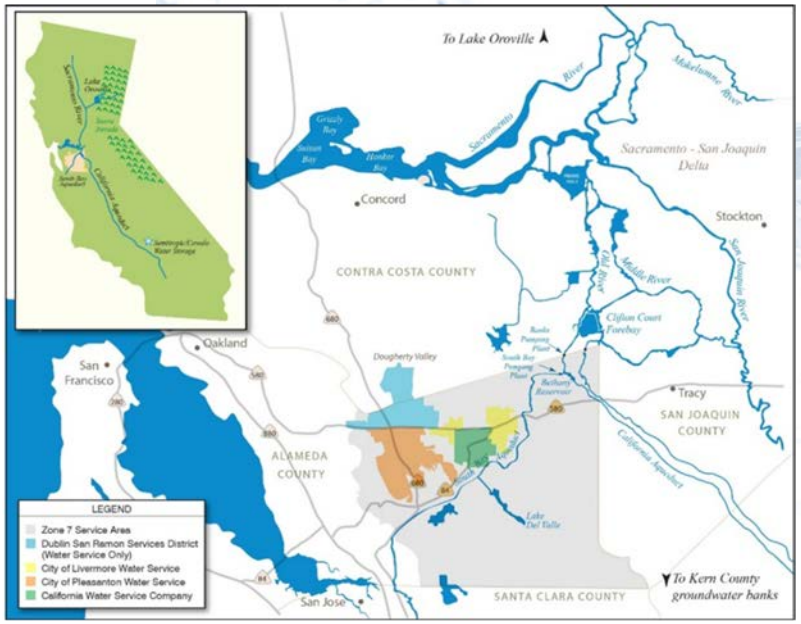
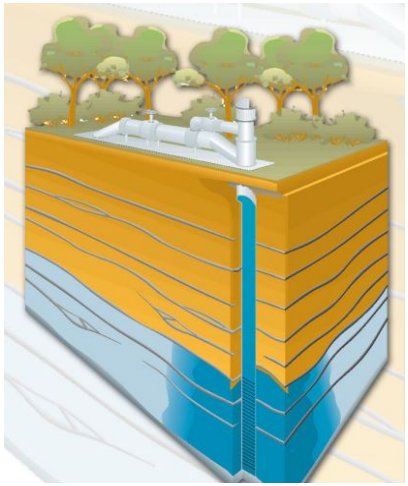


Joint Tri-Valley Potable Reuse Technical Feasibility Study

MARCH 2018

Status of Regulations for "Potable Reuse" End Uses

Groundwater Augmentation - Regulations Approved



Reservoir Water Augmentation - Regulations 2018

Raw Water Augmentation - Regulations 2023

Treated Drinking Water Augmentation - Regulations ?

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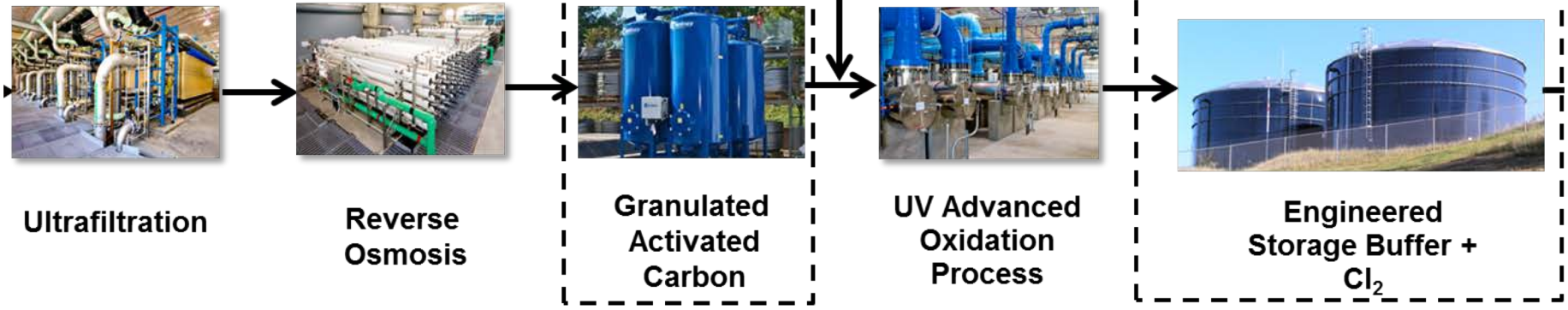
Potable water uses multiple barriers for reliable purification



