



STERLING NATURAL RESOURCE CENTER PERMITTING & POST COMMISSIONING FOLLOW-UP



WaterReuse Inland Empire
April 2025

EAST VALLEY
WATER DISTRICT

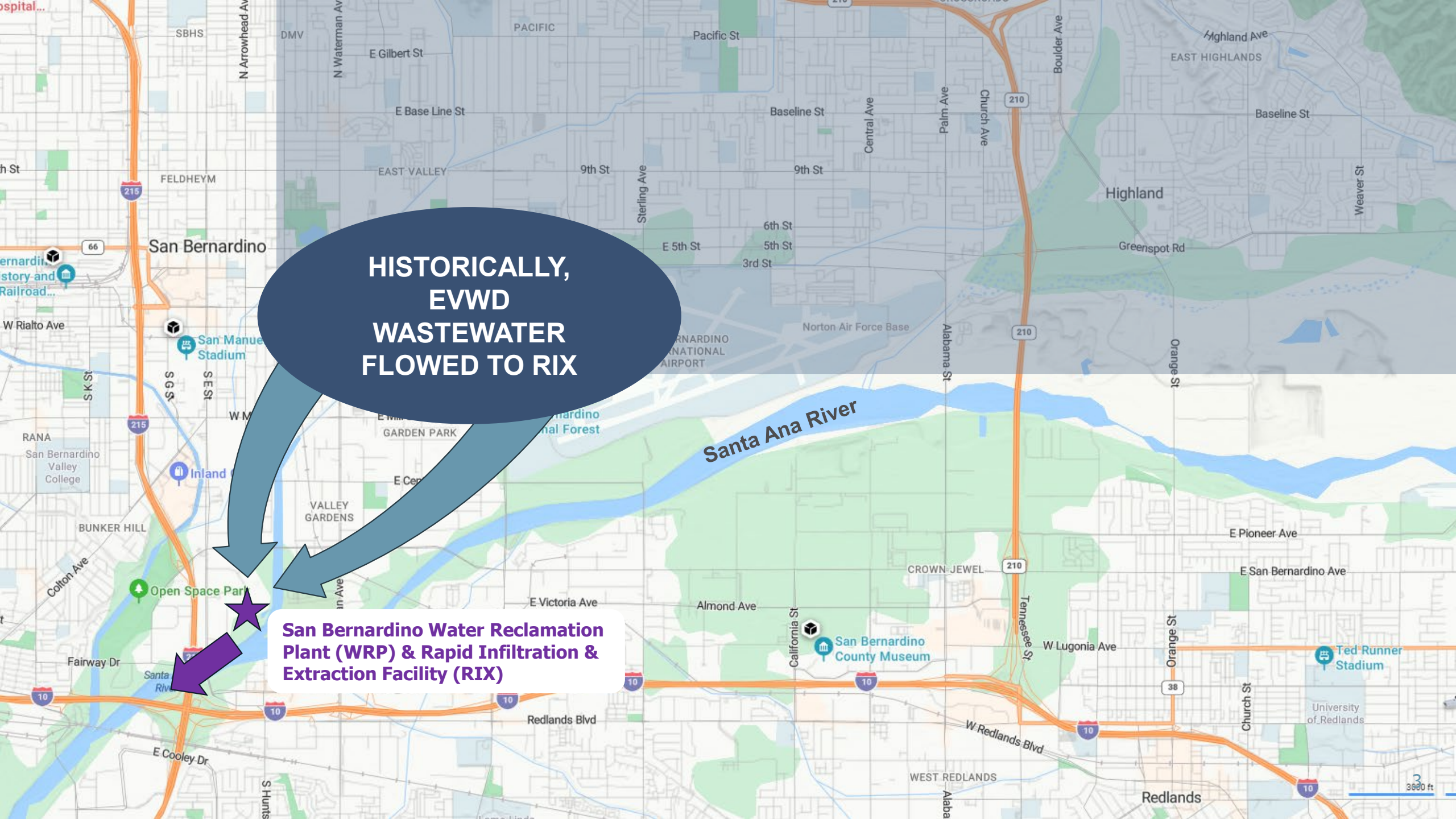
STERLING NATURAL RESOURCE CENTER

- Treats and reclaims up to 8 million gallons of wastewater per day
 - Current plant flow 6.1 mgd
- Conveys recycled water for recharge to the local Bunker Hill B groundwater basin
- Partnership among regional water agencies



