

Burlingame Recycled Water and Wastewater Discharge Reduction Project



01/20/26 – BACWA Recycled Water Committee Update

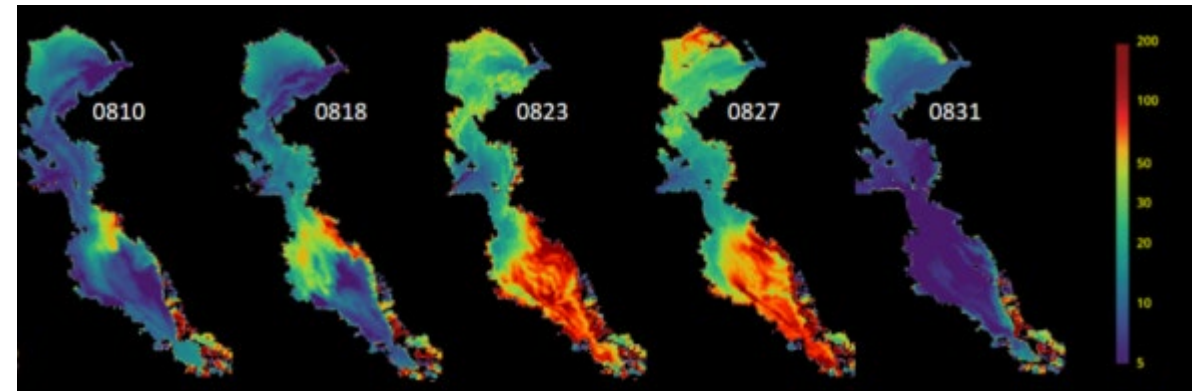
Agenda

- Project Goals
- Project Area
- Project Status
- Reuse Strategies
- Nutrient Reduction Strategies
- Alternatives Walk-through
- Q&A

