Recycled Water Strategic Plan 2024 Update

BACWA Recycled Water Committee

July 15, 2025

Agenda

- Background
- 2024 Recycled Water Strategic Plan (RWSP) update process
- Key project updates
- RWSP Report Findings
- Recommendations and Next Steps

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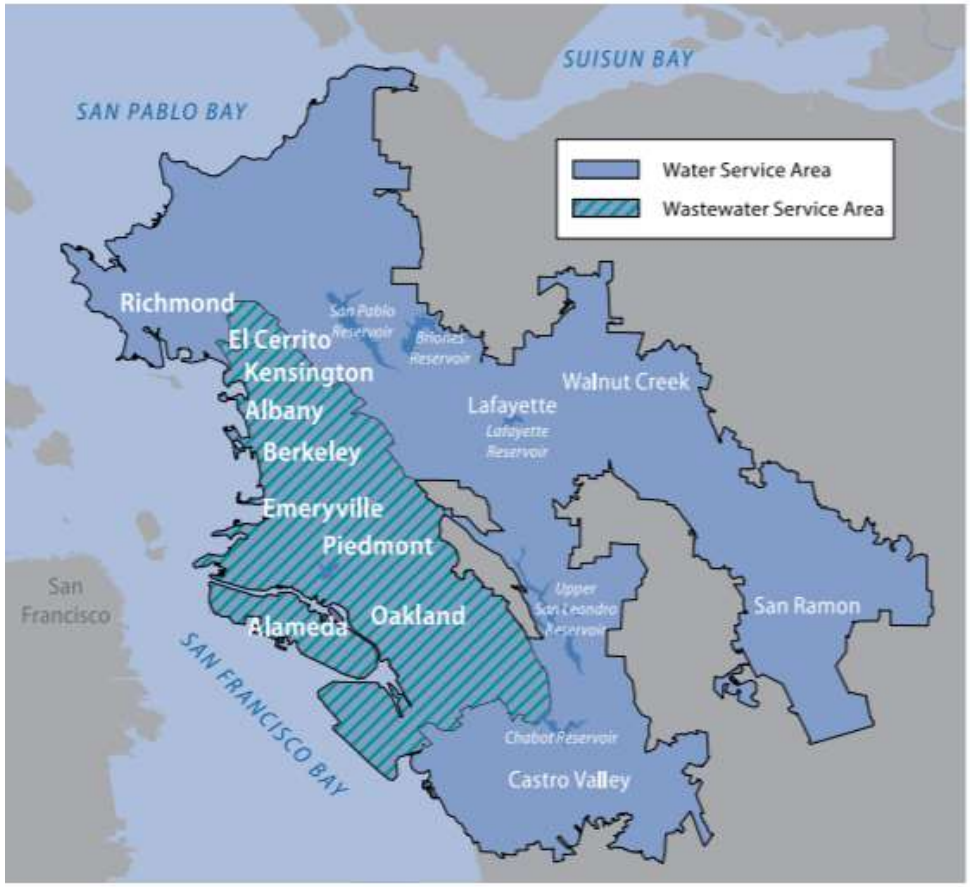


Water: 1.4 Million Served

Raw Water System
5 Local Reservoirs

Treatment System
6 Water Treatment Plants

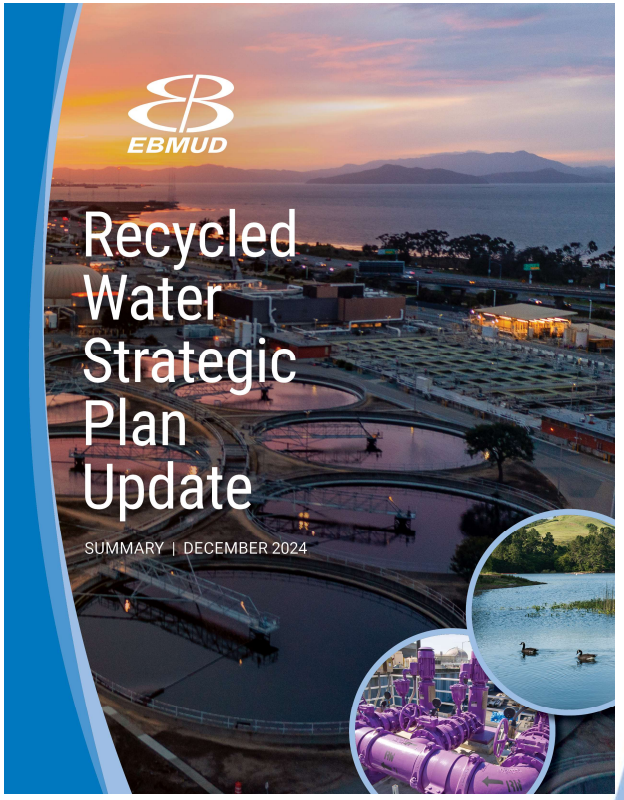
Distribution System
- 4,200 Miles of Pipeline
- 122 Pressure Zones
- 164 Reservoirs

