



REPLENISH
— *Big Bear* —

Replenish Big Bear Workshop

April 27, 2026

Survey Results



REPLENISH

Question	Yes	No	Other
I believe groundwater recharge is important to the Big Bear Valley.	4		
I would like to review alternative scopes of work and discharge locations (such as Greenspot).	4		
I would like to discuss alternative Program Water allocation options.	3	1	
I believe the current scope of work will meet the needs of my Member Agency.	2	2	
I believe the discharge location of Stanfield Marsh is fair and appropriate for my Member Agency.		2	1 – uncertain 1 – marked yes and no
I believe the current Program Water allocation is fair and appropriate for my Member Agency.	1	1	1 – N/A 1 – marked yes and no

PURPOSE

1. Current RBB Scope and Financial Impacts
2. Greenspot Recharge Alternative
3. Potential Grant Impacts
4. Questions for the Board



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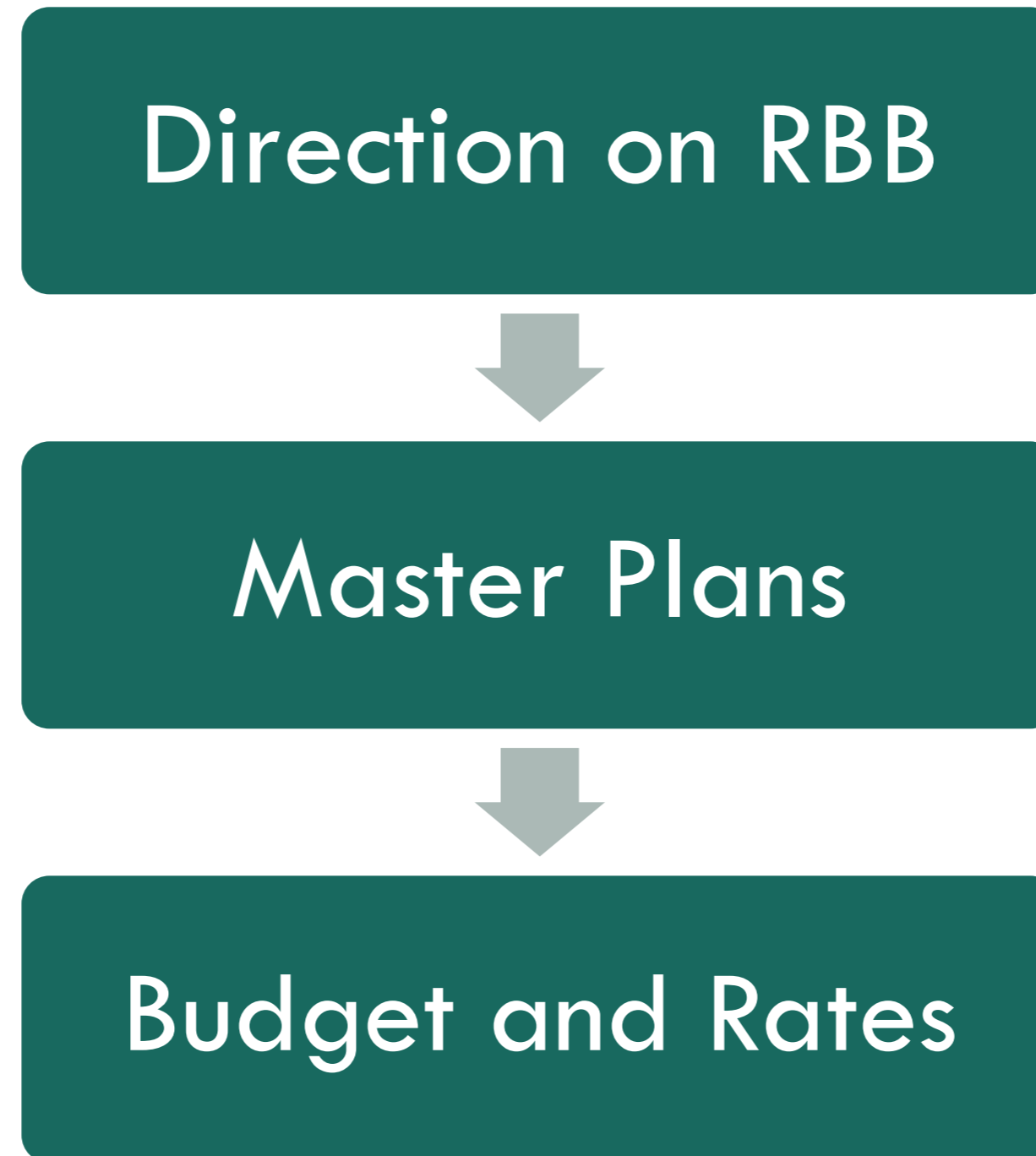
✘ NOT COVERED IN TODAY'S WORKSHOP

- Outfall Line repairs or replacements
- Changing regulatory requirements
- Funding and Financing Plan
- Updated financial impacts of stopping or pausing at PDR or final design



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Decision Flow Chart





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Current Scope of Work

Replenish Big Bear Program Overview



2,200 AFY

New Purified Water Source

All Purified Water

Stanfield Marsh/Big Bear Lake Discharge

Inflow from Marsh

Replenish Big Bear Lake

Future Option

Shay Pond Discharge




120 AFY

Golf Course Irrigation (GW Offset)

380 AFY

Sand Canyon Recharge

LEGEND

-  New Pipeline
-  Existing Pipeline
-  Pump Station



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Project Expenditures as of 2/28/26

Expenditure Category	Amount
Planning	\$5,207,630
Final Design	1,080,760
Construction	0
Short-Term Financing	396,251
Finance Costs	284,485
Total	\$6,969,126



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Funding Sources as of 2/28/26

Funding Source	Amount
Program Partner Contributions	\$884,848
Grant Reimbursements (including reimbursement requests)	4,417,796
Agency Sewer User Charge	1,666,482
Total	\$6,969,126



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October 2025 Cost Estimate



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Basis of Cost Estimate

- AACE Class 3
 - Project Definition: 25%
 - Accuracy Range: -15% to +20%
- Cost Sources
 - Vendor and Manufacturer Equipment Proposals
 - Contractor Outreach
 - Unit Quantity Takeoffs
 - Engineering Judgment based on Past Project Bids and Estimates
- Dollar Basis: November 2025
- Build America, Buy America (BABA) and Tariffs Not Factored Into Estimate

Project Capital Cost



Cost Item	Markup	Cost
Treatment		\$52,880,000
Effluent Pump Station and Pipeline		\$7,327,000
Evaporation Pond		\$3,538,000
Monitoring Wells		\$132,000
	Subtotal	\$63,877,000
Unaccounted for Costs	2%	\$1,278,000
Contractor OH&P	15%	\$9,582,000
General Conditions	3%	\$1,917,000
	Construction Cost Subtotal	\$76,654,000
Construction Contingency	15%	\$11,499,000
Implementation Costs		\$16,868,000
	Total Project Cost	\$105,021,000