Project Goals



- Reduce drought vulnerability and supplement water supply via water reuse

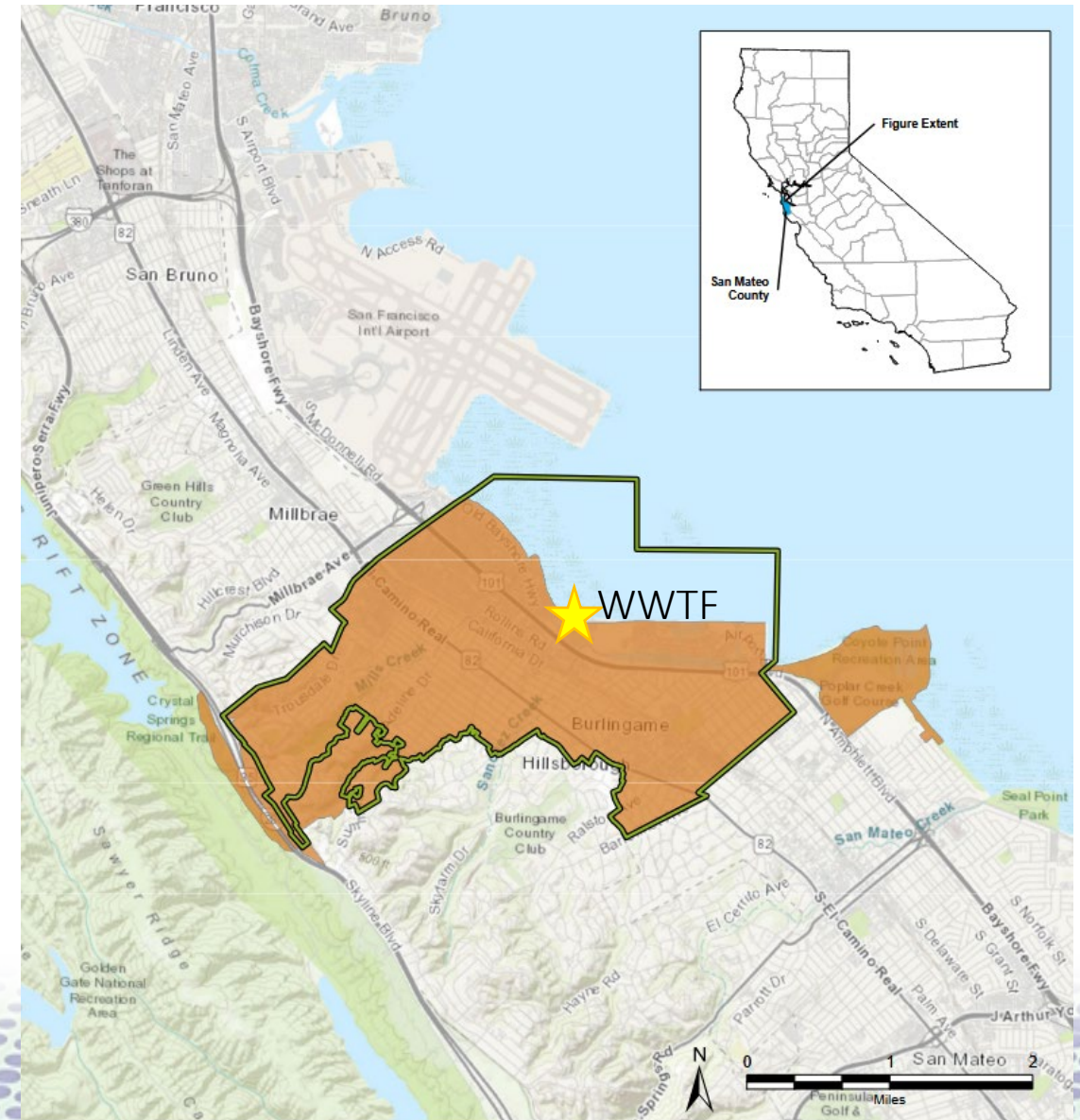


Chlorophyll estimates (mg/M³) during August 2022 algal bloom (SFEI, 2023).

- Improve environment and achieve compliance (RWQCB Order R2-2024-0013) by reducing TIN discharge to SF Bay by 40%.

Project Area

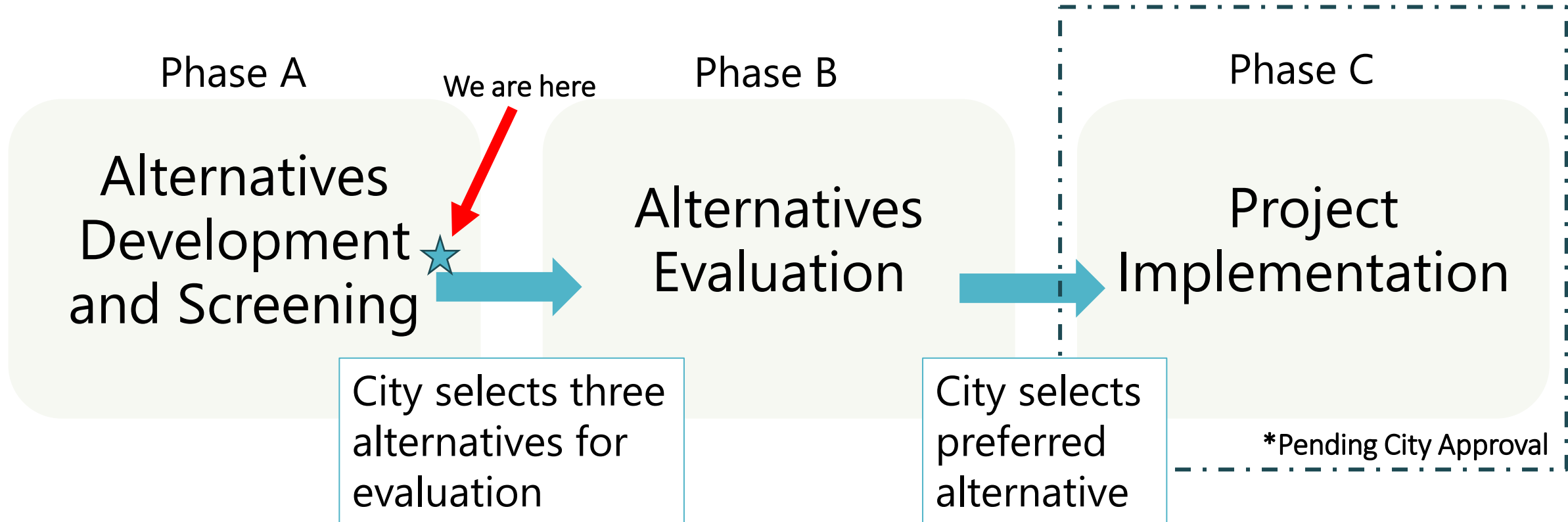
- Population: ~31,000
- Water: From SFPUC
- Wastewater: City treats and discharges to South San Francisco through a shared force main.



