EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: October 30, 2025

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Alice E. Towey, Director of Water and Natural Resources AET

SUBJECT: EBMUD Los Vaqueros Reservoir Expansion Project Lessons Learned Report

The attached report discusses the key lessons learned from the Los Vaqueros Reservoir (LVR) Expansion Project from the perspective of EBMUD staff. The lessons are grouped into the following categories: institutional arrangement, grant funding, project benefits, agreements negotiations, and exit strategy. The report also includes recommendations that are intended to inform the planning and development of EBMUD's future supplemental water supply projects.

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Attachment: EBMUD LVR Expansion Project Lessons Learned Report

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East Bay Municipal Utility District
Los Vaqueros Reservoir Expansion Project
Lessons Learned Report

Prepared By

East Bay Municipal Utility District

Water Supply Improvements Division

October 2025

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Summary

The Los Vaqueros Reservoir (LVR) Expansion Project (Project), led by the Contra Costa Water District (CCWD), was an off-stream surface water storage project designed to enhance regional water supply resiliency for urban and agricultural users, and wildlife refuge needs. The Project involved raising the level of the existing LVR dam to increase its storage capacity by 115,000 acre-feet (AF). Because of rising construction costs, reduced water yield, and unresolvable issues on the key agreements, CCWD ended its participation in the Project in November 2024. The LVR Joint Powers Authority (JPA) which was formed in October 2021 consisting of eight member agencies, including EBMUD, was dissolved in April 2025.

The lessons learned, from EBMUD's perspective, are summarized in this report. A key takeaway was that differences in control and risk among partners made it challenging to resolve major issues related to the Project agreements. In the future, project principles should be established early in the process for any multi-agency effort and revisited periodically to ensure alignment. In addition, key project issues should be addressed and benefits clearly defined before moving forward on later phases such as design, permitting, and governance development. If a project has grant funding, it is important to avoid allowing grant requirements or the pursuit of grant funding to take precedence over resolving critical issues or addressing potential risks. Maintaining focus on addressing the key issues should remain the highest priority.

Although the partners ultimately chose to withdraw from the Project, the collaboration strengthened relationships among the JPA member agencies. These relationships will be beneficial for any future potential partnerships.

1. Introduction

The LVR Expansion Project proposed to increase the capacity of CCWD's existing LVR from 160,000 AF to 275,000 AF. The Project was a regional water resiliency project to provide water supply benefits to urban and agricultural users along with environmental benefits to wildlife refuges. As the owner and operator of LVR and other critical facilities needed for the Project, CCWD was the lead agency for the Project.

The Project concept was supported by a range of key stakeholders, including State of California agencies, federal agencies, and environmental organizations. CCWD successfully secured $477 million of grant funding from the California Water Commission under California's Water Storage Investment Program (WSIP), including nearly $24 million in early funding that was used toward Project planning. In addition, the Project was authorized to receive about $200 million in federal funding from the Water Infrastructure Improvements for the Nation Act and Bipartisan Infrastructure Law. Planning costs beyond the amount funded by the early grants were paid by the partners through a multiparty cost sharing agreement. Some of the partners, including EBMUD, also contributed significant in-kind services towards the Project.

The LVR JPA was formed in October 2021 and consisted of eight member agencies (Partners): Alameda County Water District, CCWD, EBMUD, Grasslands Water District, San Francisco Public Utilities Commission, San Luis Delta Mendota Water Authority, Santa Clara Valley Water District, and Zone 7 Water Agency.

This report documents the lessons learned from the perspective of EBMUD and provides recommendations to help guide the development of future supplemental water supply projects.

2. EBMUD Project Participation and Decision

In 2015, CCWD approached EBMUD and other water agencies to explore their interest in participating in the Project. Following an initial technical evaluation, EBMUD entered into an individual cost sharing agreement with CCWD in December 2016 to share costs for Project planning, including completion of environmental documentation and the WSIP grant application. EBMUD also supported CCWD in preparing the Project's Supplement to the Final Environmental Impact Statement/Environmental Impact Report, which was finalized in March 2019.

In July 2018, the Project was determined to be eligible for WSIP funding, which included early funding that could be used towards Project planning costs. In April 2019, CCWD, EBMUD, and the other interested agencies executed a multiparty cost sharing agreement to fund the Project costs beyond what was covered by the early grant funding. The agreement was amended six times between 2020 and 2024.