Wastewater: 740,000 Served

- Wastewater Treatment Plant processes 50 million gallons per day (MGD); up to 320 MGD during rainfall
- 29 miles of sewer interceptors
- 3 Wet Weather Facilities

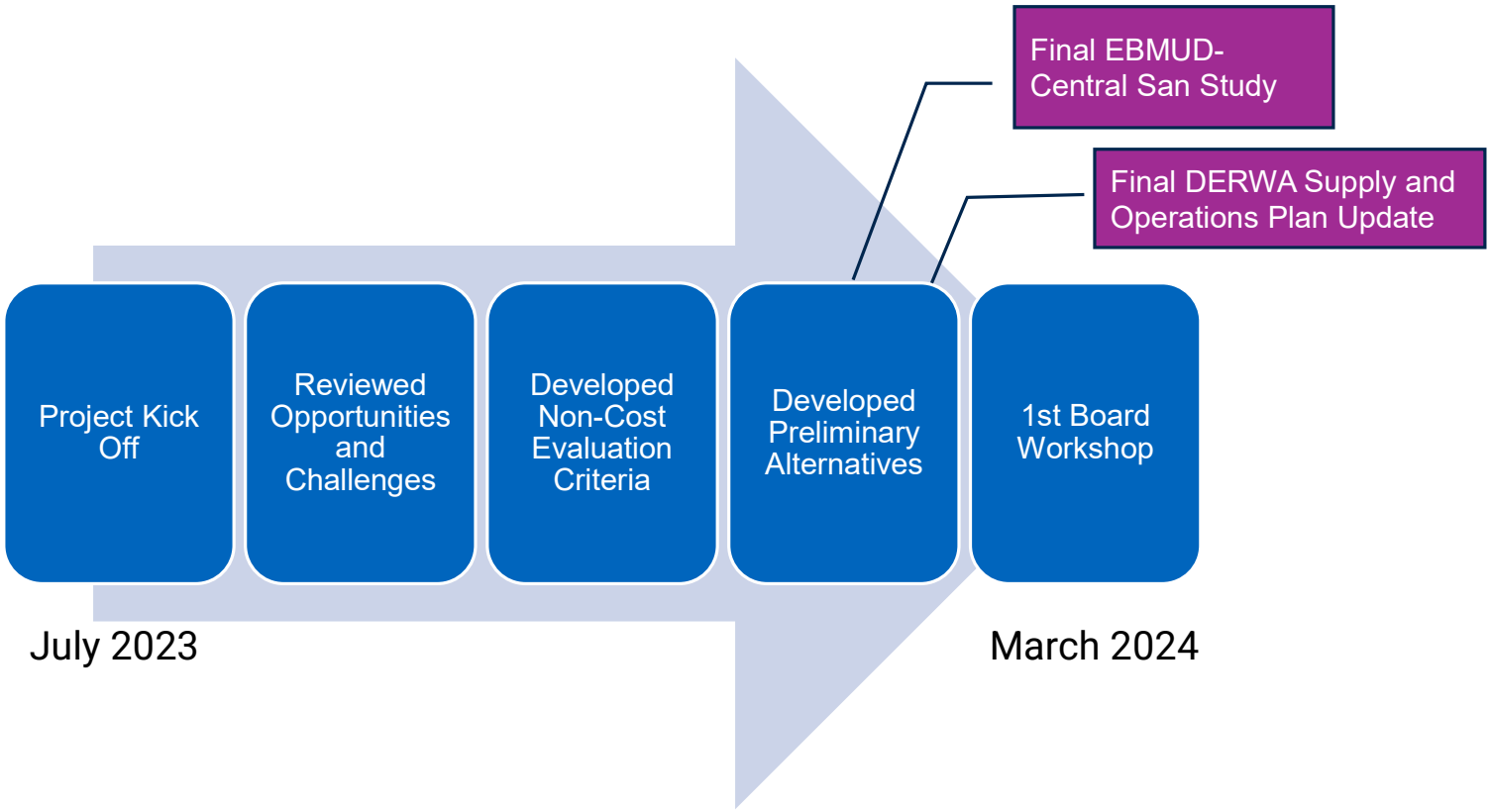
History of District's Water Recycling Program and Goal