Legend

- City of Burlingame Water Service Area
- City of Burlingame Boundary

Project Status



Reuse Strategies

- **Recycled Water – Non-Potable Reuse**
 - Primarily irrigation, with some industrial/commercial opportunities in Burlingame
- **Purified Water – Indirect/Direct Potable Reuse**
 - Indirect:
 - *Treated water - Groundwater injection*
 - *Treated water - Surface water augmentation*
 - Direct:
 - *Purified water blended with treated drinking water supply and distributed throughout system*

Nutrient Reduction Strategies

- **Diversion via Recycled Water Supply**
 - Considering the identified users, achieves partial compliance
- **Wastewater Treatment Process Optimization/Densification**
 - May not be sufficient to meet RWQCB requirements alone
- **Water Quality Trading Program**
 - Freshwater Trust's feasibility study indicates viable
- **Membrane Bioreactor (MBR) Upgrade**
 - More expensive, would meet RWQCB nutrient requirements
- **Other treatment options:**
 - Membrane Aerated Bioreactor, Biological Aerated Filter + Denitrification Filters

Alternatives Development

- Outreach meetings with several potential project partners:
 - *SFPUC, Millbrae, OneShoreline, San Bruno, San Mateo, BAWSCA, SVCW, Cal Water, Poplar Creek Golf Course*
- Nearly 20 potential project scenarios were considered:
 - *10+ Recycled water scenarios*
 - *4 Indirect Potable Reuse scenarios*
 - *3 Direct Potable Reuse scenarios*
- Alternatives ruled out based on feasibility, cost effectiveness, interest of project partners
- Reduced to short-list of 4 potential alternatives (for now)

Alt. 1 Cloth Filtration Purple Pipe RW

- Treatment: Tertiary cloth filtration/disinfection at Burlingame WWTF
- Infrastructure: New RW distribution system in East side of City
- Project Partners: Millbrae (potential)
- Nutrient Strategy: Nutrient diversion via RW, coupled with WWTF optimization/densification or credit purchase



Pros	Cons	Meets Water Supply Goal?	Meets Nutrient Removal Goal?
<ul style="list-style-type: none">• Low cost• Operationally simple	<ul style="list-style-type: none">• Small, seasonal water supply benefit• Requires additional WWTF optimization/densification	✓	✓ With WWTF optimization or credit purchase