EBMUD evaluated potentially having up to 30,000 AF of dedicated storage capacity in LVR to store water during wet years. Later, during a drought, water could be delivered to EBMUD through an exchange with CCWD. The Project also included the possibility for EBMUD to convey water for the partners from the Freeport Facility to the CCWD/EBMUD intertie, which connects to LVR through one of CCWD's pipelines. This would require EBMUD to install variable frequency drives (VFDs) pumps at its Walnut Creek Pumping Plant to facilitate conveyance for the partners and was therefore potentially eligible to receive about $24 million of WSIP funding for the VFDs.

Considerable efforts were made between 2023 and 2024 by the LVR JPA Partners to resolve outstanding issues on the key Project agreements and advance the Partners' business case decisions. In June 2024, CCWD issued a letter to the partners requesting confirmation of their commitment to the Project. In August and September 2024, the JPA member agencies provided updates to their respective Boards on the status of their business cases.

After EBMUD completed its evaluation of potential participation in LVR project construction and use of LVR project facilities in August 2024, EBMUD decided to remain in the LVR JPA but reduce its storage allocation to 0 AF. This decision was based in large part on the Project cost increases and the Project's significant risk, uncertainty, and complexity. As a result, other supplemental water supply project options became more preferable, such as water conservation, water recycling, and groundwater banking. EBMUD's participation in the Project included conveying water from the Freeport Facility if requested by the partners.

On November 6, 2024, CCWD's Board voted to end participation in the Project by withdrawing CCWD's WSIP application and authorizing CCWD staff to work with LVR JPA Partners to dissolve the JPA and terminate the JPA Agreement. CCWD's decision to end participation was based on the lack of resolution of key outstanding issues, reduced Project benefits, and significant construction cost increases from approximately $800 million in 2016 to $1.6 billion in 2024. Unresolved issues included how construction and financial risks would be allocated, how facility usage fees would be set, and how the Project facilities would be used. In addition, CCWD was unable to secure a reliable replacement for LVR's water quality and emergency water supply benefits while the reservoir was unavailable during Project construction.

The eight JPA member agencies' Boards ratified the LVR JPA dissolution in February 2025, and the dissolution process was completed in April 2025.

3. EBMUD Lessons Learned

From EBMUD's perspective, the overarching reasons for the challenges experienced on the Project were:

- The involvement of multiple agencies added complexity to the Project, particularly in coordination, permitting, funding, and decision-making.
- The institutional arrangement was unconventional where the lead agency owned the critical facilities and wanted to retain overall decision-making authority, leaving the Partners to pay for the facilities but with little decision-making authority.
- The lead agency viewed the Project as solely benefitting the other agencies. This resulted in a mismatch between control and risk, making it difficult for the partners to resolve major issues and negotiate agreement terms.
- The grant funding drove the schedule, which led to some project planning and design components being prematurely accelerated. At the same time, the grant funding priorities contributed to postponing resolution of the key issues.

The lessons learned from the Project are grouped into the following five categories and are discussed below:

- Institutional arrangement
- Grant funding
- Project benefits
- Agreements negotiations
- Exit strategy

3.1 Institutional Arrangement

CCWD owns and operates key facilities that would have been used for the Project, including LVR, the Delta intake facilities, and the pump station that conveys water into LVR. Because these facilities are essential to meeting CCWD's water supply needs, CCWD desired to maintain control of the Project's design, construction, and operations. However, CCWD did not view itself as a direct beneficiary of the Project, as it did not need additional storage capacity in LVR.

When a lead agency (in this case CCWD) maintains decision-making authority but derives limited benefits, a mismatch arises between control and risk. This dynamic occurred in the Project and resulted in the lead agency maintaining authority without assuming corresponding financial or construction liability risk. The imbalance became more apparent after leadership changes at CCWD during the last several years of the Project. The new decision makers expressed greater concern about potential financial and water supply risks to their ratepayers, which made negotiating equitable risk-sharing and assurances increasingly difficult for the other member agencies considering participation.

Recommendations

- **Establish and maintain project principles:** Partners should develop a set of project principles at the outset of Project development. The principles should be revisited regularly to ensure consistent interpretation, especially after leadership changes, and updated periodically.
- **Ensure alignment of interests and benefits:** Future collaborations should confirm that all the partners have aligned interests and agree on how project benefits will be shared.
- **Align risk with decision-making authority:** Agencies should assume risk in areas where they hold decision-making authority. Situations in which one party controls key decisions while another bears the associated risks should be avoided. Aligning risk with control promotes accountability, supports more effective management, and improves project outcomes.
- **Tailor governance to the partnership's structure:** Projects with unconventional institutional arrangements may require different legal structures. When developing the partnership structure, partners should consider the level of risk each agency is willing to accept and how authority will be shared.