**HISTORICALLY,
EVWD
WASTEWATER
FLOWED TO RIX**

**San Bernardino Water Reclamation
Plant (WRP) & Rapid Infiltration &
Extraction Facility (RIX)**



**NOW, EVWD
WASTEWATER
FLOWS TO SNRC**

**Sterling Natural Resource
Center (SNRC)**

**San Bernardino Water Reclamation
Plant (WRP) & Rapid Infiltration &
Extraction Facility (RIX)**

**Weaver
Basins**

Santa Ana River

3000 ft

PROJECT FACILITIES

- New Membrane Bio-Reactor (MBR)/Ultraviolet (UV) tertiary treatment plant
 - MBR uses Title 22 approved filtration technology to produce tertiary effluent
 - UV disinfection uses UV light to kill/inactivate microorganisms
- Recycled water pump station
- Regional recycled water conveyance pipeline
- Discharge to Weaver Basins





OPERATION: JANUARY 2024



BUILDING ON A GREENFIELD SITE – LESSONS LEARNED

- Significant community outreach and engagement from the start and continued throughout
 - Partnering with community leaders to build support
- Emphasis on community benefits – administration/community center and park
- Investments in noise and odor control
 - Construction start times pushed back due to proximity to residences
- Coordination w/municipality on basic street improvements
- Unique permit conditions – next on today's agenda



SNRC PERMITTING — FOLLOW-UP



OPERATIONAL STUDIES

In Situ Study for TOC Compliance

- Lysimeter-based monitoring program at the recharge basins to demonstrate soil-aquafer treatment (SAT) efficacy
- Lysimeter constructed in Basin 4 and weekly sampling is underway

