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Technical Memorandum

Subject: Salinas Valley Basin GSA Project Cost Standardization

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To: Salinas Valley Basin GSA

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Background

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) is evaluating potential projects and management actions (PMAs) for technical, economic, and financial feasibility to meet Sustainable Groundwater Management Act (SGMA) requirements for seawater intrusion, and other sustainability indicators, in the Salinas Valley. As part of the SVBGSA funding strategy, standardization of project costs is required to support economic evaluation of projects.

This technical memorandum (TM) summarizes the cost data, cost assumptions, and comparison of projects SVBGSA has evaluated to address seawater intrusion or groundwater levels. It is based on the information provided to ERA Economics from the various projects and project alternatives. The alternatives and cost estimates were developed by the engineering teams working on the projects and alternatives and the reader is referred to the other reports for additional details for individual project operations, cost estimates, and other assumptions.

Project costs are standardized to provide a consistent basis of comparison. This TM summarizes the economic lifecycle cost of the projects. This represents the capital, operating and maintenance (O&M), and replacement costs over the lifecycle of the project. Costs are shown as annual values, present value, and on a dollar per acre-foot ($/AF) basis in inflation-adjusted (real) dollars. A discount rate of 3.25 percent is applied for the cost standardization. Economic costs are different than project financial costs, which show the fiscal cost of the project (what is actually paid by different users) accounting for all borrowing costs. The TM does not show project financial costs.

The TM includes the following projects:

- **Brackish Groundwater Restoration Project (BGRP)**. Addresses seawater intrusion by installing an extraction barrier near the coast with injection wells farther inland to create a freshwater mound. Seven BGRP scenarios were developed.
- **Alternative Water Supply (AWS)**. A functionally equivalent alternative to the BGRP that relies on other water sources for direct injection instead of extraction barrier wells.

- **Castroville and Eastside (C&E) Canals**. Includes surface water diversion opportunities from the Salinas River for injection and direct delivery. Eight project alternatives were developed.
- **New Seawater Intrusion Project (NSIP) Study**. Evaluation to expand CSIP to serve approximately 17,600 acres in the area between the existing CSIP system and the City of Salinas. Six project alternatives were developed.
- **Aquifer Storage and Recharge (ASR), Seasonal Release Alternative**. Inject treated water into underground aquifers during times of surplus and extract it later. Two alternatives were developed.

Each project differs in the type and level of benefit it may provide in addressing seawater intrusion or groundwater levels. This TM does not evaluate or compare project effectiveness or specific benefits. Therefore, project costs are comparable (i.e., they have been calculated applying the same methods) but cannot be applied to a cost-effectiveness analysis because the benefits of each alternative vary. The scope of this memorandum is limited to standardizing capital and operating cost estimates so that project costs reflect consistent assumptions, cost categories, and cost-basis year. Differences in effectiveness, performance, or modeled groundwater outcomes are addressed separately in other SVBGSA Reports.

Project Cost Standardization

The cost data, cost assumptions, and project economic costs are summarized in the following sections. Project technical memoranda and feasibility studies provide supporting data and information for each project and alternative.

Brackish Groundwater Restoration Project

The BGRP addresses seawater intrusion by installing an extraction barrier near the coast with injection wells farther inland to create a freshwater mound. Seven BGRP scenarios were considered. These include:

1. Extraction, Treatment, and Direct Deliveries Plus Injection – Small.
2. Extraction, Treatment, and Direct Deliveries Plus Injection – Medium.
3. Extraction, Treatment, and Direct Deliveries Plus Injection – Large.
4. Extraction, Treatment, and Injection Only.
5. Extraction, Treatment, and Eastside Injection.
6. Extraction North of the Salinas River, Treatment, and Direct Deliveries Plus Injection.
7. Extraction from the 180-Foot Aquifer, Treatment, and Injection in the 400-Foot Aquifer.