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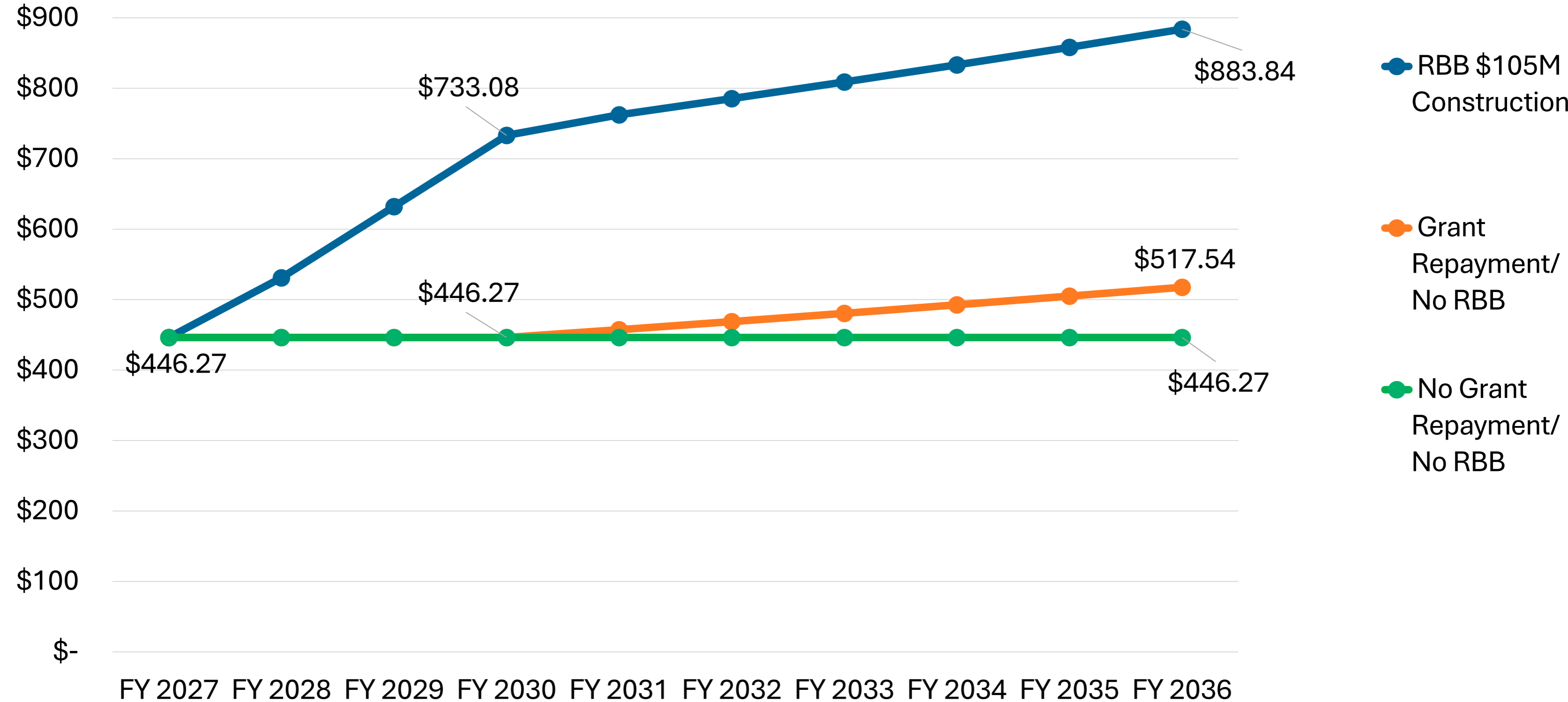
Annualized O&M Cost

- Energy (\$0.11/kW-hr)
- Chemical Deliveries
- Equipment Replacements
- Labor (Administrative, O&M, Lab Analysis)
- NPDES Monitoring for Compliance
- Compliance Activities for Discharge Permit
- Conservatively assumes 12-months of operation
- 20-year basis

Annual O&M Cost	Full-Time Equivalent Labor Increase
\$4,331,000	6.15 FTE



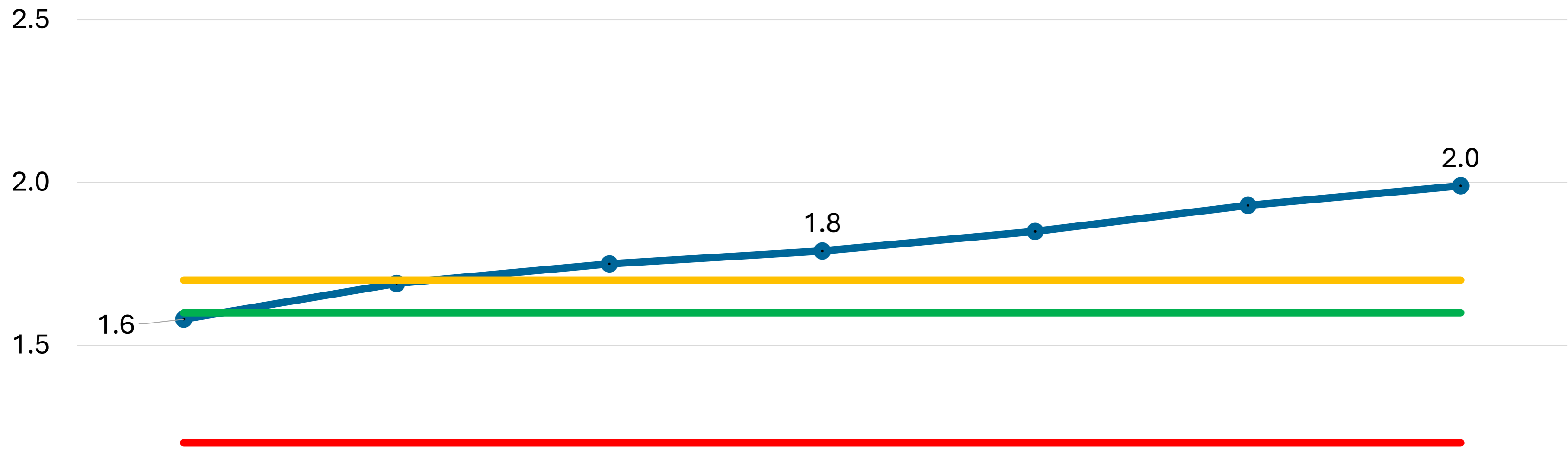
Preliminary Future Rate Increase Scenarios





