EBMUD-Central San Recycled Water Feasibility Evaluation

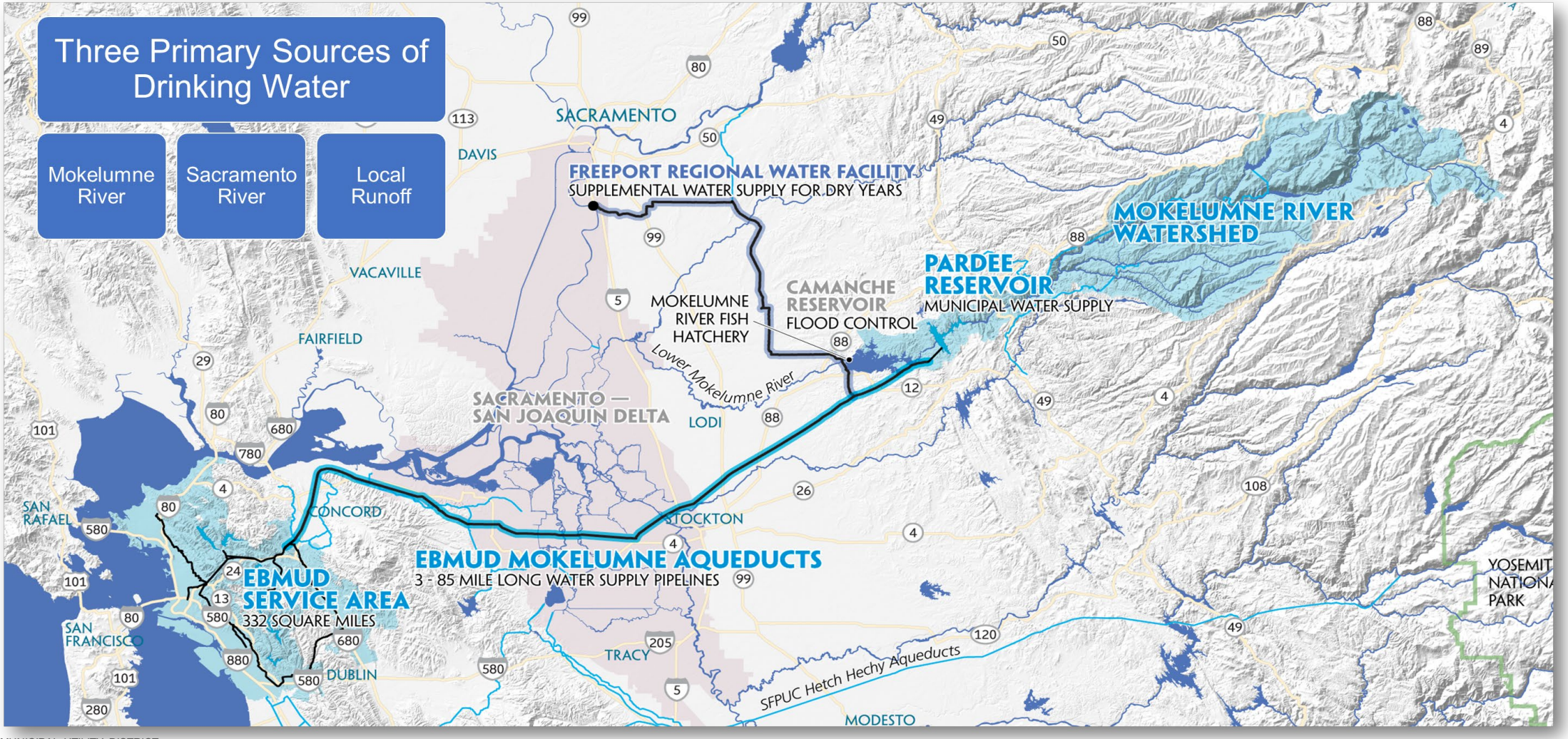
WateReuse Chapter Meeting

August 16, 2024

Agenda

- Background
- Summary of Recycled Water Project Concepts
- Project Evaluation and Rankings
- Key Takeaways