Alt. 2 MBR Purple Pipe RW

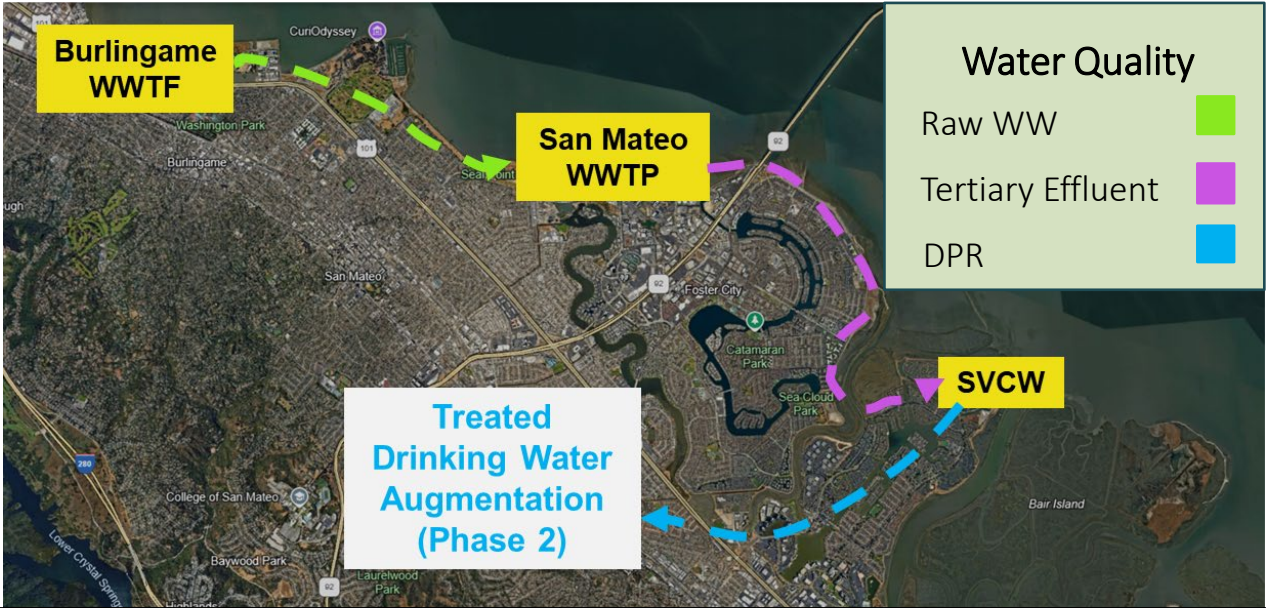
- Treatment: MBR/disinfection at Burlingame WWTF
- Infrastructure: New RW distribution system in East side of City
- Project Partners: Millbrae (potentially)
- Nutrient Strategy: MBR treatment



Pros	Cons	Meets Water Supply Goal?	Meets Nutrient Removal Goal?
<ul style="list-style-type: none"> • MBR process should fully satisfy RWQCB TIN reduction requirements • Potential water quality credit generation • Produces high-quality, "RO-ready" effluent 	<ul style="list-style-type: none"> • Added costs/operational complexity • Small, seasonal water supply benefit 	<div>✓</div>	<div>✓</div>

Alt. 3 DPR – PureWater Peninsula Add-on

- Treatment: Shared DPR treatment at SVCW
- Infrastructure: New WW conveyance to San Mateo WWTP
- Project Partners: [PureWater Peninsula Partners](#)
- Nutrient Strategy: MBR treatment at San Mateo



Pros	Cons	Meets Water Supply Goal?	Meets Nutrient Removal Goal?
<ul style="list-style-type: none">• Accomplish nutrient compliance in near term• PureWater Peninsula is a mature project with momentum	<ul style="list-style-type: none">• TIN compliance dependent on San Mateo• Reliant on several Agencies’ timelines to receive water supply benefit• Bureaucratic challenges of a project with 7+ partners	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