- Hollow Fiber Membranes
- Removes suspended solids, bacteria, protozoa

- Semi-permeable membrane
- Removes salt, pathogens, chemicals

- Allows to control peaks on organic compounds concentrations

- High intensity ultraviolet light
- Kills pathogens
- Destroys chemicals

- Additional retention time before WTP or distribution system
- Cl_2 allows for extra log removal credits for virus

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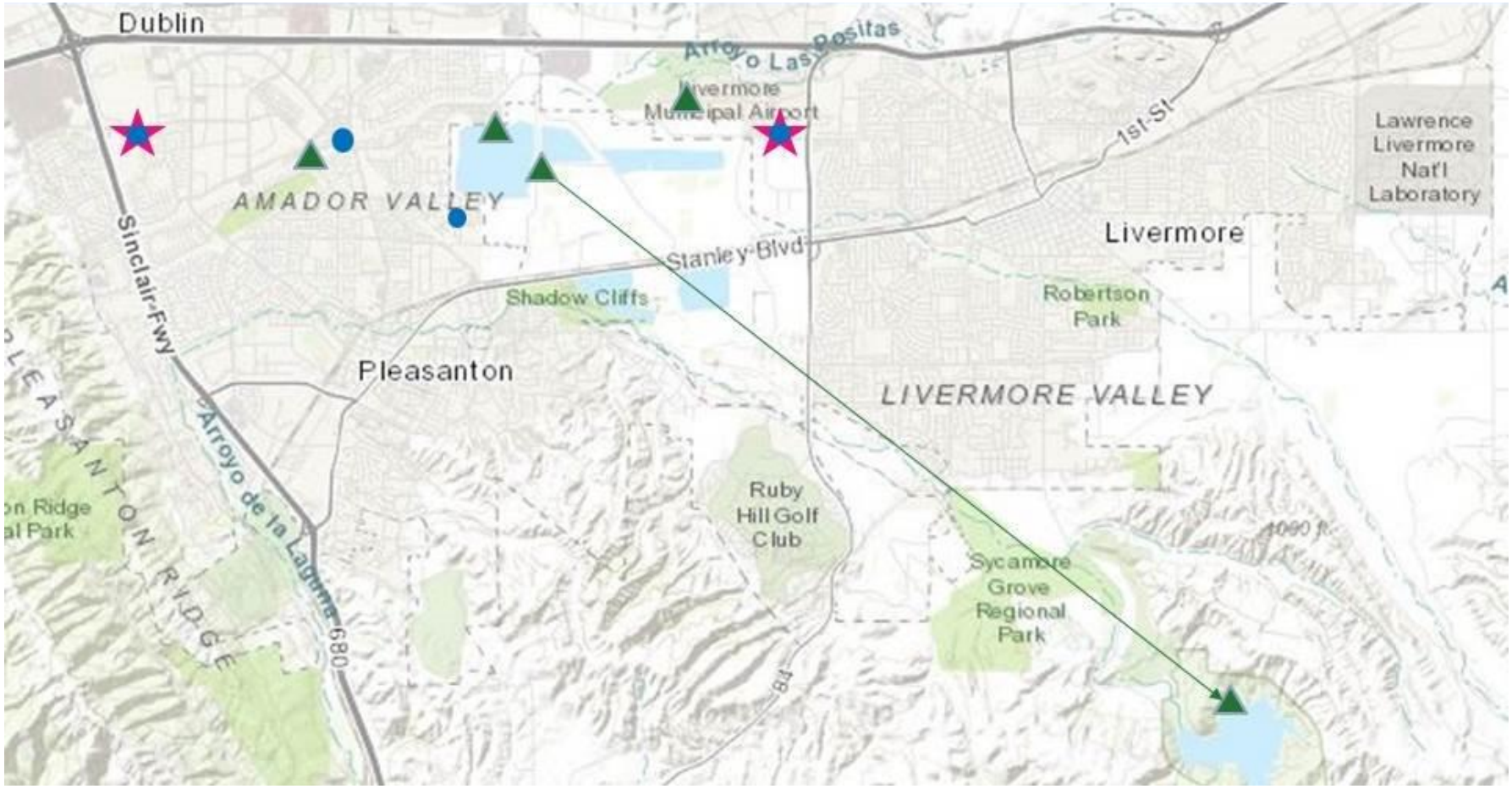
Short-Listed Potable Reuse Alternatives