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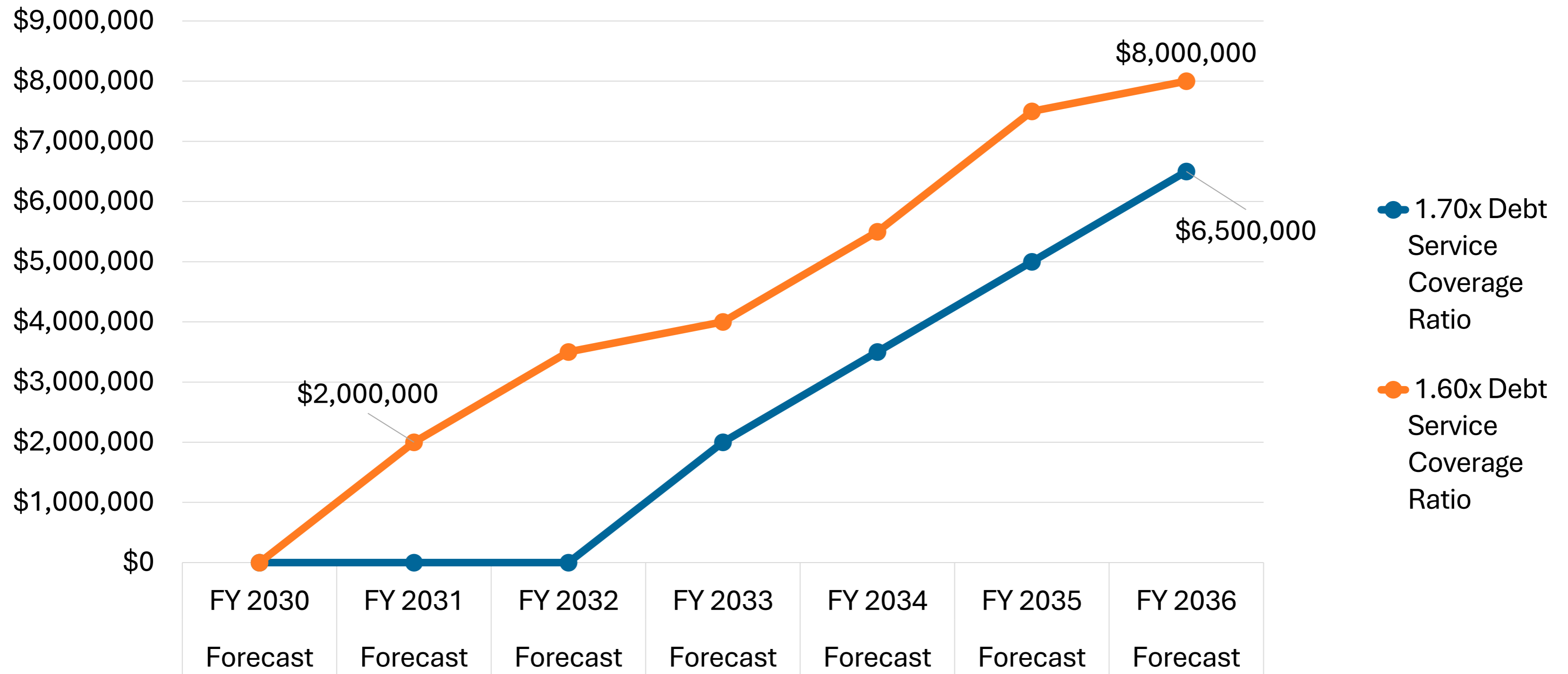
Debt Service Coverage with RBB Construction



FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast

● RBB 105M Construction
 — Covenant Level 1.2x
 — Minimum Target Level 1.6x
 — Target Level 1.7x