3.2 Grant Funding

Prior to the release of the Project's updated construction cost estimate in 2022, the $477 million grant that the Project was eligible for was expected to offset about half of the estimated total capital costs. When CCWD decided to end the Project in November 2024, the estimated total capital costs had risen to approximately $1.6 billion – nearly double the initial estimate.

The availability of grant funding drove the project schedule and accelerated some Project components to meet the grant funding requirements. This resulted in prematurely prioritizing the facility design, permitting, attorney involvement, and JPA formation. Accelerating these components before resolving key issues created the impression that the Project was farther along than it was. As a result, other elements, such as the finance plan, were created earlier than needed.

One key issue that was postponed was the development of the Project's backstop plan, which did not begin until the dam design was nearly complete. The backstop plan was the approach that CCWD would use to mitigate risks to its system during construction when LVR would be unavailable to provide water supply and water quality blending for CCWD. Resolving these risks did not require the dam design to be completed. Ultimately, CCWD was unable to develop a backstop plan that sufficiently mitigated its risks, which contributed to their decision to end participation in the Project.

The potential large amount of grant funding also contributed to deferring resolution of key issues by the member agencies. The partners were focused on grant-driven priorities rather than resolving core project issues. Additionally, because the grant was expected to offset nearly half the total capital costs, the partners were more willing to proceed without clearly defined assurances or benefits. The funding made the Project seem financially viable even without a more comprehensive cost-benefit analysis.

In addition, funding terms and conditions were unclear and the demands from the agencies administering the grant funding were not known until the JPA began negotiating the Contracts for Administration of the Public Benefits (CAPBs) regarding the water supply benefits for the wildlife refuges. Some of the terms impacted the Project benefits as described in the next section.

Recommendations

- **Prioritize resolution of key issues:** Resolving key issues should be the highest priority during project planning regardless of whether grant funding is available.
- **Implement milestone-based cost controls:** Establish cost controls linking additional partner funding to achieving milestones related to addressing key issues to ensure progress and accountability before further commitments are made.
- **Reassess continuation if milestones are not met:** If Partners are unable to meet to resolve key issues within a reasonable timeframe, a decision needs to be made on whether to continue pursuing the Project.
- **Clarify grant terms early:** When grant funding is involved, the terms and conditions should be clarified as early as possible in the planning process.

3.3 Project Benefits

Potential project benefits for EBMUD included up to 30,000 AF of storage capacity for supplemental water supply during droughts and emergencies, approximately $24 million of WSIP grant funding for EBMUD's Walnut Creek Pumping Plant VFDs, recovery of sunk costs for the Freeport facilities, and use of CCWD's Delta intakes for deliveries into LVR.

Benefits for the remaining partners included new water conveyance through the Transfer Bethany Pipeline and storage in LVR. The Project would have also provided an additional water supply for wildlife refuges in the Central Valley, an important Project benefit that made it eligible to receive the grant funding.

The Project partners identified benefits to CCWD included additional revenues through Project usage fees, water quality benefits that equate to supply, staff funding, modifications to two of its existing pumping plants, and enhancement to its recreational facilities. However, during agreement negotiations, CCWD emphasized that it was not a beneficiary of the expanded storage from the Project.

The grant funding requirements related to public benefits and their impact on partner benefits remained unclear until the JPA began negotiating the CAPBs. Some of the public benefits provisions significantly affected the partner benefits. In March 2024, the California Department of Fish and Wildlife (CDFW) issued a new Incidental Take Permit for the lead agency's operations, which reduced its diversion limits at the Delta intakes to protect larval smelt. During the CAPB negotiations, CDFW sought to ensure that the resulting estimated 30% reduction in Project yield would be shared among the member agencies requesting deliveries, rather than borne by the wildlife refuges.

When EBMUD conducted its cost-benefit analysis, it evaluated scenarios that incorporated both a doubling of the estimated dam construction cost and the reduced yield, while still including the WSIP grant funding. Incorporating uncertainty was a key element of EBMUD's business case evaluation, allowing for a more robust cost-benefit assessment and realistic assessment of potential risks and variability in outcomes.

Recommendations:

- **Define project benefits early:** Incorporate project benefits into the project principles at the outset. If the Partners cannot clearly define and agree upon the benefits, they should reassess whether the project remains viable.
- **Engage financial expertise early:** Involve EBMUD Finance Department early in discussions regarding project planning and benefits. Cost/benefit analyses should include stress testing and uncertainty modeling.
- **Form governance structures later:** If the partners are considering forming a JPA, its formation should be deferred until project benefits are defined and key issues are resolved.
- **Earlier coordination with permitting agencies:** If feasible, begin discussion earlier with regulatory agencies issuing permits that impact project benefits.