- 1971 – First use of recycled water at main wastewater treatment plant
- 1991 – First District Water Recycling Master Plan
- 1993 – Water Supply Management Program, water recycling goal of 14 million gallons per day (MGD) by 2020
- 2012 - Water Supply Management Program 2040, water recycling goal of 20 MGD by 2040
- 2019 – Recycled Water Master Plan Update, maintain water recycling goal of 20 MGD by 2040 with non-potable reuse, re-evaluate potable reuse in 5 years
- 2024 – Recycled Water Strategic Plan Update, review and update water recycling goal, consider potable reuse



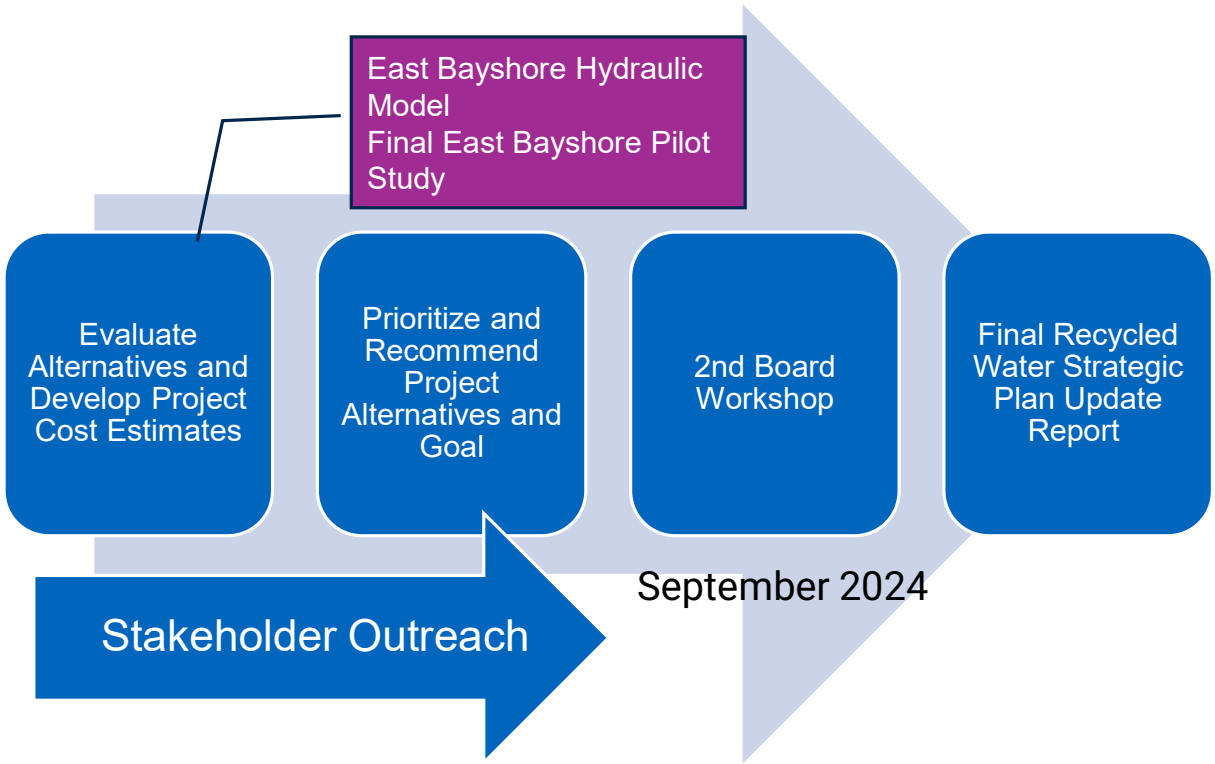
EBMUD, Recycled Water Strategic Plan Update, 2024