Tracer Study for Travel Time Verification

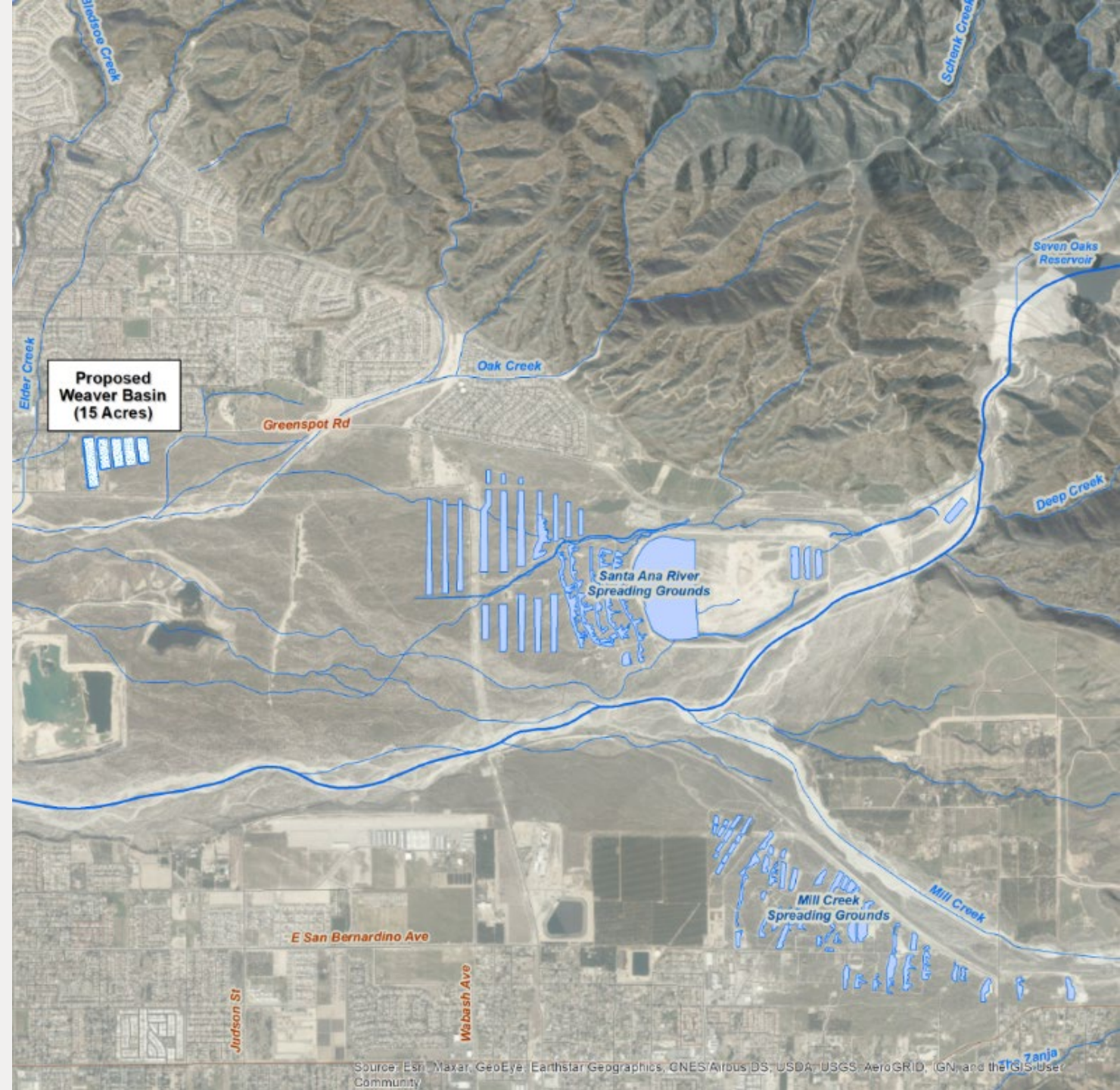
- Monitoring program at MW-A to understand and validate travel time estimated in hydrogeological modeling
- Work plan has been submitted to DDW for review and approval



SOURCES OF DILUENT WATER

Groundwater Underflow:

- Streambed Percolation
- Deep Percolation from Precipitation
- Return Flow from Applied Water
- Recharge from Mountain Front Runoff
- Artificial Recharge of Imported Water



ANNUAL RWC MANAGEMENT PLAN

- Annual analysis to verify RWC – calculated based on diluent/underflow, recycled water, and NEW imported/local recharge
- **Underflow** estimated as annual average from T22 Darcian calcs
 - Underflow accounts for historical surface water and SWP recharge
- SNRC **recycled water** discharge escalated from 6.3 MGD (7,080 AFY) in 2024 at start-up to 7.4 MGD (8,250 AFY) in year 2045
 - Will be updated with actuals each year
- Considers **NEW surface water recharge** through San Bernardino Valley's and Water Conservation District's recharge basins
 - San Bernardino Valley is building new Plunge Creek Basin due east of Weaver Basins – will provide additional diluent once complete
 - Given proximity to Weaver Basins, account for “combined recharge area” = 100% diluent