3.4 Agreements Negotiations

Negotiations of the Project agreements were challenging and ultimately stalled because the lead agency and the partners were unable to agree on cost controls and risk sharing. One major concern from the lead agency was mitigating its risks when LVR would be under construction and unavailable to meet its water quality goals and drought supply. Additionally, the lead agency recognized that the full integration of the Project with its operations presented financial and water supply reliability risks to its ratepayers. As a result, the lead agency was unable to provide assurances of use of its facilities with the member agencies because those commitments could have conflicted with meeting the needs of its customers.

During negotiations, several previously deferred issues remained unresolved, including the lead agency's facilities usage fees and providing assurances of benefits. The lead agency ultimately determined that many of the proposed alternatives in the Design and Construction and Facilities Usage Agreements conflicted with its Principles for Los Vaqueros Reservoir Expansion from 2003 and therefore could not be pursued. CCWD's key Principles for an expanded LVR included improving water quality and reliability for CCWD and protecting and reimbursing the financial investment made by CCWD customers for the existing LVR Project.

Separately, EBMUD developed a draft termsheet outlining potential use of the Freeport facility for water conveyance by member agencies, if requested. However, during negotiations, the partners indicated that they did not anticipate using the Freeport facility in the near term due to high usage fees and EBMUD's inability to guarantee conveyance capacity during drought years.

Recommendations:

- **Address key issues early:** Resolve critical project issues and clearly define project benefits before negotiating agreements.
- **Treat negotiation impasses as warning signs:** Unresolved issues during early agreement negotiations should be viewed as potential red flags to be addressed before proceeding to subsequent agreements.
- **Reassess leadership changes:** If significant change in leadership occurs at a partner agency, the partners should promptly reassess their continued interest in the project and revisit the project principles to ensure alignment.
- **Ensure agreements are adaptive:** Project agreements should include provisions that allow for adjustments in response to changing conditions, ensuring durability and viability.
- **Encourage strategic facility use:** If EBMUD conveys water for other agencies in the future, it may consider discounting the capital repayment costs to incentivize greater wheeling, while still fully recovering variable costs. Otherwise, EBMUD risks forgoing potential revenue and leaving facilities like Freeport underutilized.

3.5 Exit Strategy

EBMUD was the first member agency to make a participation decision regarding the Project. In August 2024, EBMUD decided to continue supporting the project without committing additional funding by reducing its storage request from 30,000 acre-feet to zero. EBMUD also decided to remain a member of the LVR JPA to provide conveyance services for partners had the Project proceeded. This approach allowed EBMUD to remain part of the Project while avoiding financial obligations for a share of the capital costs. EBMUD's Board, General Manager, and staff were aligned with the participation decision.

After the lead agency decided to withdraw from the Project, the Boards of all the agencies quickly reached consensus to conclude the effort. Overall, the Project exit strategy was executed effectively, as the partners agreed that rising costs and reduced benefits made continued investment no longer viable.

Recommendation:

- **Maintain alignment through regular updates:** Continue to schedule regular updates with EBMUD's Board at key decision points to ensure alignment with the Board, General Manager, and staff.

4. Conclusions

The LVR Expansion Project was an ambitious and complex regional water resiliency project. Despite its promise, the Project ultimately did not move forward due to reduced yield, escalating construction costs, differing views on risk sharing, and unresolved issues on key agreements.

Differences in the level of control and risk made it difficult for the partners to resolve the key issues necessary to advance the Project. The lead agency owned and operated the key facilities required for the Project but did not perceive itself as a beneficiary. As with any water agency, it was reasonable for the lead agency to prioritize the needs of its customers and to maintain control of its infrastructure.