2024 RW Strategic Plan Process



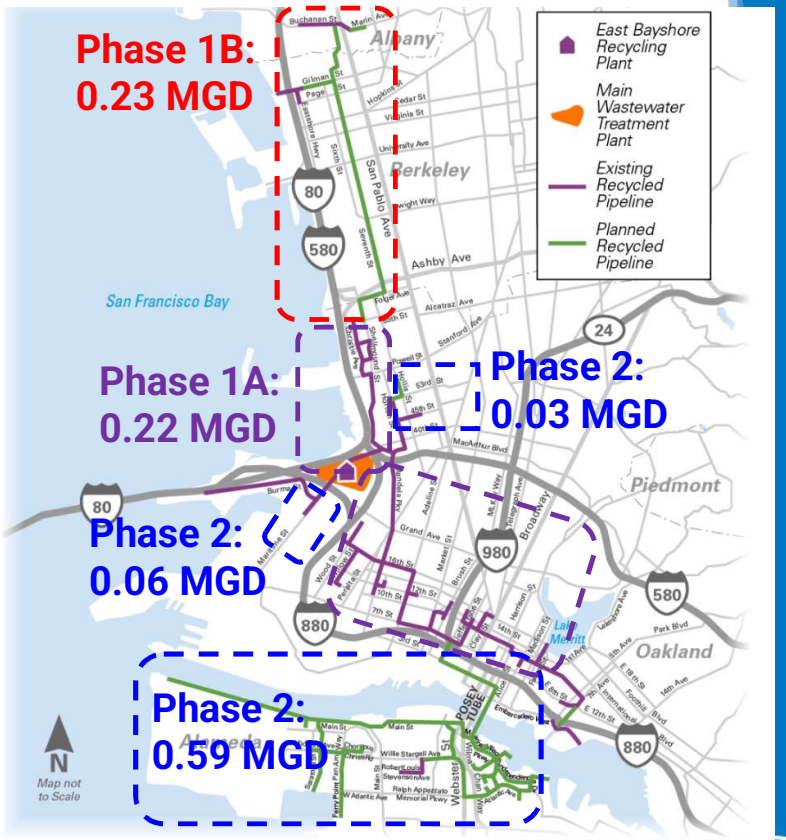
DERWA: Dublin San Ramon Services District – EBMUD Recycled Water Authority

2024 RW Strategic Plan Process



Significant Changes to Non-Potable Reuse Irrigation Projects

- East Bayshore Recycled Water Project
  - Recycled water demands decreased significantly due to conservation and customer use changes
    - Original Phase 1B anticipated demand = 0.51 MGD
    - Updated Phase 1B demand = 0.23 MGD
    - Golden Gate Field closure reduced Phase 1B demands by 0.16 MGD
  - Project capital cost and unit cost have increased
    - Difficult construction conditions and contaminated soils
    - Phase 1B every year unit cost = $16,100/AF
  - Start with the most cost-effective phase of expansion into Alameda, Emeryville, and Oakland with federal funding
    - Phase 2 every year unit cost = $3,500/AF