SALINITY MANAGEMENT – COLLABORATIVE APPROACH

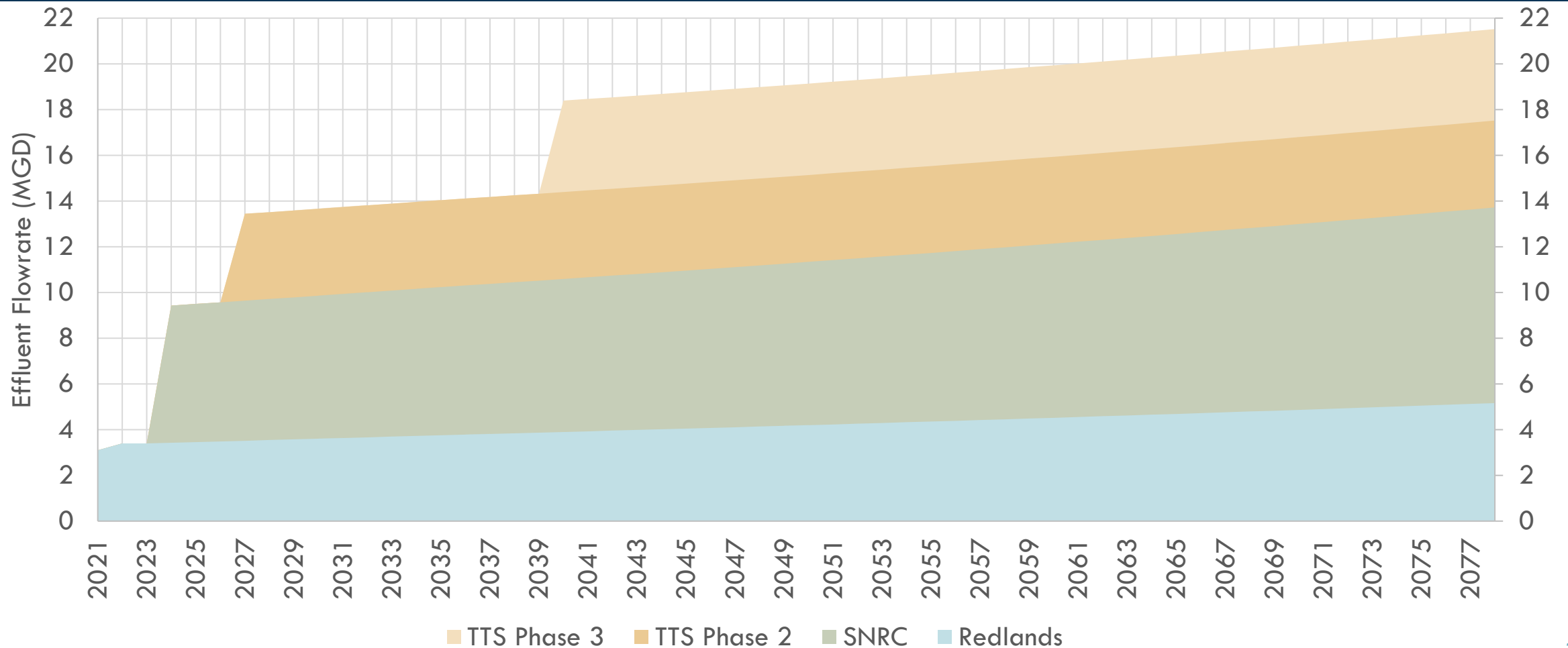


SALINITY MANAGEMENT

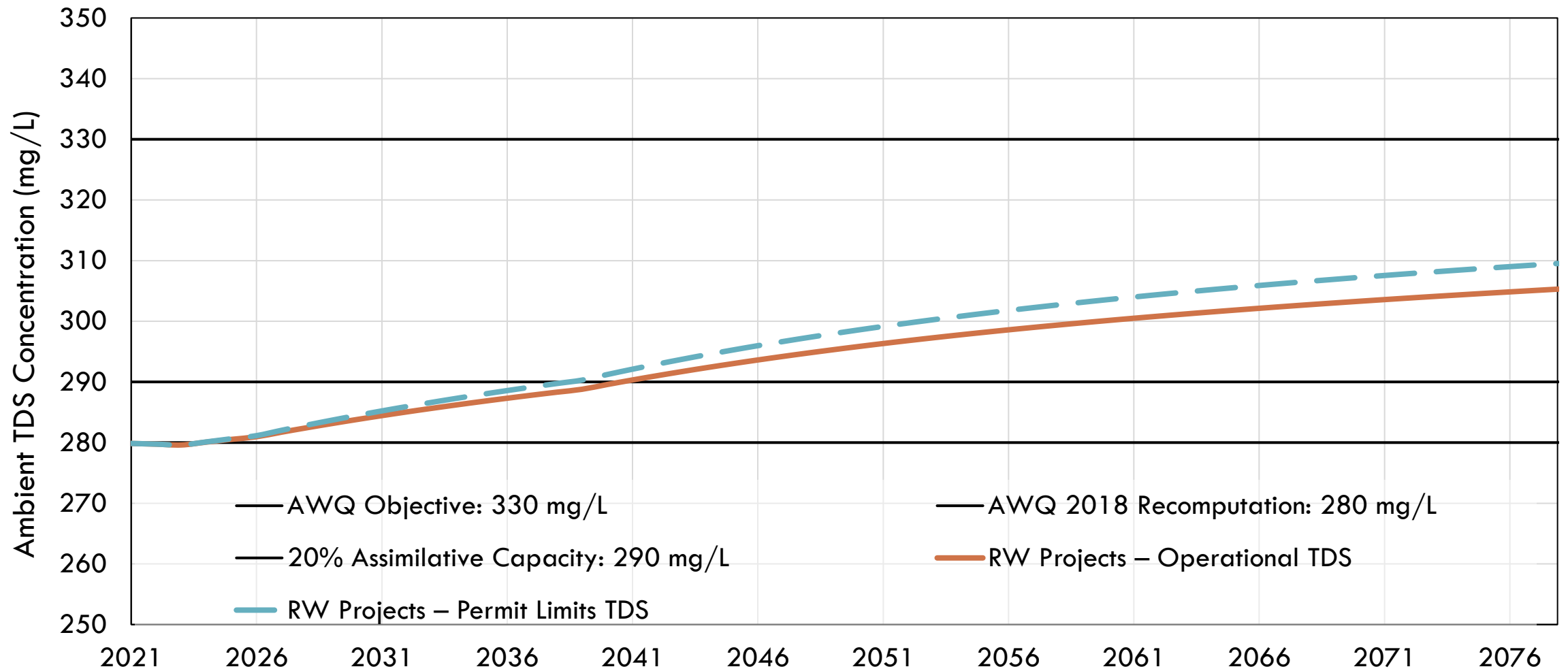
- Antidegradation Analysis showed SNRC discharges are within basin's assimilative capacity
 - 4.2% increase in TDS with SNRC discharges
- RWQCB requested cumulative modeling - concerned about allocating assimilative capacity to SNRC with 2 other upcoming projects
 - East Valley Water District
 - City of Redlands
 - City of San Bernardino



Total Projected Recycled Water Discharge to BH-B



Projected Ambient Total Dissolved Solids (TDS) Concentration in Bunker Hill B GMZ



SNRC Permit and Coalition Commitments



Sterling Natural Resource Center Waste Discharge Requirements

Agency: East Valley Water District

Consultant Support for Permitting: Rincon Consultants

Special Provision VIII (G): Mitigation to Prevent Cumulative Impacts to the Assimilative Capacity of Bunker Hill-B GMZ. Coalition shall:

- Feasibility Study scope by January 2024
- Feasibility Study by June 2025
- Salt Mitigation Implementation Plan by December 2025
- Initiate design of TDS strategy by December 2027
- Initiate construction of TDS strategy by December 2031



Bunker Hill Basin Regional Recycled Water Coalition

Agencies: San Bernardino Valley, East Valley Water District, City of Redlands, San Bernardino Municipal Water Department