Table 1 summarizes the standardized costs of the BGRP alternatives. The table shows total construction costs (including soft costs), annual O&M, and replacement costs. The present value costs are shown, the annualized cost, and the cost per AF of project yield. Project yield reflects

injected water for the BGRP alternatives. Therefore, the $/AF cost reflects the cost per acre-foot of injected water.

Table 1. BGRP Alternative Cost Summary ($ in millions)

Cost Category	1	2	3	4	5	6	7
Total Construction Cost ($M)	$709	$1,002	$1,465	$951	$947	$629	$951
Annual Treatment O&M ($M)	$51	$80	$110	$80	$80	$80	$80
Annual O&M ($M)	$18	$27	$38	$33	$33	$21	$46
Present Value Total Cost ($M)	**$2,254**	**$3,376**	**$4,750**	**$3,459**	**$3,453**	**$2,862**	**$3,728**
Annualized Cost ($M)	$101	$152	$214	$156	$155	$129	$168
Annual Yield (Acre-feet)	28,000	46,900	67,800	46,900	46,900	20,900	29,000
$/Acre-Foot Cost	**$3,625**	**$3,241**	**$3,155**	**$3,321**	**$3,315**	**$6,166**	**$5,788**

Project cost inputs developed by Carollo Engineers, BGRP Technical Memorandum Scenarios Analysis. October 2025.

Alternative Water Supply Project

The AWS is a functionally equivalent alternative to the BGRP, addressing seawater intrusion by installing injection wells inland to create a freshwater mound. Instead of relying on a coastal extraction barrier, the AWSP approach builds an inland injection barrier, supplied by four alternative water sources: Permit 11043 Salinas River water, treated agricultural tile drain flows, treated industrial wastewater from Salinas, and excess flows passing the Salinas River Diversion Facility. One alternative was considered.

Table 2 summarizes the standardized costs of the AWS alternative. The table shows total construction costs (including soft costs), annual O&M, and replacement costs. The present value costs are shown, the annualized cost, and the cost per AF of project yield. Project yield reflects injected water. Therefore, the $/AF cost reflects the cost per acre-foot of injected water.

Table 2. AWS Cost Summary ($ in millions)

Cost Category	AWS
Total Construction Cost ($M)	$3,847
Annual Treatment O&M ($M)	$34
Annual O&M ($M)	$50
Present Value Total Cost ($M)	$5,730
Annualized Cost ($M)	$258
Annual Yield (Acre-feet)	44,208
$/Acre-Foot Cost	**$5,836**

Project cost inputs developed by Wallace Group, March 2026.

Castroville and Eastside (C&E) Canals

The C&E project alternatives include surface water diversion opportunities from the Salinas River for injection and direct delivery. Eight project alternatives were developed:

- 1A. 400 CFS Diversion. Eastside Recharge Basins.
- 1B. 200 CFS Diversion. Eastside Recharge Basins.
- 1C. 100 CFS Diversion. Eastside Recharge Basins.

- 1D. 50 CFS Diversion. Eastside Recharge Basins.
- 2A. 100 CFS Diversion. Northern Eastside Injection.
- 2B. 50 CFS Diversion. Northern Eastside Injection.
- 3A. 50 CFS Diversion. Coastal Injection.
- 4A. 100 CFS Diversion with distribution.

Table 3 summarizes the standardized costs of the C&E Canals alternatives. The table shows total construction costs (including soft costs), annual O&M, and replacement costs. The present value costs are shown, the annualized cost, and the cost per AF of project yield. Project yield reflects injected water. Therefore, the $/AF cost reflects the cost per acre-foot of injected water.