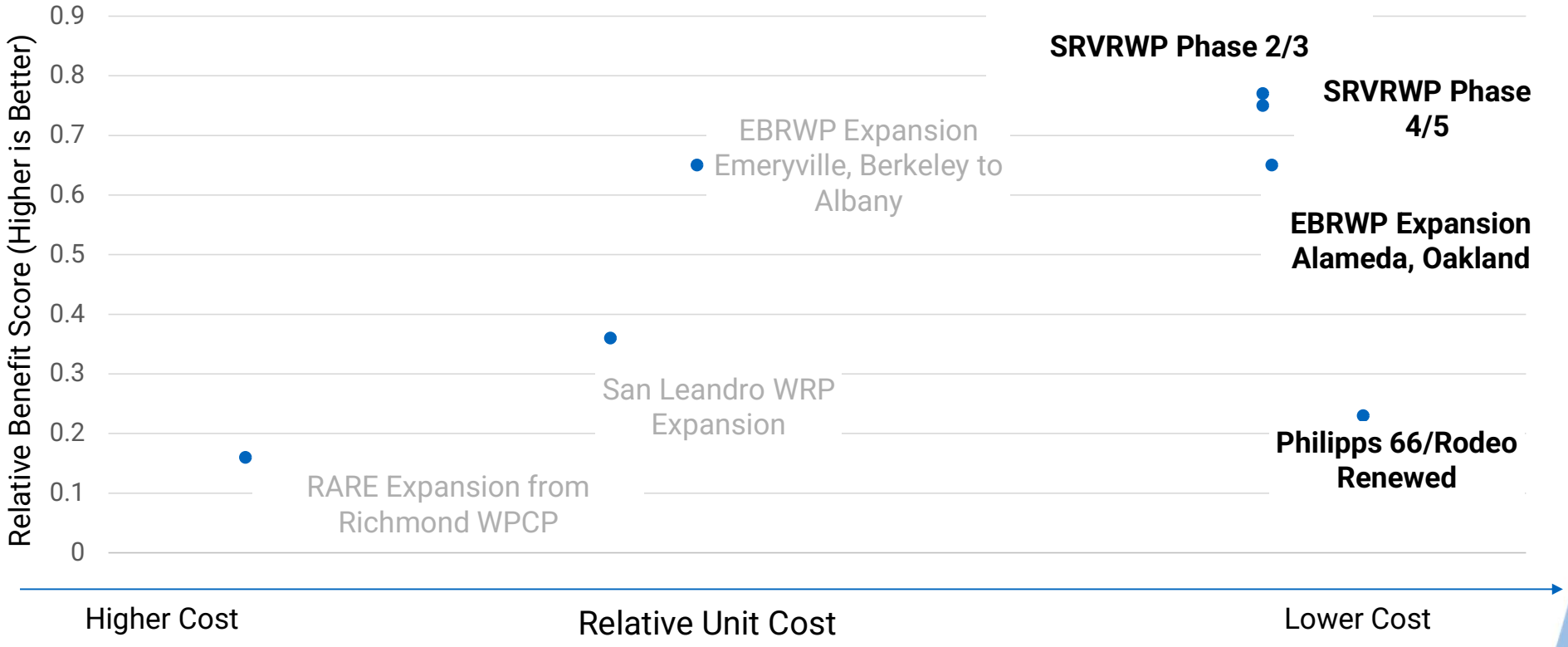
Significant Changes to Non-Potable Reuse Irrigation Projects

- San Ramon Valley Recycled Water Project
  - Supplemental supply is needed to expand project
  - Central San open to developing long-term agreement to divert wastewater flows to DERWA
  - Additional flows will allow EBMUD to expand to future phases
- Satellite Projects
  - Slower than anticipated pace for customer development of projects
  - Consider removing these projects from recycled water goal but continue to support their efforts
    - Diablo Country Club = 0.2 MGD
    - Rossmoor = 0.5 MGD
    - Sequoyah Country Club = 0.1 MGD
    - University of California at Berkeley = 0.4 MGD

Significant Changes to Non-Potable Reuse Industrial Projects

- Chevron/RARE Water Project
  - Insufficient wastewater supply from West County Wastewater District to meet demands
  - Expensive supply alternatives to route flows from other sources
  - Uncertainty in refinery industry water demands
  - Consider Chevron funding for any project expansion
- Phillips 66/Rodeo Renewed Project
  - Refinery looking to possibly develop on-site reuse project (phase 1)
  - After phase 1 is complete, EBMUD will coordinate with refinery to evaluate phase 2
  - Refinery demands have decreased and there is uncertainty in refinery industry in the future
  - Project approach should avoid stranded assets

Non-Potable Reuse Projects Evaluation Results



EBRWP = East Bayshore Recycled Water Project
SRVRWP = San Ramon Valley Recycled Water Project
RARE = Richmond Advanced Recycled Expansion
WRP = Water Recycling Project
WPCP = Water Pollution Control Plant

Non-Potable Reuse Projects Evaluation Results

Non-Potable Reuse	Outside Funding Source	Future Demand (MGD)	Capital Cost ($)	Every Year Unit Cost ($/AF)
East Bayshore Expansion to Oakland, Alameda, Emeryville	Federal funding authorized (existing $25 M and seeking additional $20 M)	0.7	$34 M (after $25M federal funding)	$3,500
Phillips 66/Rodeo Renewed	Potential for refinery funding	2.8	$41 M	$1,500
SRVRWP Phases 2 & 3 – San Ramon & Danville		0.8	$32 M	$3,700
SRVRWP Phases 4/5 - Blackhawk		0.5	$27 M	$3,700
Total		4.8	$134 M	

AF = Acre-Feet
M = Million

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Other Non-Potable Reuse Projects Included

Non-Potable Reuse	Outside Funding Source	Future Demand (MGD)	Capital Cost ($)	Every Year Unit Cost ($/AF)	Dry Year Unit Cost ($/AF)
SRVRWP Future Infill		0.3	No District Capital Cost		
RARE (Chevron)	Refinery funding	0.5	No District Capital Cost		
Satellites (On-site)	Customer funding	1.2	No District Capital Cost		
Total		2.0			