EBMUD's Water Supply System



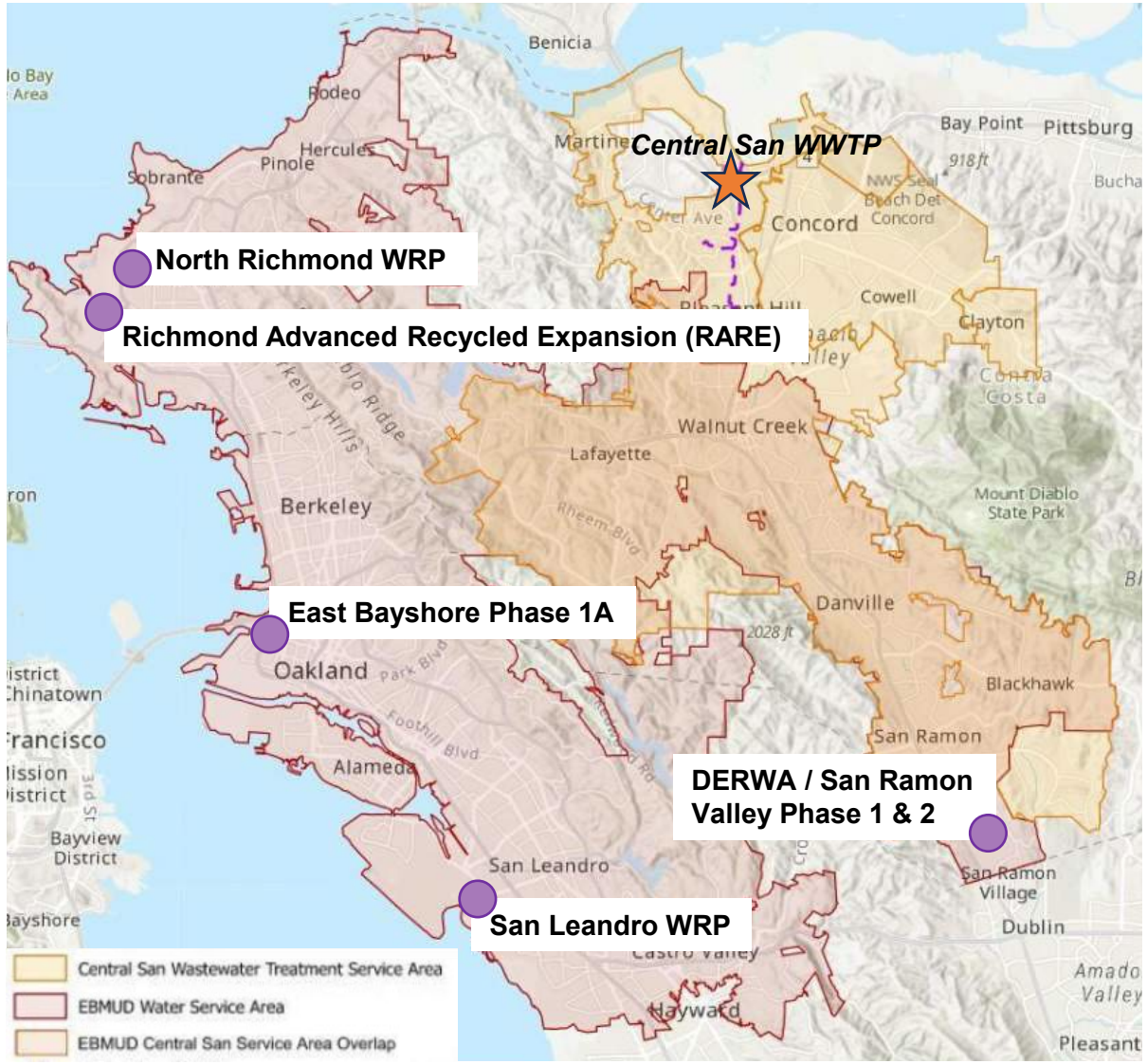
EBMUD's Water Portfolio

WATER CONSERVATION	RECYCLED WATER	GROUNDWATER	FREEPORT REGIONAL PROJECT	REGIONAL PARTNERSHIPS
70 MGD BY 2050	20 MGD BY 2040	STORAGE SUSTAINABLE MANAGEMENT	WATER PURCHASES	BUILD INTERTIES & COOPERATION