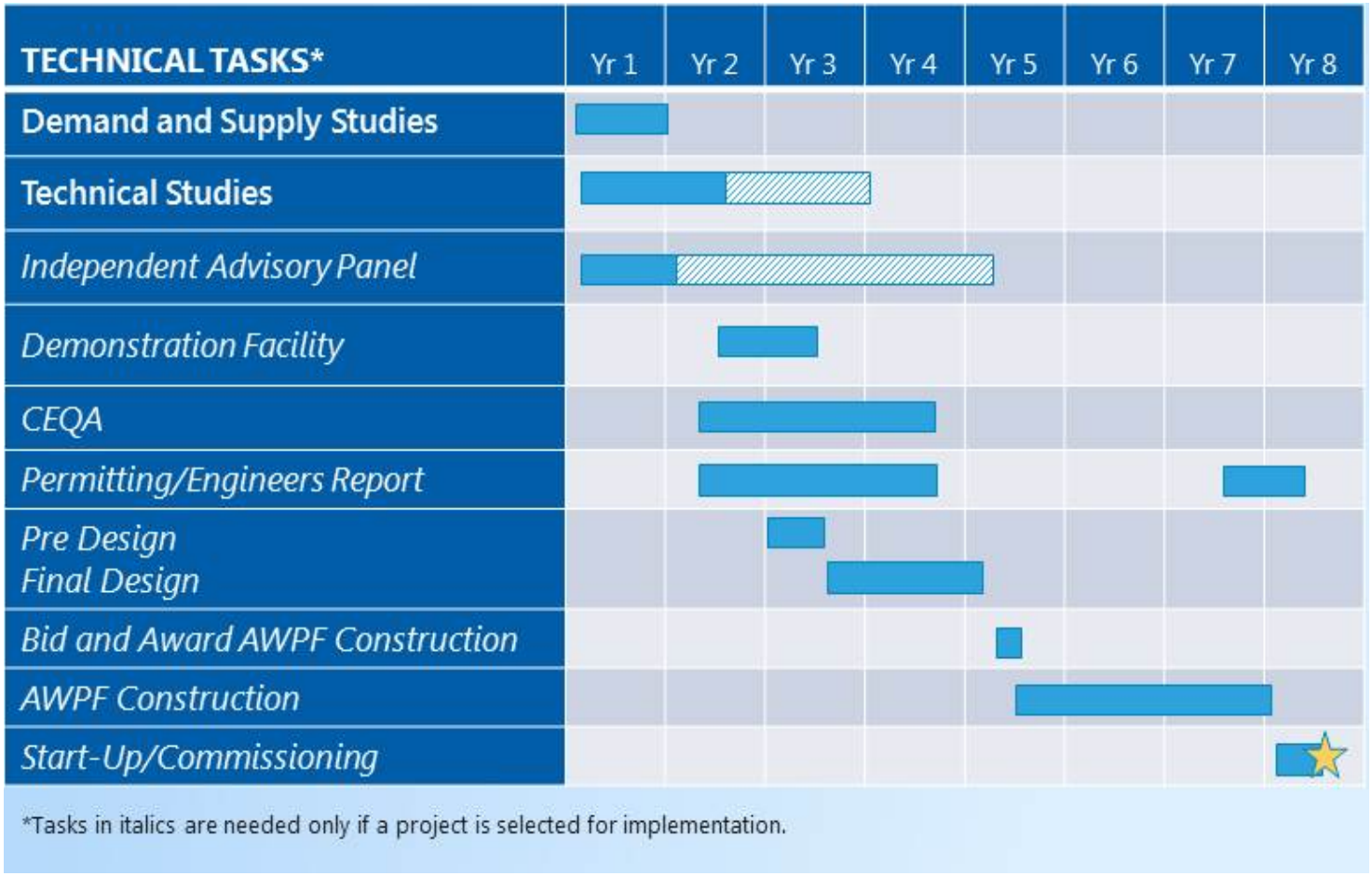
Two sources (DSRSD WWTP and Livermore WRP), four Advanced Water Purification Facility sites, and four end uses (destination of purified water)