Borrowing Capacity with RBB Construction

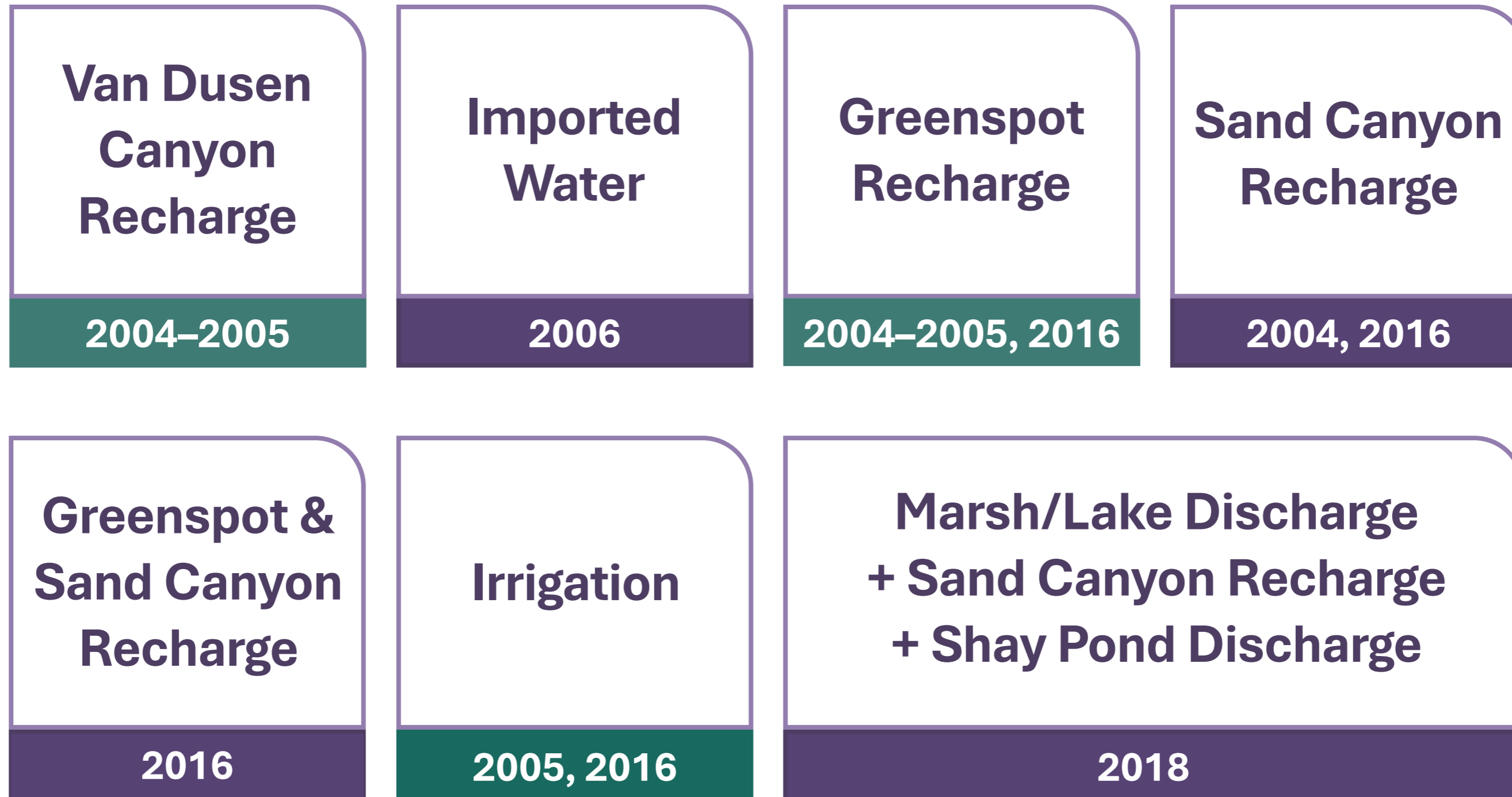




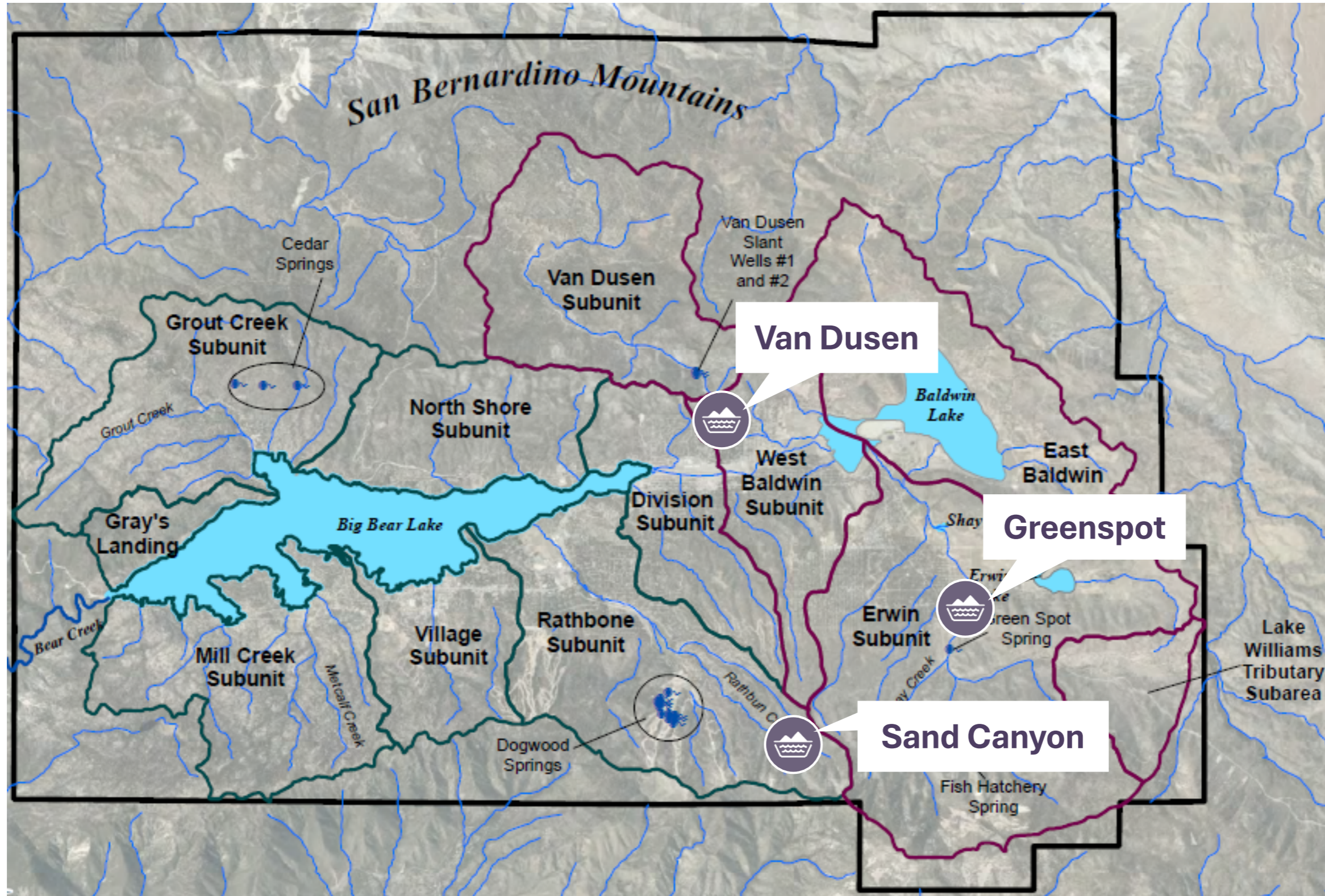
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Alternative Options

Recycled Water Alternatives Evaluated Since 2004



Potential Recharge Locations within Big Bear Valley Groundwater Basin Subunits



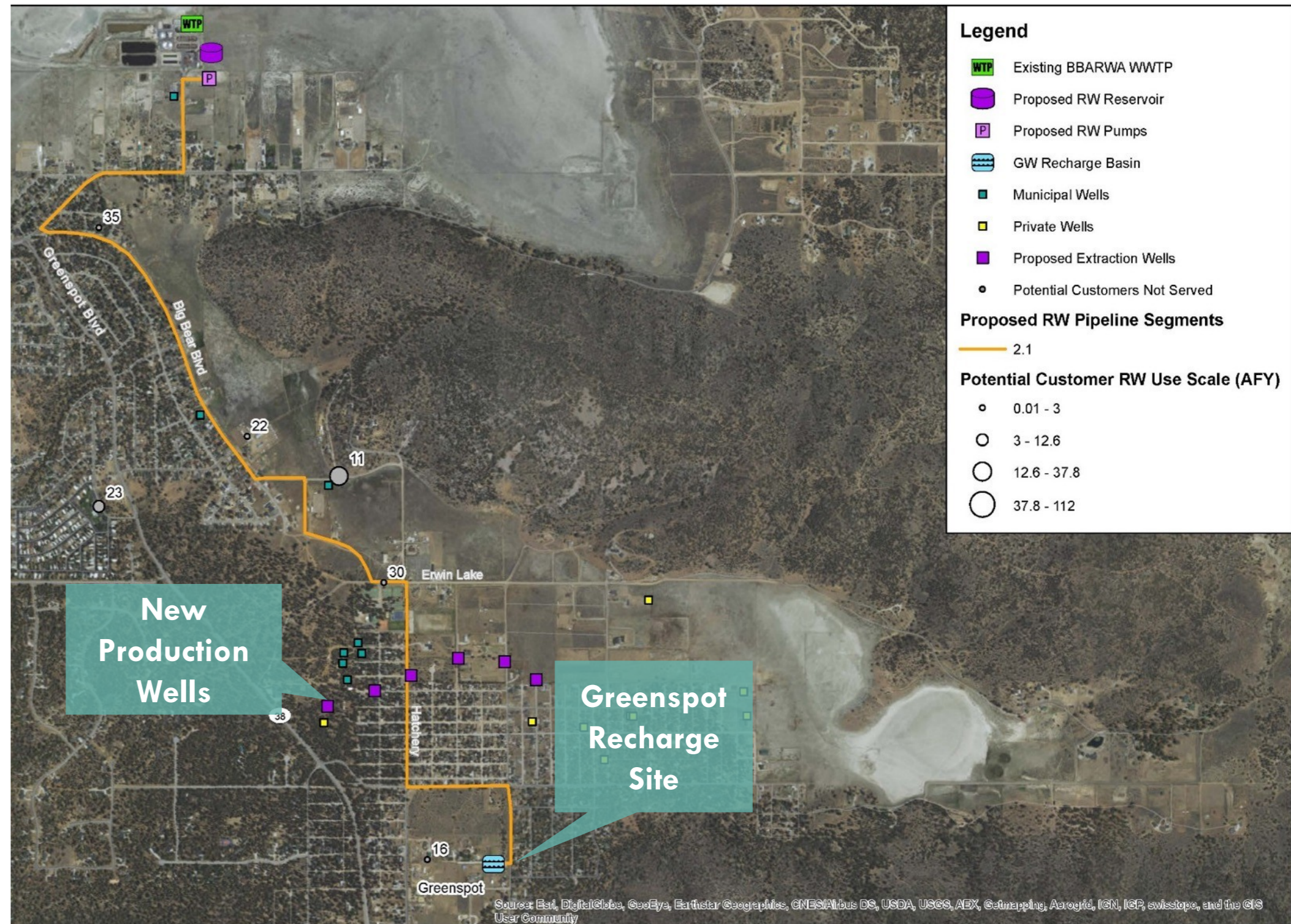
Map Features

- Spring / Slant Well
- Major Hydrologic Feature
- Drainage/Creek
- Baldwin Lake Watershed
- Big Bear Lake Watershed
- Bear Valley Basin Groundwater Sustainability Agency Boundary