MGD: million gallons per day

EBMUD's Recycled Water Program

- Existing recycled water projects serve irrigation and industrial customers in EBMUD's water service area
- Current capacity: 9 million gallons per day (MGD)
- Goal: 20 MGD by 2040

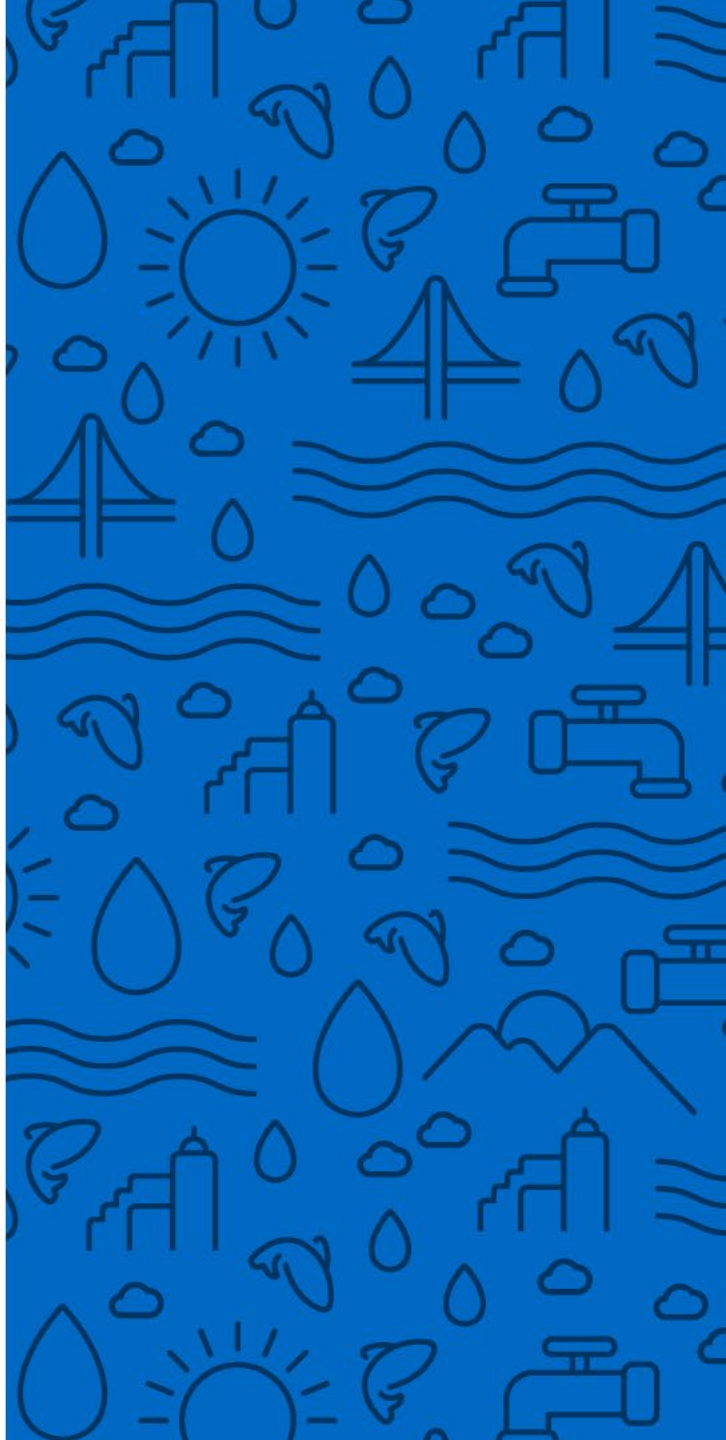


WRP = water recycling plant
WWTP = wastewater treatment plant
DERWA = Dublin San Ramon Services District – EBMUD Recycled Water Authority