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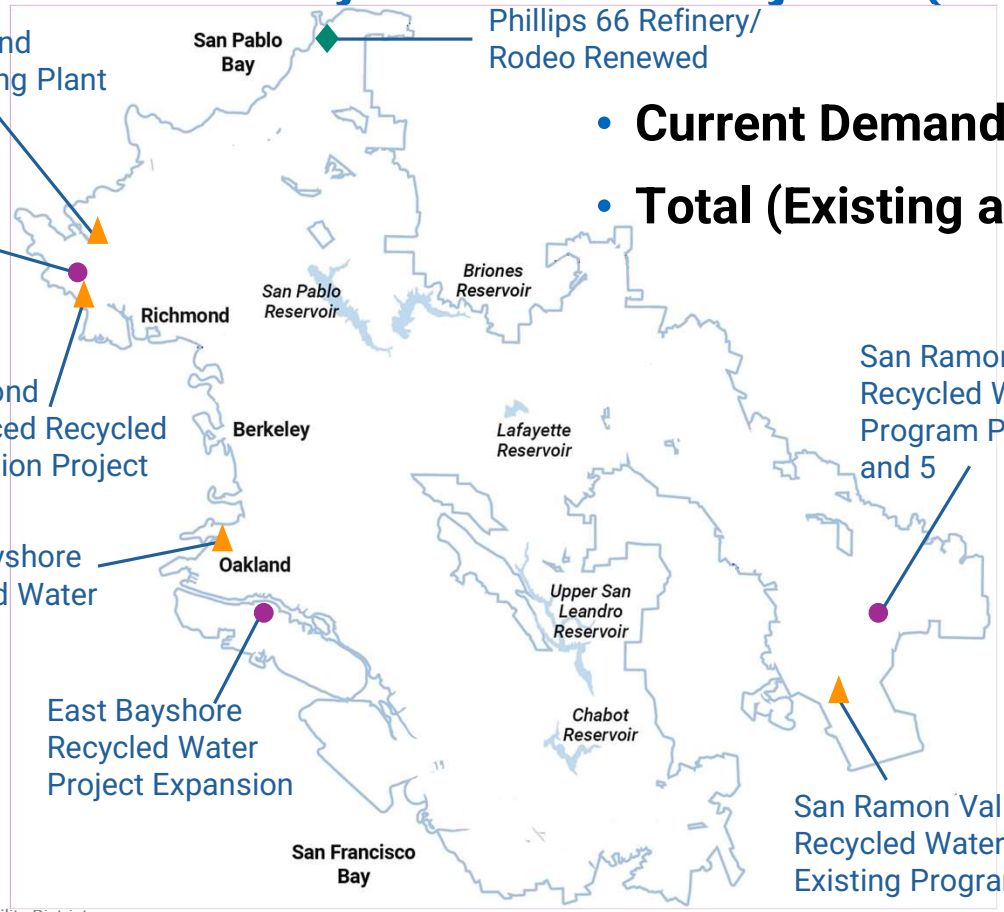
Recycled Water

Existing and Future Recycled Water Projects (Non-Potable)



- **Current Demand = 7.4 MGD**
- **Total (Existing and Future) = Up to 13 MGD**

Existing Project
New Project
Project Expansion

Purified Water Alternatives Review

- **Evaluation of alternatives considered:**
  - Different supply sources
    - SD-1, Central San, Oro Loma, Richmond
  - Reservoir and groundwater augmentation with purified water
    - Briones, Upper San Leandro, San Pablo, groundwater basin
  - Addition of purified water to drinking water plants, aqueducts, or distribution system
    - Mokelumne aqueducts, Claremont Center, drinking water treatment plants, distribution system

AWPF = Advanced Water Purification Facility
WPCP = Water Pollution Control Plant
SD-1 = Special District 1