Groundwater Recharge at Greenspot

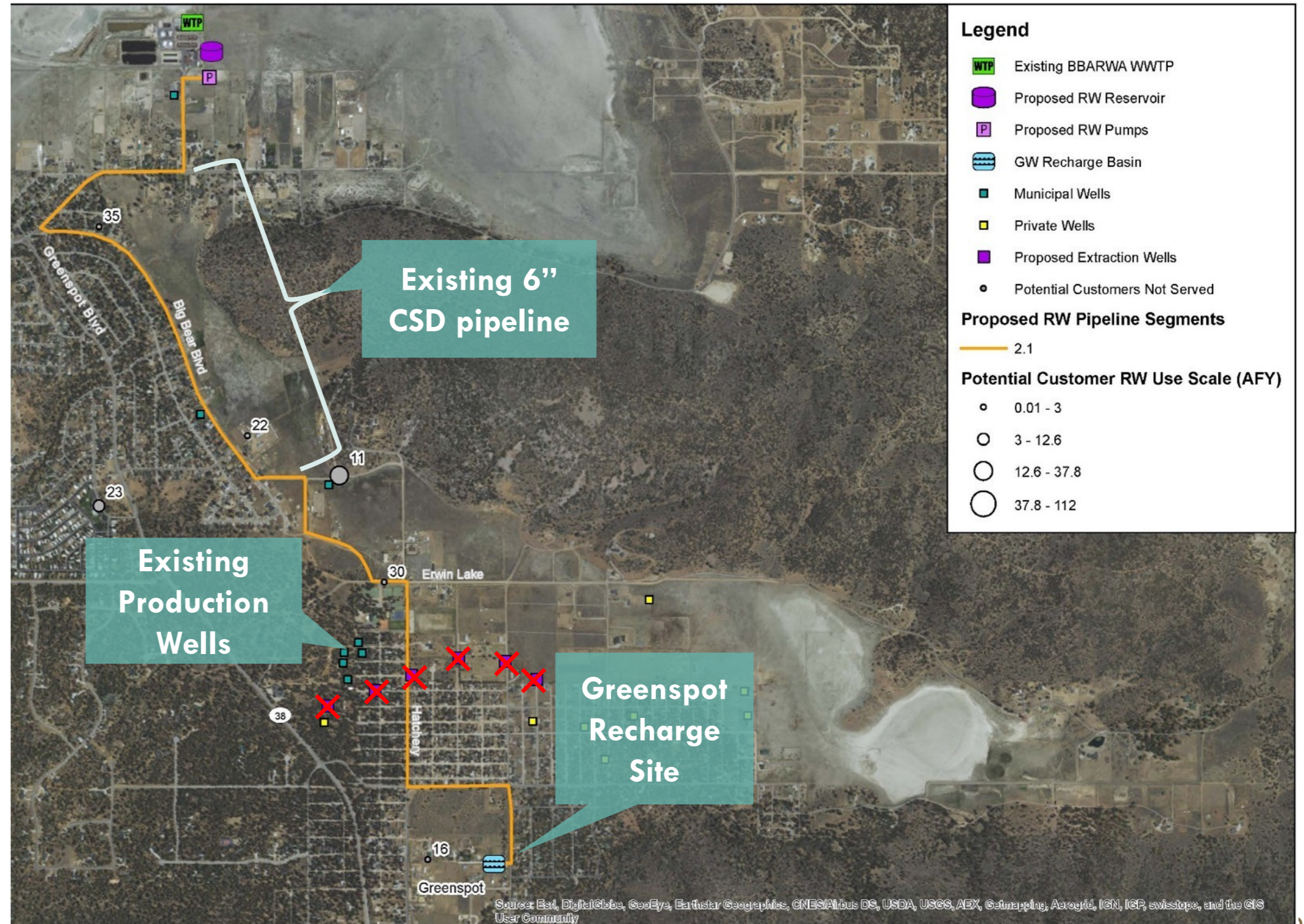


- **Yield: 1,000 AFY** for groundwater sustainability
- New 12" pipe (15,200 ft)
- 6 new production wells and coordinated pumping to recover recharged water and manage basin water levels



Groundwater Recharge at Greenspot

- **Yield: 500 AFY** for groundwater sustainability
- New 8" pipe (15,200 ft)
 - Use existing 6" CSD pipe for 4,635 ft, if condition allows
- Use existing CSD and DWP wells to manage basin water levels
 - Expected to be feasible, but needs to be confirmed by hydrogeologist



Greenspot Recharge Facility Comparison



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Feature	Original	Modified
Recharge Volume, AFY	1,000	500
Recharge Site Size, Acres	7	3.5
RW Pipeline from WWTP to Greenspot Recharge Site	15,200 ft of 12"	15,200 ft of 8" Note 1
Additional Extraction Wells	6	0 Note 2
Monitoring Wells	2	2 Note 3

Notes:

1. If condition allows, 4,635 ft of existing (unused) CSD 6" pipe could be used for a portion of this, reducing the new pipe length.
2. Based on prior studies that evaluated 500 AFY recharge scenarios at Greenspot, it appears to be a potentially feasible to manage water levels with existing wells but needs to be confirmed by the hydrogeology team as a next step.
3. Groundwater recharge regulations require 2 monitoring wells per recharge site regardless of recharge volume