Table 3. C&E Alternative Cost Summary ($ in millions)

Cost Category	1A	1B	1C	1D	2A	2B	3A	4A
Total Construction Cost ($M)	$1,391	$615	$284	$140	$1,017	$516	$400	$1,557
Annual O&M ($M)	$24	$12	$5	$2	$10	$5	$3	$10
Present Value Total Cost ($M)	$1,932	$887	$395	$195	$1,343	$682	$524	$2,039
Annualized Cost ($M)	$87	$40	$18	$9	$60	$31	$24	$92
Annual Yield (Acre-feet)	26,800	17,200	9,700	5,100	9,700	5,100	5,100	28,020
$/Acre-Foot Cost	**$3,246**	**$2,322**	**$1,833**	**$1,725**	**$6,232**	**$6,024**	**$4,622**	**$3,277**

Project cost inputs developed by Wallace Group, March 2026

New Seawater Intrusion Project (NSIP) Study

NSIP would expand CSIP to serve approximately 17,600 acres in the area between the existing CSIP system and the City of Salinas. Two project alternatives (with high, medium, and low sizing) were developed:

1. Max (high, medium, low)
2. Intruded Area Only (high, medium, low)

Table 4 summarizes the standardized costs of the NSIP alternatives. The table shows total construction costs (including soft costs), annual O&M, and replacement costs. The NSIP scenarios (High, Medium, and Low) vary by the annual yield (Acre-feet); O&M costs have been scaled by the corresponding yield for each scenario. The present value costs are shown, the annualized cost, and the cost per AF of project yield. Project yield reflects injected water. Therefore, the $/AF cost reflects the cost per acre-foot of injected water.

Table 4. NSIP Alternative Cost Summary ($ in millions)

Cost Category	Intruded Only			Max		
	High	Medium	Low	High	Medium	Low
Total Construction Cost ($M)	$698	$698	$698	$1,428	$1,428	$1,428
Annual Treatment O&M ($M)	$6	$5	$3	$11	$9	$9
Annual O&M ($M)	$13	$12	$7	$7	$6	$6
Present Value Total Cost ($M)	$1,120	$1,087	$910	$1,840	$1,761	$1,618

Annualized Cost ($M)	$50	$49	$41	$83	$79	$73
Annual Yield (Acre-feet)	11,020	10,160	5,512	28,020	22,570	12,790
$/Acre-Foot Cost	**$4,575**	**$4,818**	**$7,434**	**$2,957**	**$3,513**	**$5,697**

Project cost inputs developed by Carollo Engineers, March 2026

Aquifer Storage and Recharge

ASR involved direct injection of treated water for later pumping/recovery. A Seasonal Release Alternative was developed:

- Seasonal Release with ASR Project Concept
- Alternatives 1 and 1A, the New Diversion of Winter High Flows with ASR project concept

Table 5 summarizes the standardized costs of ASR. The table shows total construction costs (including soft costs), annual O&M, and replacement costs. The present value costs are shown, the annualized cost, and the cost per AF of project yield. Project yield reflects injected water. Therefore, the $/AF cost reflects the cost per acre-foot of injected water.

Table 5. ASR Cost Summary ($ in millions)