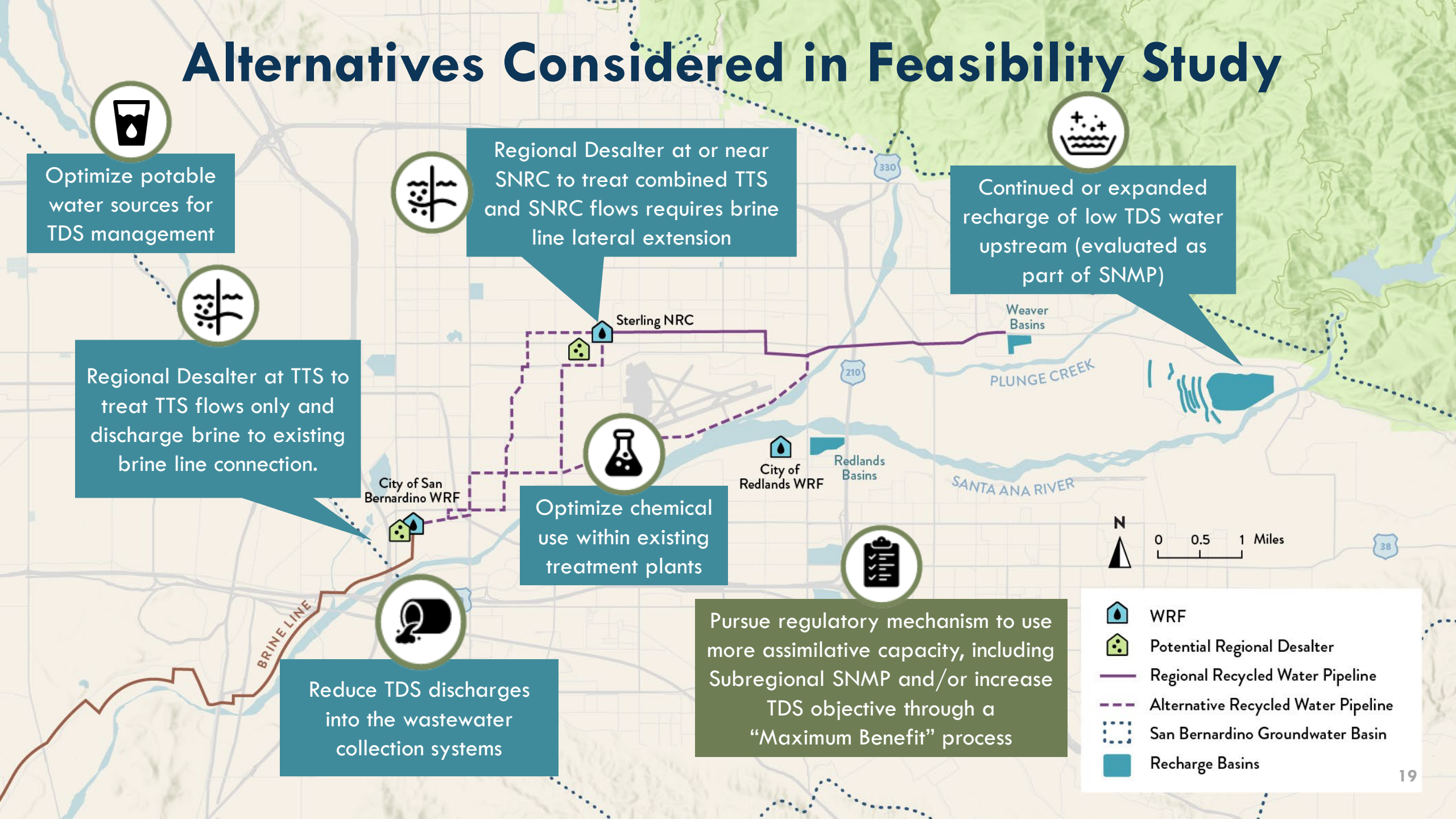
Consultant Support for Program Management and Implementation Plan: Rincon Consultants

Consultant for Bunker Hill Basin Regional Recycled Water Salinity Management Feasibility Study: WSC, Trussell Technologies