Original Proposed Recharge Site



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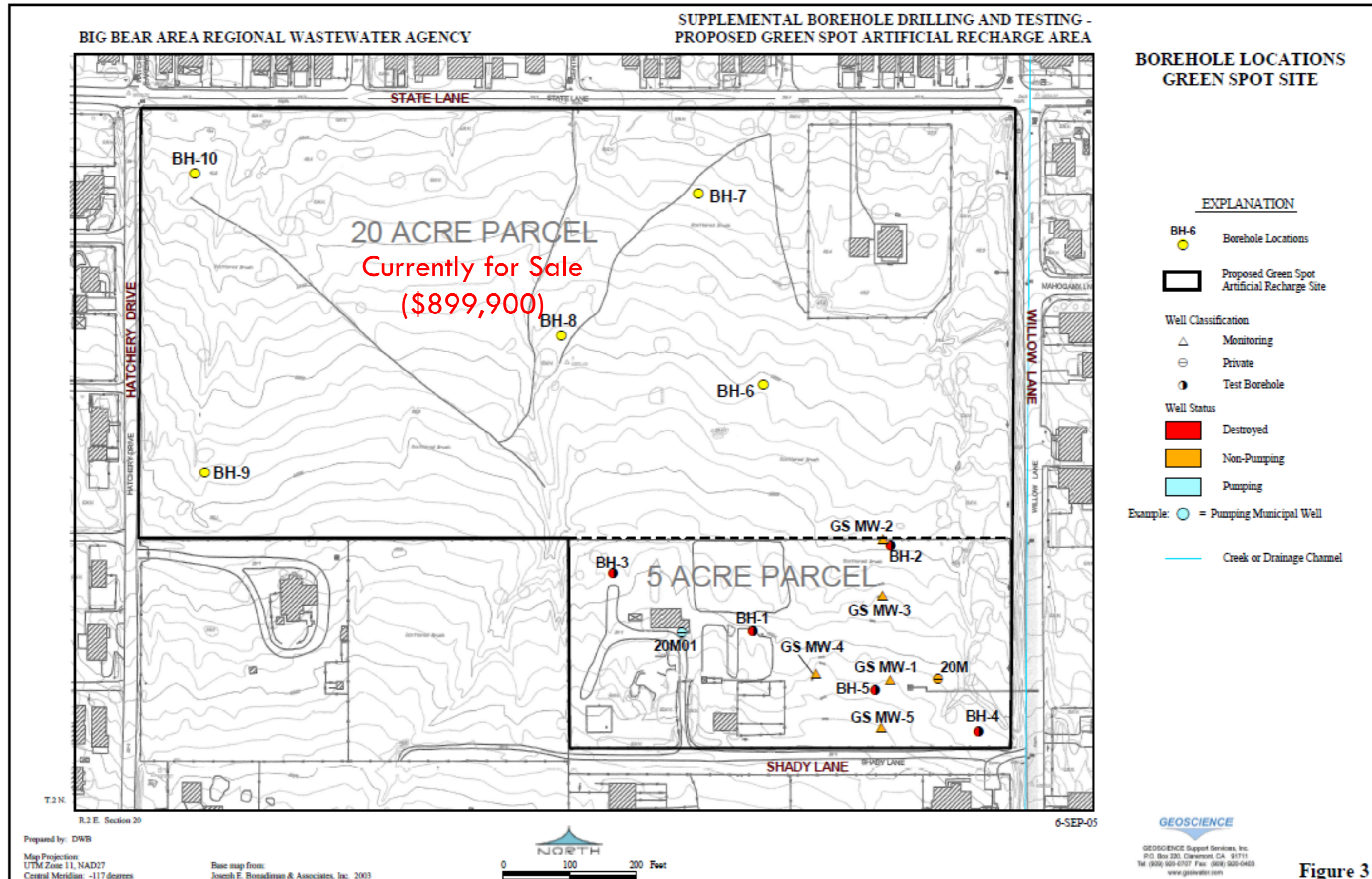


Figure 3

Water Quality Requirement Comparison

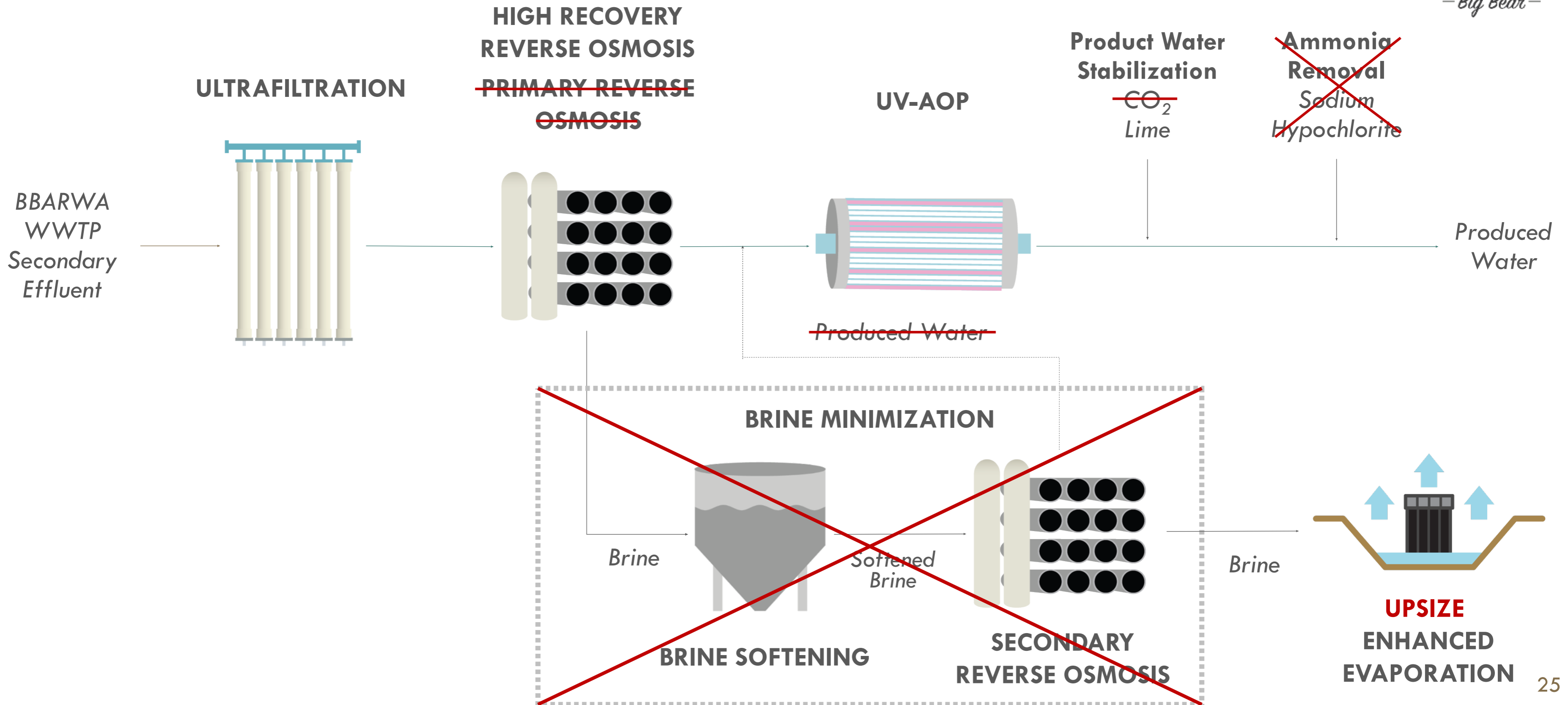


Discharge Location	TDS mg/L	Hardness mg/L	Chloride mg/L	Sodium mg/L	Sulfate mg/L	TIN mg/L-N	TP mg/L-P	Nitrate mg/L-N	TOC mg/L
Lake Discharge	175	125	10	20	10	0.15	0.035	--	0.5
Greenspot Recharge	300	225	10	20	20	--	--	5.0	0.5