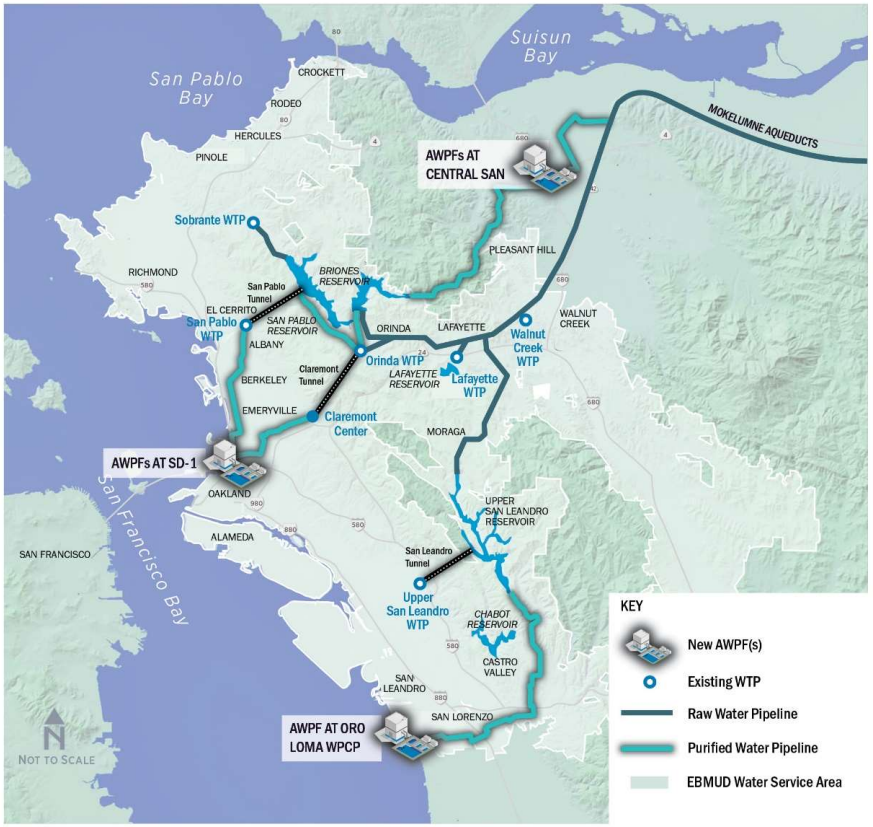
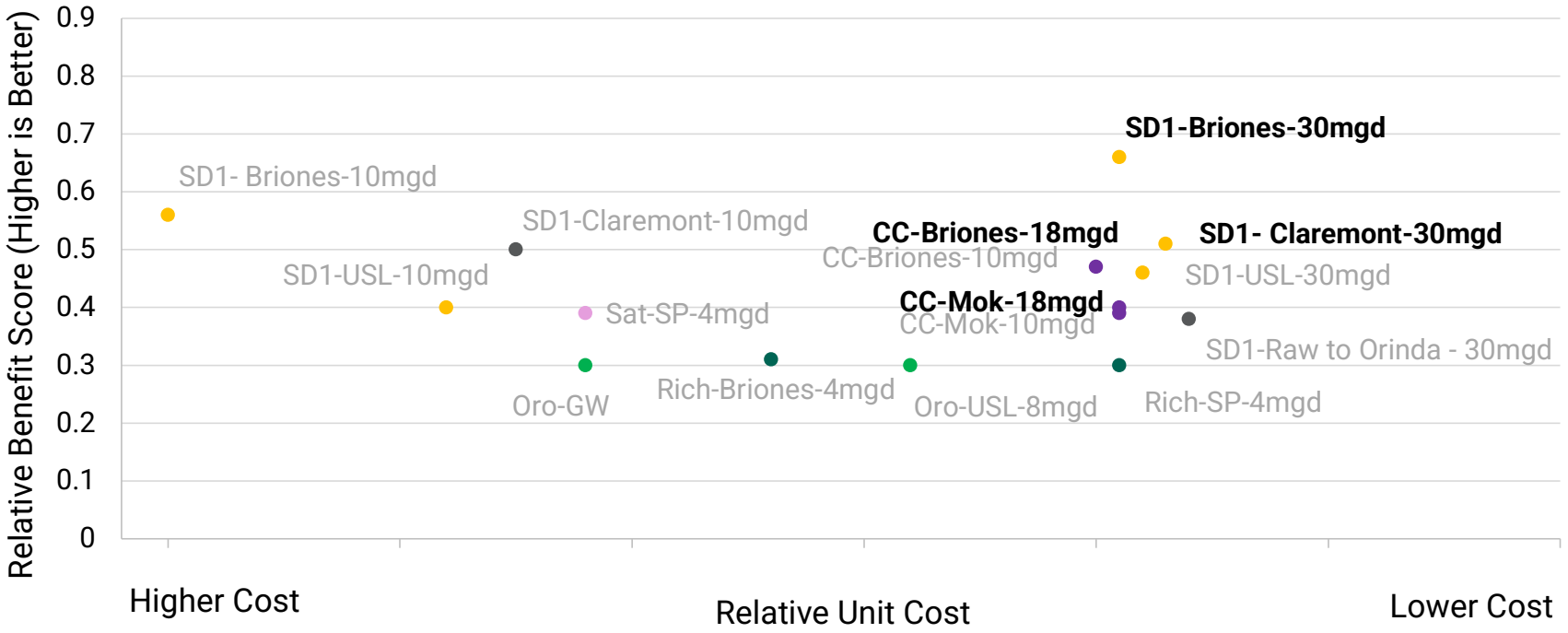