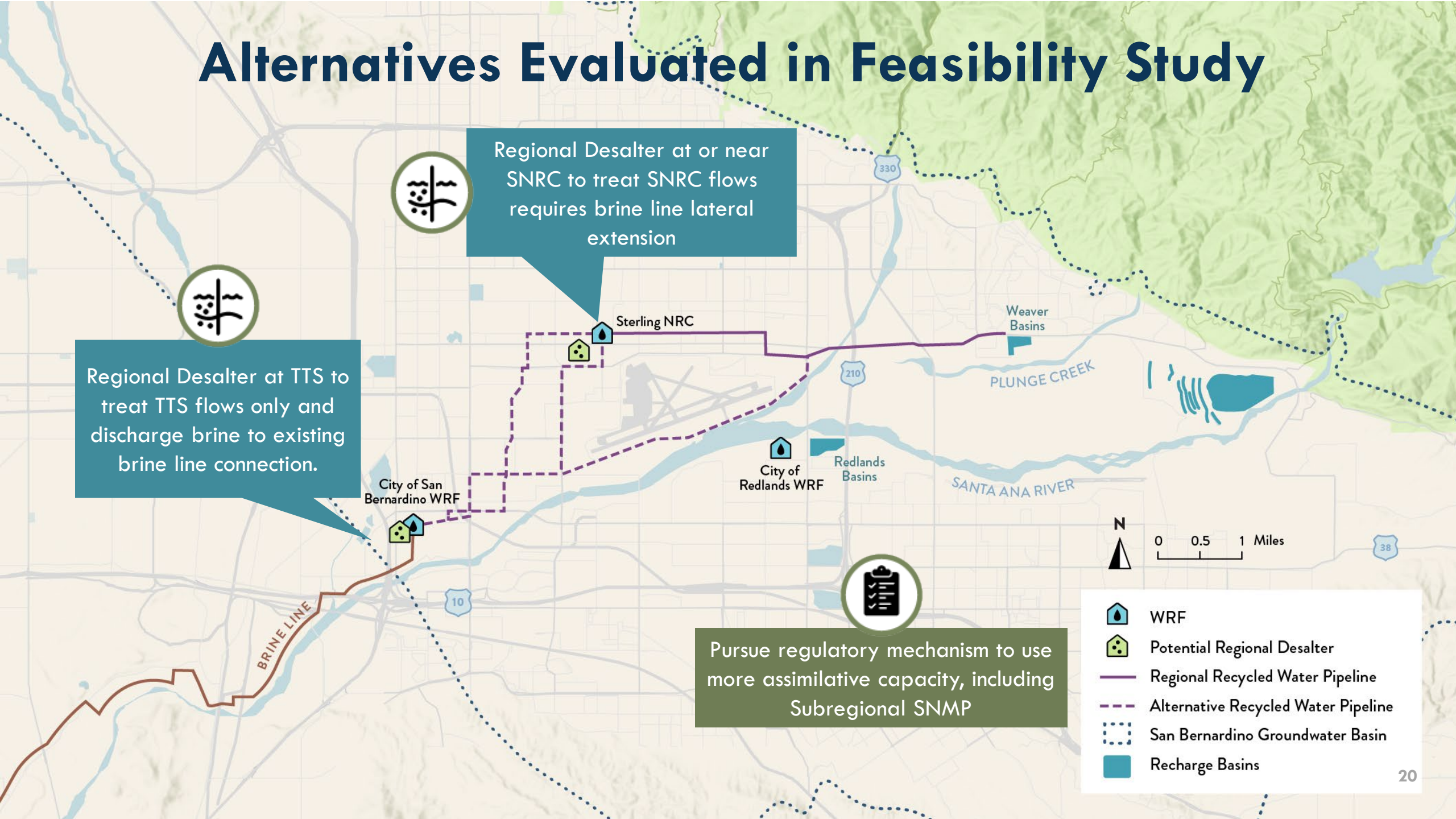
Alternatives process is considering:

- 3 near-term regional desalter alternatives
- Subregional SNMP alternative (future desalter + near term commitments)

Alternatives Considered in Feasibility Study



Alternatives Evaluated in Feasibility Study



3 Conceptual Desalter Alternatives



Desalter Scenario 2

SNRC Recharge

Redlands Disposal

SBMWD TTS Phase 2 Recharge

Alternative 2A

Desalter at SNRC

- Requires brine line extension.
- Higher feed water quality.
- Small footprint available.
- Direct comparison of cost of treatment at SNRC vs. TTS.