Treatment Process Comparison



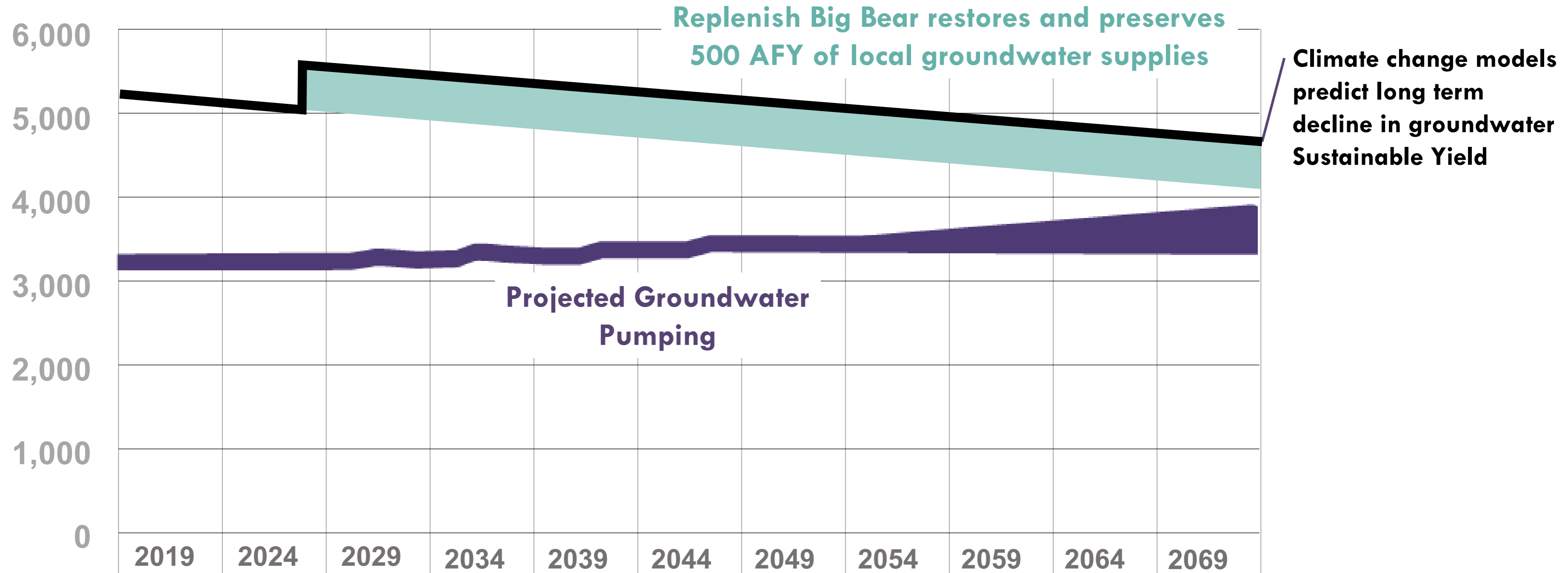
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New Water Source Enhances Groundwater Sustainability



- Projected Sustainable Yield
- Sustainable Yield with Project



Implementation Considerations for 500 AFY Greenspot Recharge Project



- Greenspot recharge would be a complete effluent discharge system, similar to BBARWA's Lucerne Valley discharge.
- Therefore, BBARWA could construct and operate the Greenspot facilities as part of Phase 1 of Replenish Big Bear. CSD and DWP would not need to implement the recharge separately.
- CSD and DWP would both have direct access to the water recharged at Greenspot through existing wells in the area. Program Water allocation not needed.
- BBARWA would hold the groundwater recharge permit and coordinate with CSD/DWP for groundwater management.
- Future phases of Replenish Big Bear could include additional recharge at Van Dusen, Sand Canyon and/or discharge to the Lake

Basis of Cost Estimate – 500 AFY Greenspot Alternative



- AACE Class 4
 - Project Definition: 15%
 - Accuracy Range: -15% to +25%
- Cost Sources
 - Vendor and Manufacturer Equipment Proposals
 - Contractor Outreach
 - Unit Quantity Takeoffs
 - Engineering Judgment based on Past Project Bids and Estimates
- Dollar Basis: March 2026
- Build America, Buy America (BABA) and Tariffs Not Factored Into Estimate
- Process Building is not sized for additional capacity. Footprint would have to be increased to accommodate space for future expansion within the same building.

Capital Cost - 500 AFY Greenspot Alternative



Cost Item	Markup	Cost
Treatment		\$33,558,000
Effluent Pump Station and Pipeline		\$4,738,000
Evaporation Pond and Monitoring Wells		\$8,525,000
Greenspot Recharge Basin		\$1,430,000
Recharge Basin Monitoring Wells		\$314,000
	Subtotal	
Unaccounted for Costs	5%	\$2,429,000
Contractor OH&P	15%	\$7,285,000
General Conditions	3%	\$1,457,000
	Construction Cost Subtotal	
Construction Contingency	15%	\$8,961,000
Land Acquisition		\$1,000,000
Implementation Costs		\$18,901,000
	Total Project Cost	\$88,598,000

Annualized O&M Cost - 500 AFY Greenspot Alternative



- Energy (\$0.11/kW-hr)
- Chemical Deliveries
- Equipment Replacements
- Labor (Administrative, O&M, Lab Analysis)
- Permit Monitoring for Compliance
- Compliance Activities for Discharge Permit
- Assumes 9-months of operation + 1 month for seasonal startup and shutdown (10 months/year)
- 20-year basis

Annual O&M Cost	Full-Time Equivalent Labor Increase
\$1,819,000	4.8 FTE

Comparison of Current vs. Potential Modified Scope



Item	Current Scope	500 AFY Greenspot Alternative (Phase 1)
Total Purified Water Produced	1,950 AFY	500 AFY
Water Supply Benefit	500 AFY	500 AFY
Total Capital Cost (\$2025)	\$105 M	\$88.6 M
Annual O&M Cost (\$2025)	\$4.3 M	\$1.8 M



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Potential Grant Impacts

Current Grant Status



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Grant	Status	Grant Amount	Reimbursed (a)	Outstanding Invoices (b)	Total (a) + (b)
State Grants					
DCI Technical Assistance	Fully Funded; Closed	\$500,000	\$500,000	\$0	\$500,000
IRWM Prop 1 Round 1	Awarded; In Process	\$4,563,338	\$3,695,345	\$222,451	\$3,917,796
	Subtotal State Grants	\$5,063,338	\$4,195,346	\$222,451	\$4,417,797
Federal Grants					
2021, 2022, & 2023 Title XVI	preparing first reimbursement request	\$18,919,655	0	0	0
2022 STAG	Appropriated; nearing grant agreement	\$960,000	0	0	0
2023 & 2024 STAG	Appropriated; application not yet submitted	\$2,000,000			
	Subtotal Federal Grants	\$21,879,655	\$0	\$0	\$0
Grand Total		\$26,942,993	\$4,195,345	\$222,451	\$4,417,796