Project Cost

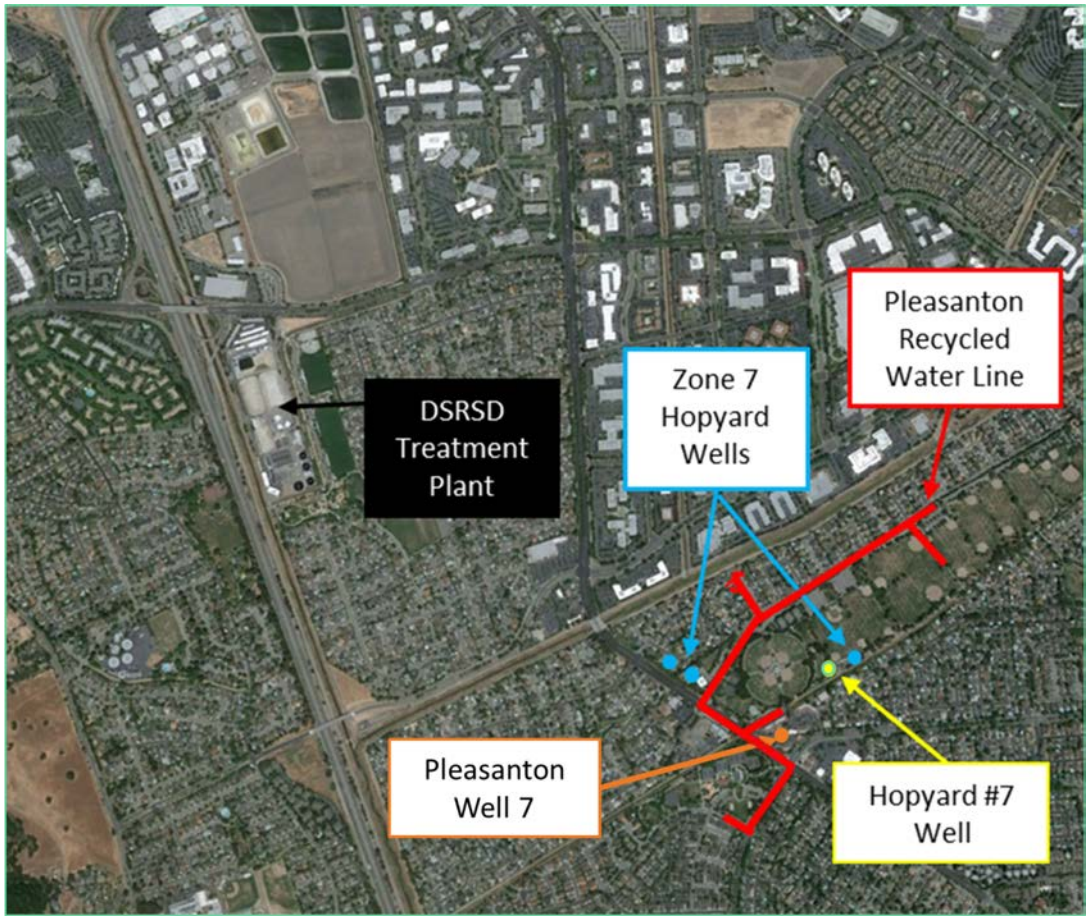
- Capital costs: $112M to $222M
- Capital costs + operating costs: $2,160 to $2,530 per acre/ft
- May vary depending on number of participating agencies
- ~$5 - $15 increase in monthly water bill, based on number of customers at buildout

Potential Project Timeline



Main Basin Groundwater Pumping

- Zone 7 Hopyard Well 7
- Pleasanton Well
- New Well
- Subject to Zone 7 fees, comparable to potable connection



Other Potential Supplies

- Livermore
  - Deliveries to Pleasanton through the recycled water intertie
  - Deliveries to the DERWA Plant from LAVWMA
  - Livermore evaluating its supply needs
- EBDA/LAVWMA
  - New pumping plants and pipelines to pump water from near Bay
  - High capital cost

Next Steps

- Pursue Central San diversion by Spring 2019
- Extend potable water agreement with Pleasanton
- Identify/install Fringe Basin wells for peak production by Spring 2021
- Conduct investigation to determine Fringe Basin groundwater storage potential

Director Comments