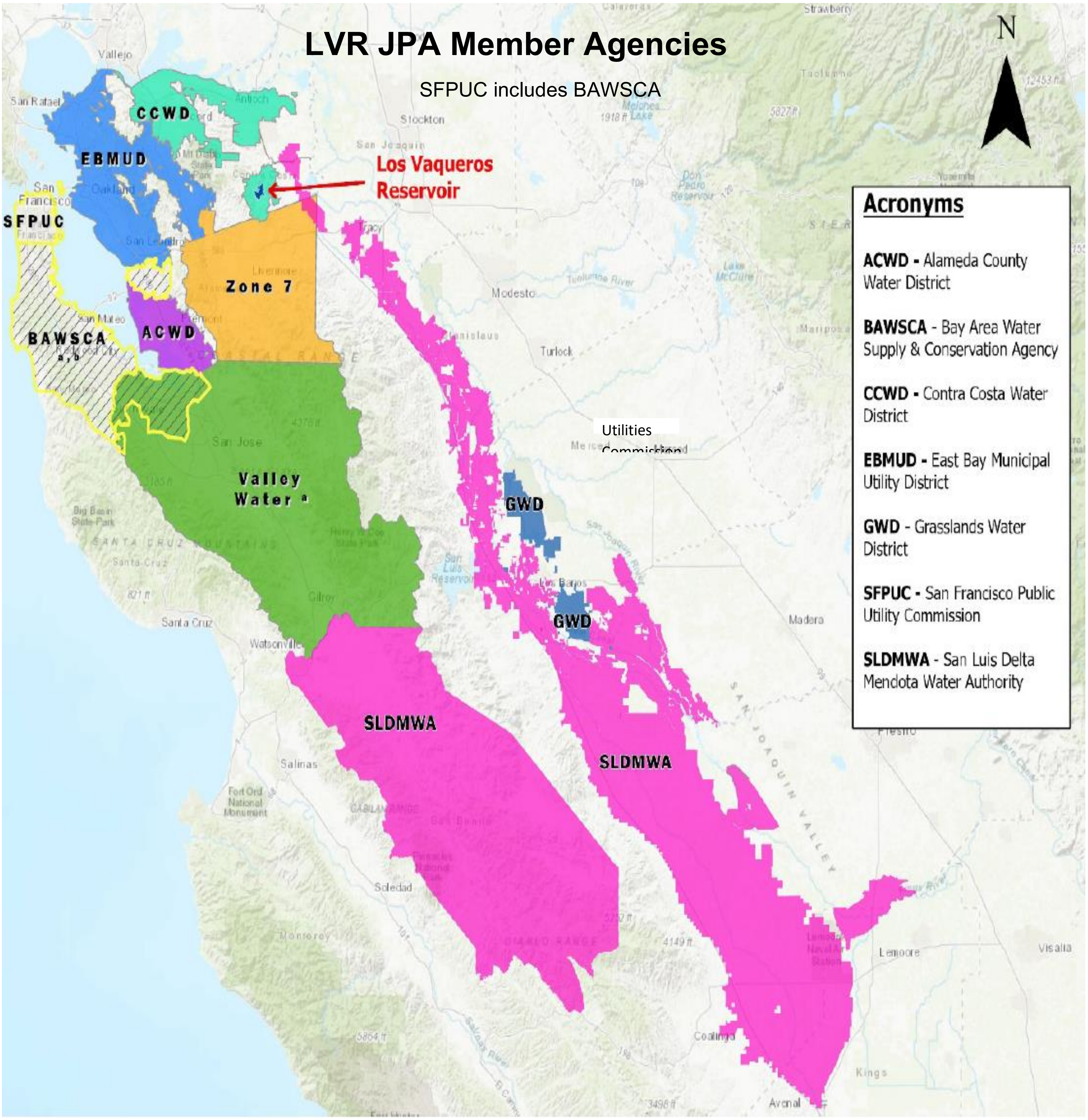
A multi-agency project is more likely to succeed when all participants share both the benefits and the risks. Aligning financial and operational responsibilities with decision-making authority will support more equitable control, accountability, and a more collaborative approach to managing risk and costs.

For any future partnerships, project-specific principles should be developed early in the process and revisited periodically to reflect changing conditions. Key project issues should be resolved and benefits clearly defined before proceeding to subsequent phases such as design, permitting, or forming the governance structure.

While grant funding can play a valuable role in moving projects forward, it should not take precedence over addressing the key issues. Maintaining focus on addressing key risks and agreements must remain the highest priority to ensure long-term project viability.

Although the partners ultimately chose to exit the Project, the collaboration strengthened relationships among the LVR JPA member agencies. These relationships will be beneficial for any potential future partnerships, whether among all or a subset of the agencies.

Attachment A: LVR JPA Member Agencies



Attachment A: LVR JPA Member Agencies

1. Alameda County Water Agency
2. Contra Costa Water District
3. EBMUD
4. Grasslands Water District
5. San Francisco Public Utilities Commission (includes Bay Area Water Supply & Conservation Agency)
6. San Luis & Delta Mendota Water Authority, consisting of:
   - Byron-Bethany Irrigation District
   - Del Puerto Water District
   - Panoche Water District
   - Westlands Water District
7. Valley Water
8. Zone 7 Water Agency

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