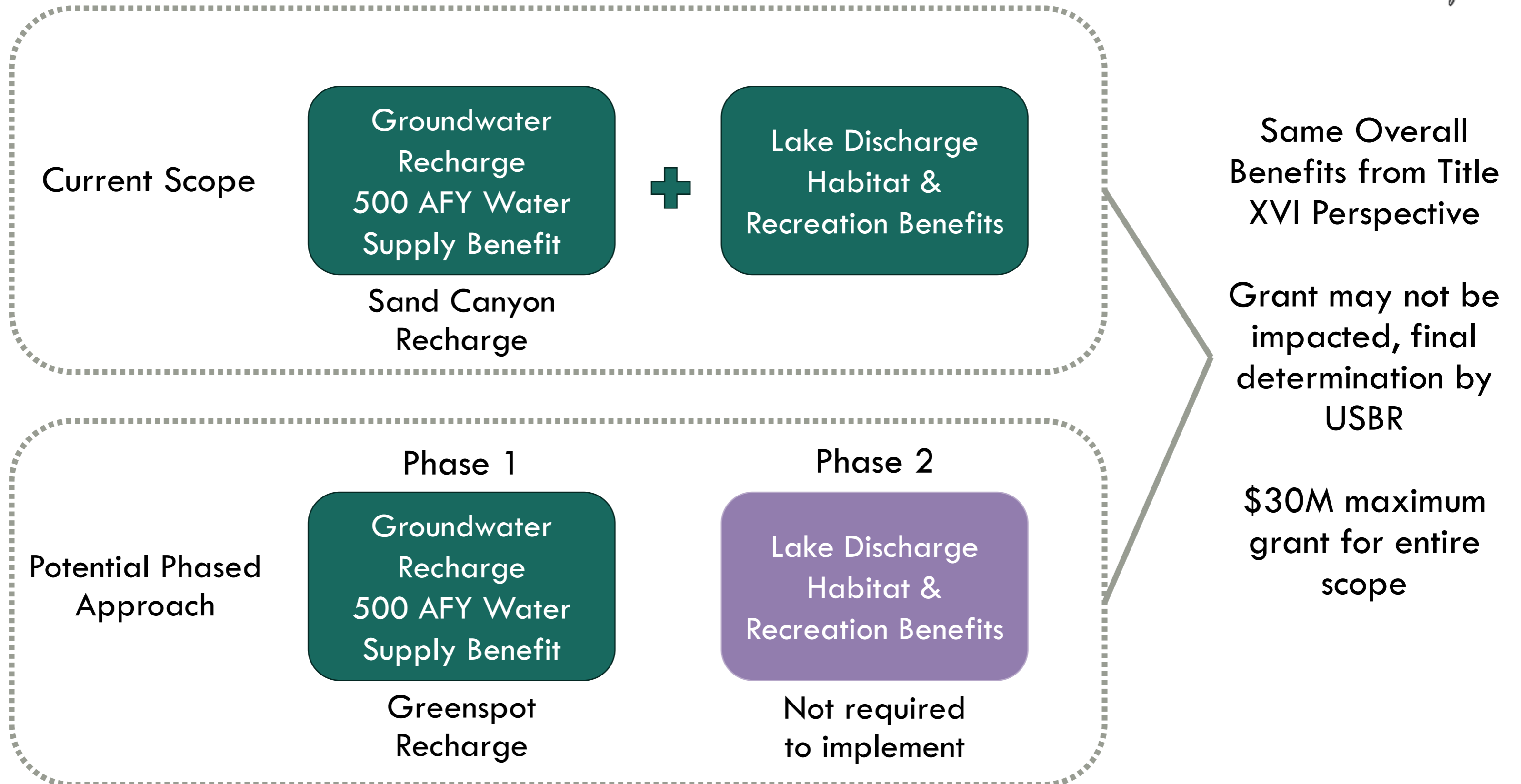
Potential Grant Impacts with Scope Change



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Grant	Grant Amount	Notes
State Grants		
DCI Technical Assistance	\$500,000	No repayment risk, all requirements met
IRWM Prop 1 Round 1	\$4,563,338	Risk of repayment if Project not constructed
Subtotal State Grants	\$5,063,338	
Federal Grants		
2021, 2022, & 2023 Title XVI	\$18,919,655	Risk of losing all unused grant funds if total project benefits are reduced; phasing may preserve grant funds, subject to USBR determination
2022 STAG	\$960,000	No repayment risk expected
2023 & 2024 STAG	\$2,000,000	No repayment risk expected (scope not yet defined)
Subtotal Federal Grants	\$21,879,655	
Grand Total	\$26,942,993	

Potential Phased Approach - Combined



Potential Phased Approach - Separate



Phase 1

Groundwater
Recharge
500 AFY Water
Supply Benefit

Greenspot
Recharge

Eligible for up to \$30M grant on its own, but reduced benefits of separate recharge phase would need to be re-evaluated under Title XVI to see if it would have been competitive in the original application

Grants could be withdrawn by USBR

Phase 2

Lake Discharge
Habitat &
Recreation Benefits

Not required
to implement

Separate future phase would be eligible for separate Title XVI funding, up to an additional \$30M maximum (based on current Title XVI rules)

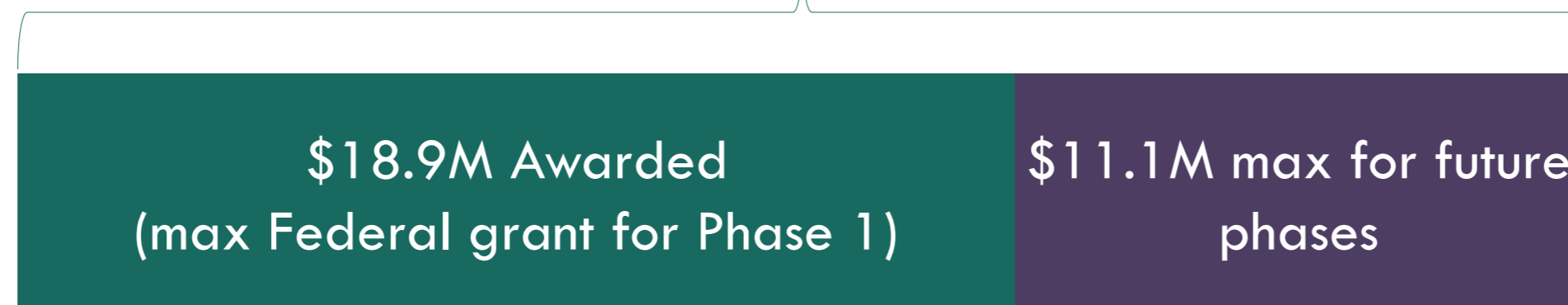
Lake discharge without GWR in the future may not be competitive for Title XVI. More recharge in Phase 2 scope may help.

Recommended Title XVI Grant Approach

Keep Overall RBB Scope in Grant Agreement

- Eligible for up to \$30M total grant for **all phases (25% max)**
- **\$11.1M remaining grant capacity for future phases**
- Does not require implementation of any future phases
- Same overall benefits from Title XVI perspective, more likely to keep current grant
- Requires scope change for existing grants and final determination of eligibility is up to USBR.

\$30M Grant Max for Entire RBB Program





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Questions for the Board



Direct Questions to the Board

- Does the Board want to continue pursuing a groundwater recharge project for the Big Bear Valley?
- Does the Greenspot Recharge alternative better achieve the outcomes the Board is looking for? If no, what concerns remain with the Greenspot Recharge alternative?
- Does the Board want staff to move forward with the Greenspot Recharge Alternative?
Actions would include:
 - Stop final design for the current RBB scope
 - Investigate private wells in the Greenspot area to confirm water quality regulations would be met
 - Request a scope change for the Title XVI Grant for the 500 AFY Greenspot Recharge Alternative
 - Request a scope change for the EPA WIFIA Loan

Next Steps