PureWater Peninsula

- [Basis of Design Report](#) completed in 2024
- Phase 2 planned for 2040

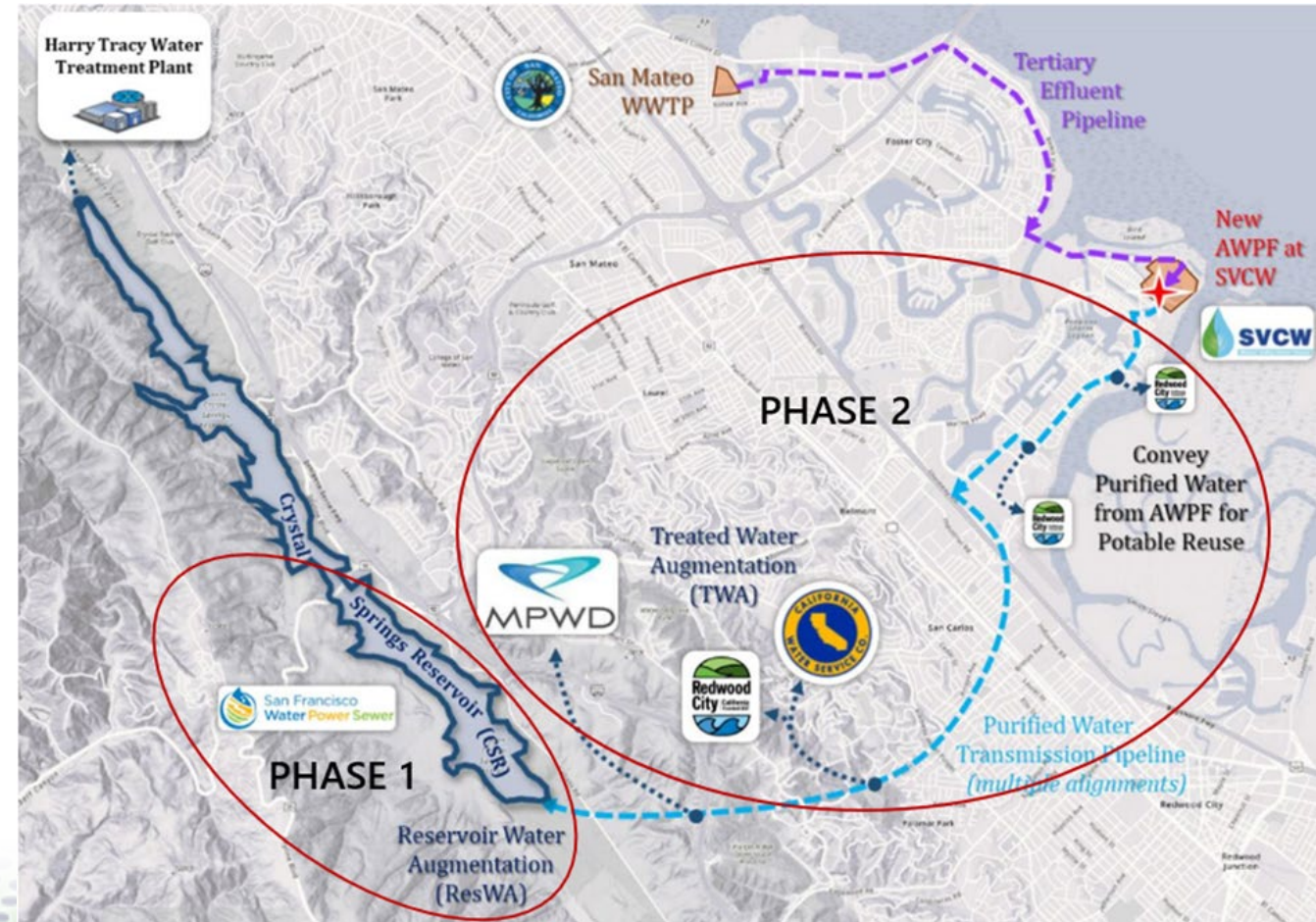


Image courtesy of the SFPUC. [2024 Pure Water Peninsula Basis of Design Report](#)

Alt. 4: DPR – Burlingame + San Mateo

- Treatment: Shared DPR treatment at San Mateo WWTP
- Infrastructure: New WW conveyance to San Mateo WWTP
- Project Partners: San Mateo, Cal Water
- Nutrient Strategy: MBR treatment at San Mateo



Pros	Cons	Meets Water Supply Goal?	Meets Nutrient Removal Goal?
<ul style="list-style-type: none"> • More control over implementation timeline • Avoids costly conveyance from San Mateo to SVCW 	<ul style="list-style-type: none"> • TIN compliance dependent on San Mateo • Larger capital investment • Larger operating expenses 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Summary – Viable Alternatives

Alt.	Description	Nutrient Compliance Strategy
1	Cloth Filtration Purple Pipe RW	Diversion + Optimization or Credit Purchase
2	MBR Purple Pipe RW	MBR Treatment Upgrade
3	DPR – PureWater Peninsula Add-on	MBR Treatment at San Mateo
4	DPR – Burlingame + San Mateo	MBR Treatment at San Mateo

Other Considerations

- Extend RW service into San Mateo area?
- Horizontal Levee for reverse osmosis concentrate management?
 - Multi-benefit solution with nutrient and CEC treatment potential
- Monitor BACWA Water Quality Trading program developments
- Incorporate PFAS treatment?



Image courtesy of the City of Palo Alto. [Palo Alto Horizontal Levee Pilot Project – City of Palo Alto, CA](#)

Next Steps

- Additional analysis to complete alternatives development
- Further refine candidate alternatives
- Select three alternatives to take forward
- Prepare Feasibility Study and develop detailed cost estimates

Q & A

- Thank you!