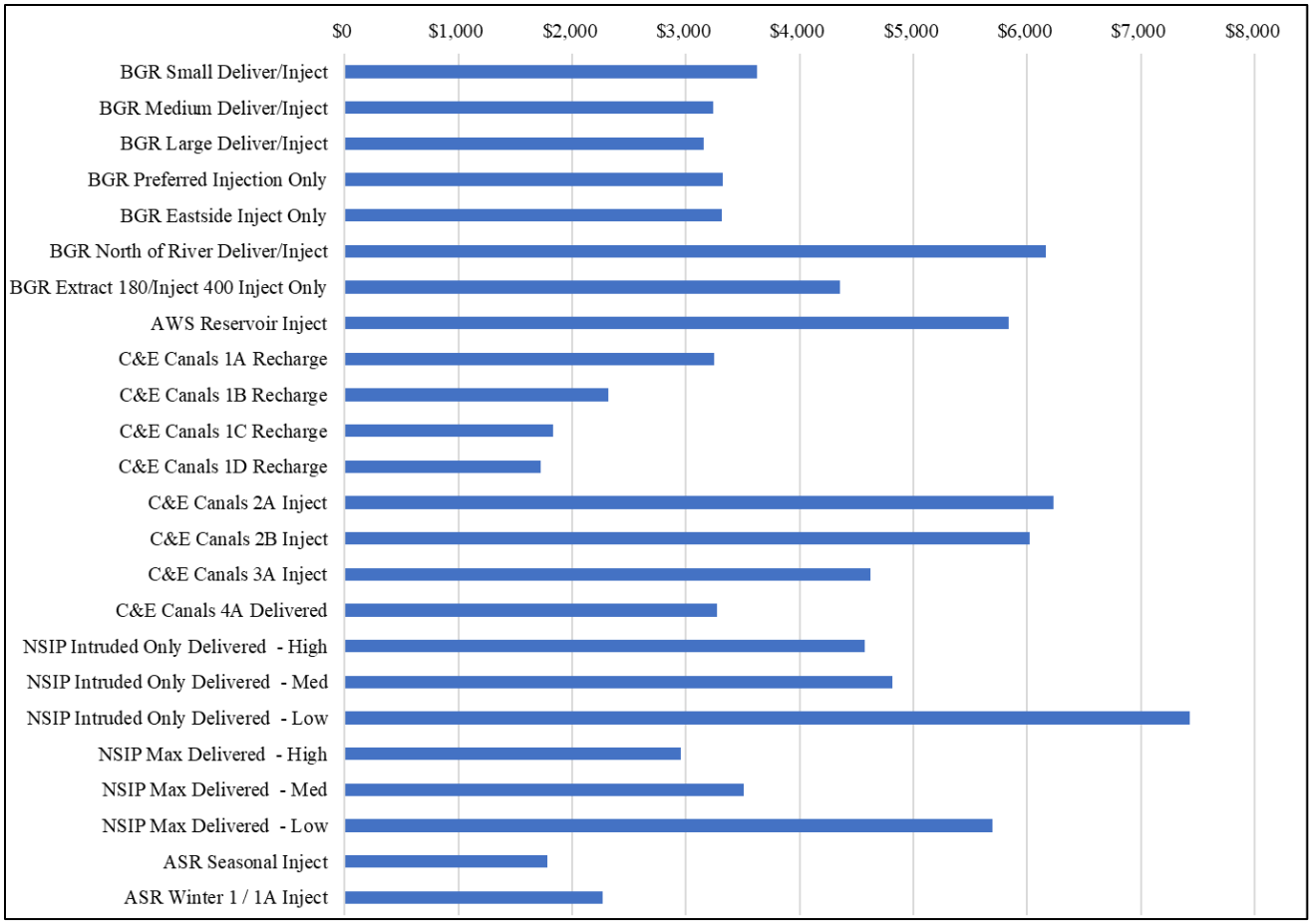
Cost Category	Seasonal	Winter 1 / 1A
Total Construction Cost ($M)	$383	$278
Annual O&M ($M)	$9	$5
Present Value Total Cost ($M)	$593	$403
Annualized Cost ($M)	$27	$18
Annual Yield (Acre-feet)	15,000	8,000
$/Acre-Foot Cost	**$1,781**	**$2,269**

Project costs inputs developed by Wallace Group. Aquifer Storage and Recovery Project Concepts to Address Seawater Intrusion. January 2025.

Summary

The analysis evaluated the economic cost of selected project alternatives. The purpose is to support evaluation and comparison of options. Projects generate different benefits for groundwater and need to be compared on that basis, as well as $ per AF. Figure 1 illustrates the cost range across the projects and alternatives evaluated.

Figure 1. Project Economic Cost Comparison ($/AF)



References

NSIP Feasibility Study. SVBGSA. March 2026.

C&E Canals Feasibility Study. SVBGSA. March 2026.

ASR Feasibility Study. SVBGSA. March 2026.

Brackish Groundwater Restoration Project Feasibility Study. SVBGSA. March 2026.

Demand Management Economic Impact Analysis. SVBGSA. March 2026.