Feasibility Evaluation Background

- Central San identified as potential partner for regional recycled water opportunities in EBMUD's 2019 Recycled Water Master Plan Update
- Memorandum of Understanding between EBMUD and Central San executed in October 2022 to further explore recycled water partnership opportunities
  - Evaluate non-potable and potable reuse project concepts
  - EBMUD to lead development of the feasibility study

Summary of Recycled Water Project Concepts



Non-Potable Reuse Project Summary

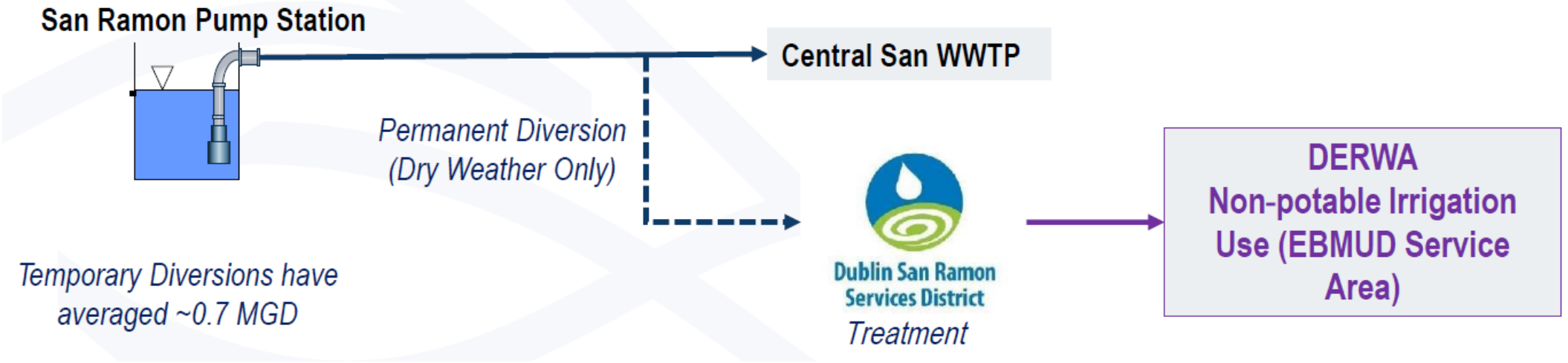
Project Concept	Average Capacity/Yield	Estimated Every Year Unit Cost ($/AF)	Recommended for Consideration of Near-Term Implementation?
Lamorinda Project	<1 MGD/1,000 AFY	$18,500	No – significant cost, low amount of potable water savings
Satellite Water Recycling Facilities	<0.5 MGD/250 AFY per customer	$9,500	Continue to support customers considering self-funding satellite projects
DERWA Expansion	Up to 3 MGD/2,200 AFY	$1,350	Yes – lower cost project, proof of concept through temporary diversions
Refinery Recycled Water Exchange	Up to 13 MGD to refineries Yield to EBMUD through exchange: Up to 6.5 MGD/ 7,300 AFY	$5,600*	No – water supply benefit to EBMUD is limited, uncertainty associated with future refinery demands/operations

*Cost of Central San's upgrades for nutrient removal not included

MGD = million gallons per day
AF = acre-feet
AFY = acre-feet per year
DERWA = Dublin San Ramon Services District – EBMUD Recycled Water Authority

DERWA-Central San Diversion Project

- Benefits: utilizes existing facilities, provides up to 3 MGD in supplemental supply to DERWA to serve EBMUD/Central San customers, potential to provide nutrient discharge reduction benefits to Central San
- Challenges: potential institutional and technical issues
- Next steps: address issues identified and develop long-term agreement