Desalter Scenario 2

SNRC Recharge

Redlands Disposal

SBMWD TTS Phase 2 Recharge

Alternative 2B

Desalter at TTS

- Existing brine line connection.
- Large footprint available.
- Direct comparison of cost of treatment at SNRC vs. TTS.

Desalter Scenario 3

SNRC Recharge

Redlands Disposal

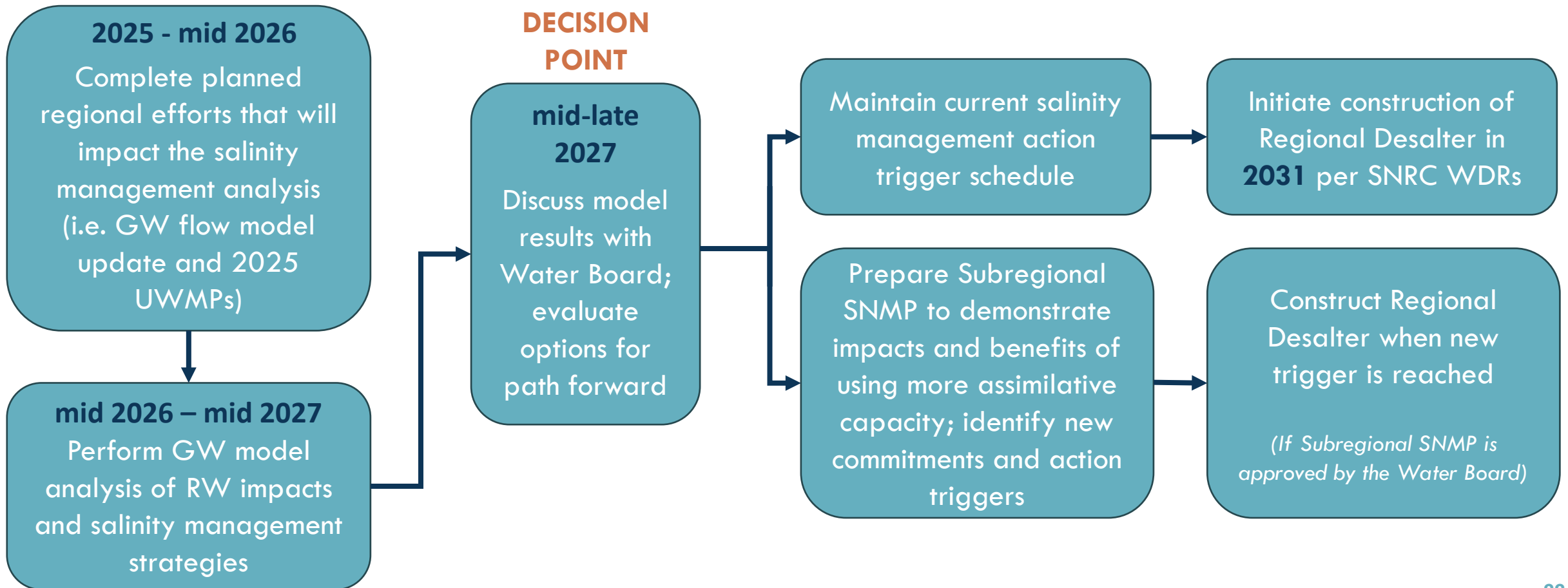
SBMWD TTS Phase 2 & 3 Recharge

Alternative 3B

Desalter at TTS

- Existing brine line connection.
- Large footprint available.
- Evaluates highest salt scenario for the RWB.

Proposed Path Forward for Bunker Hill Recycled Water Coalition



Link to Draft Feasibility Study:

<https://rinconconsultants.files.com/f/0ac5664ca6edfcd0>

Reach out to Rosalyn Prickett:

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THANK YOU!

QUESTIONS?

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