Figure illustrates some of the alternatives evaluated and does not show all alternatives

Purified Water Projects Evaluation Results



USL = Upper San Leandro Reservoir
Mok = Mokelumne Aqueduct
CC = Central Contra Costa Sanitary District
Oro = Oro Loma Sanitary District
Rich = Richmond
Sat = Satellite Plant at Pt Isabel
GW = Groundwater
SP = San Pablo Reservoir
Note: Production shown in Million Gallons per Day

Alternative abbreviations:

- Source water – Integration point – Production capacity (mgd)
- Example: SD1 – Briones – 30 = advanced treatment at SD1, supply conveyed to Briones Reservoir, 30 mgd production capacity

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Purified Water Projects Evaluation Results (Potential Alternatives for Further Evaluation)

Purified Water Project	Production (MGD)	Capital Cost ($)	Every Year Unit Cost ($/AF)
Central San to Briones Reservoir (IPR - Reservoir Augmentation)	18	$740 M	$3,700
Central San to Mokelumne Aqueduct (DPR - Raw Water Augmentation)	18	$655 M	$3,600
SD-1 to Briones Reservoir (IPR - Reservoir Augmentation)	30	$1,210 M	$3,600
SD-1 to Claremont Center (DPR - Treated Water Augmentation)	30	$990 M	$3,500

AF = Acre-Feet

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Changed Conditions

Program	Current RW Demand (MGD)	Previous Forecast of 2040 RW Demand (MGD)	Updated Forecast of 2040 RW Demand (MGD)
East Bayshore	0.2	2.4	0.9
San Ramon Valley*	0.8	2.4	2.4
Chevron Refinery*	6.4	11	6.9
Phillips 66/Rodeo Renewed	0	3.7	1.4 to 2.8
San Leandro Facility	0	0.2	0
Satellite Projects	0	0.2	1.2
Total – Non-Potable Reuse	**7.4**	**20**	**Up to 14.2** **Up to 13** (excluding satellite projects)
Potential Range of Potable Reuse	0	0	18-30

*Supplemental recycled water supply needed to meet recycled water demand.
RW = Recycled Water

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Recycled Water

Recap from 2024 Recycled Water Strategic Plan

- Due to conservation, declining wastewater flows, and refinery changes:
  - Existing recycled water deliveries have decreased to 7.4 MGD
  - Additional future non-potable reuse is projected at up to 5.6 MGD, excluding satellite projects, instead of 11 MGD
  - Challenging to achieve even the 5.6 MGD of additional non-potable reuse due to future uncertainty and changes
- Purified water is a future opportunity but has significant challenges including high project capital cost complex permitting and operations, and need for extensive public outreach
- Maintain recycled water goal of 20 MGD, extend to 2050
  - Will need to add potable reuse (purified water) in the long-term to meet goal
  - By 2033 through the comprehensive Water Supply Management Program Update, re-evaluate need for water and supply options, and determine when potable reuse is needed
  - Revise the goal in the future as needed

Future Analyses

- Upcoming near-term studies:
  - Update need for water analysis to 2050 to reflect demand changes, availability of supplies, and climate change, to be completed by 2025
  - Update water supply management portfolio (recycled water, conservation, CVP availability, water transfers, groundwater, Los Vaqueros, etc.)
  - Compare recycling to other water supply portfolio elements
  - Update 2025 Urban Water Management Plan (UWMP) with recommendations
- Future studies:
  - 5-year UWMP updates
  - Comprehensive update of the Water Supply Management Program in 2032-2033 with updated need for water and supply options, depending on status of voluntary agreements and conditions of FERC relicensing
- Develop and implement outreach and education plan in advance to support potential purified water in the future

CVP = Central Valley Project, FERC = Federal Energy Regulatory Commission

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Questions?