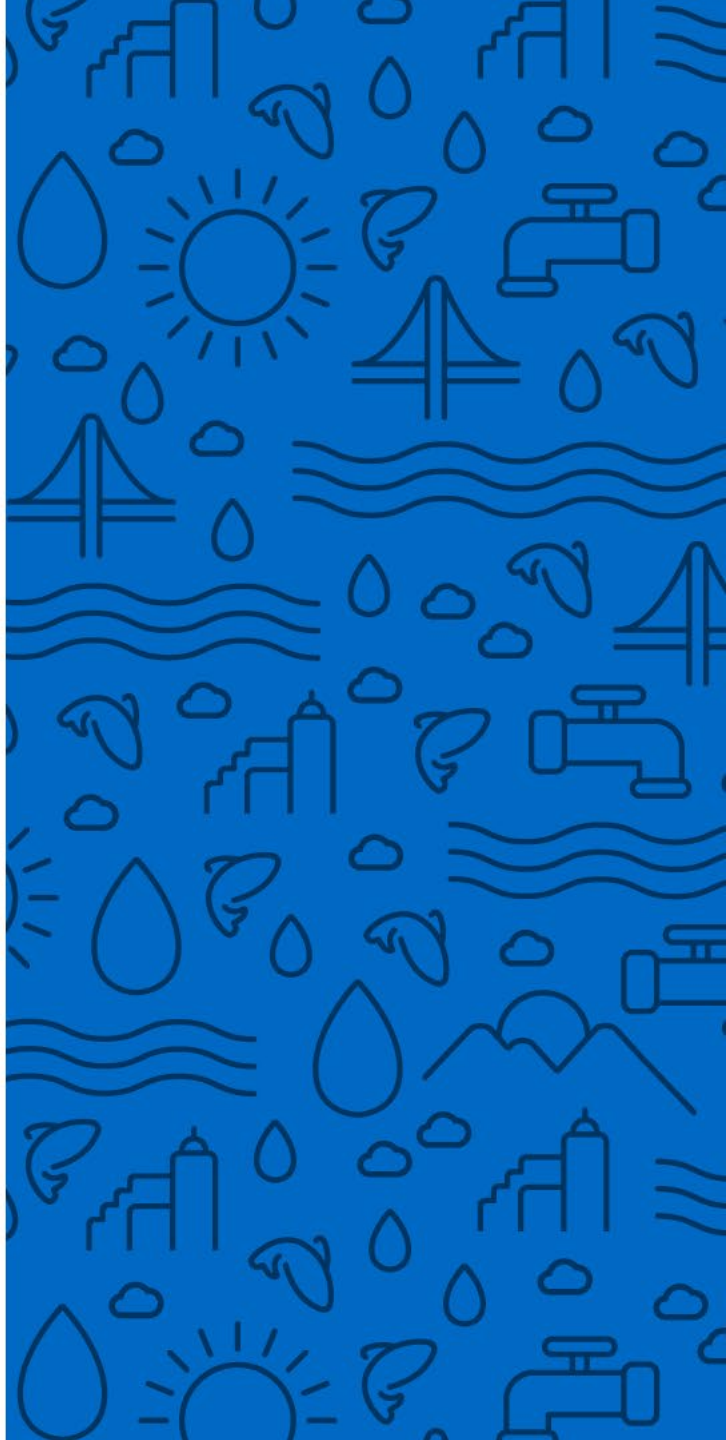
Potable Reuse Project Summary

Project Concept	Average Capacity/Yield	Estimated Every Year Unit Cost ($/AF)	Recommended for Further Evaluation?
Indirect Potable Reuse – Los Vaqueros Reservoir	Up to 17.9 MGD/20,000 AFY in supply to Los Vaqueros	$4,700*	No – significant institutional and permitting challenges
Indirect Potable Reuse – Briones Reservoir	17.9 MGD/20,000 AFY	$3,700*	Yes – compare against other IPR alternatives
Direct Potable Reuse – Mokelumne Aqueducts	17.9 MGD/20,000 AFY	$3,600*	Yes – compare against other DPR alternatives
Direct Potable Reuse – Walnut Creek WTP	17.9 MGD/20,000 AFY	$3,900*	Yes – compare against other DPR alternatives

*Cost of Central San's upgrades for nutrient removal not included

MGD = million gallons per day
AF = acre-feet
AFY = acre-feet per year
WTP = water treatment plant

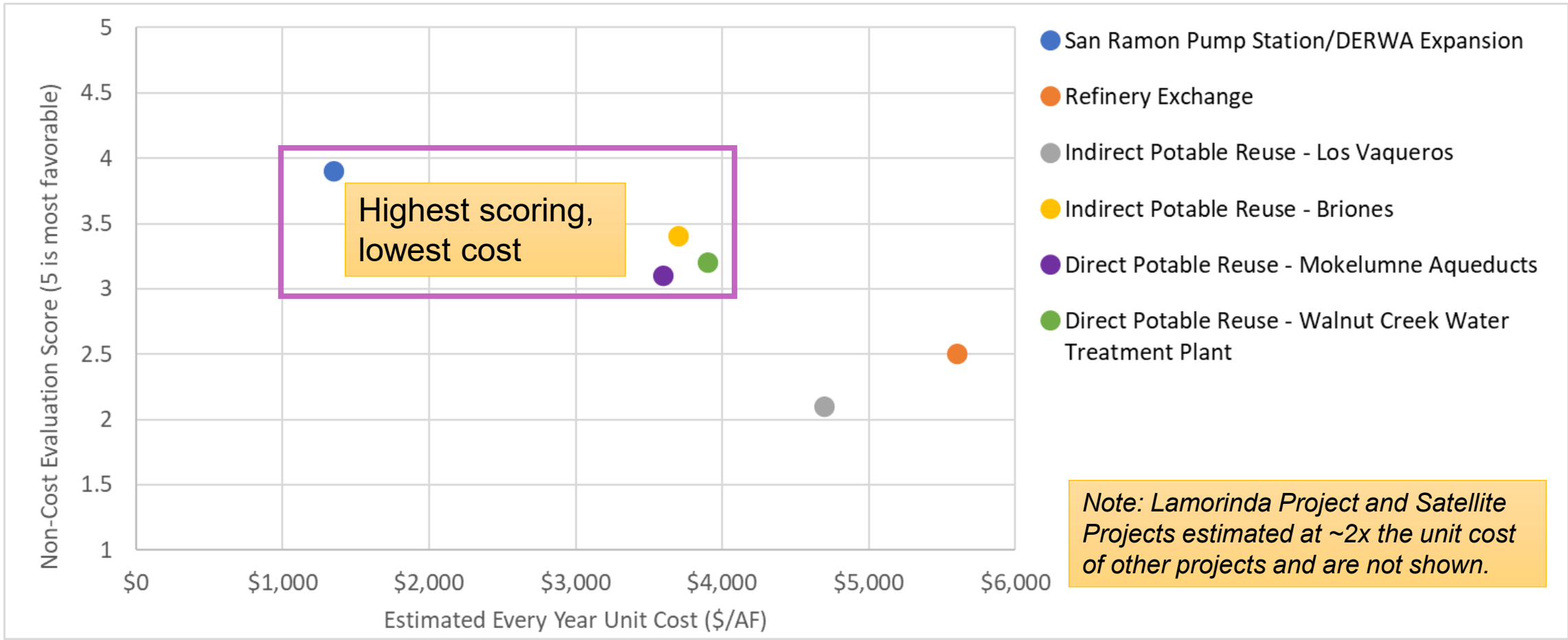
Project Evaluation and Rankings



Evaluation Criteria

Criteria	Assessment
Regulatory requirements	Challenges, requirements, and time to implement the project from a planning and permitting perspective.
Treatment requirements	Additional treatment needs for beneficial use.
Implementation challenges	Impact on EBMUD operations, complexity of the alternative, and how challenging it will be to implement.
Environmental justice/equity	Customer base impacted by new supply and percentage of EBMUD's service area served with new supply.
Public outreach needs	Level of outreach needed for public acceptance.
Institutional complexities	Number of institutional partners needed (additional agencies involved).
Climate change resiliency	Project resiliency to climate change.

Projects for Further Consideration



Key Takeaways

- Recycled water demands impact project viability
  - Customer conservation – reduced irrigation demands
  - Refinery industry changes and future uncertainty
- Barriers to implementing potable reuse – intermittent need for supply, high project costs, complex permitting and operations
- Multi-agency collaboration and partnerships are key to enhancing regional water supply reliability

Questions?

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