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**DEPARTMENT OF PUBLIC WORKS**

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ROAD COMMISSIONER

Sambath Chrun, PE  
DEPUTY DIRECTOR - ENGINEERING

Chad Johnson, LS  
COUNTY SURVEYOR

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DEPUTY DIRECTOR - DEVELOPMENT  
SERVICES & TRAFFIC

Janelle Kostlivy  
SENIOR BUSINESS MANAGER

August 12, 2024

Anthea Hansen, General Manager  
Del Puerto Water District  
PO Box 1596  
Patterson, CA 95363

Mr. Chris White, Executive Director  
San Joaquin River Exchange Contractor's Water Authority  
P.O. Box 2115  
Los Banos, CA 93635

**RE: Del Puerto Canyon Reservoir Project Relocation of Del Puerto Canyon Road**

Dear Ms. Hansen & Mr. White,

In January 2020, the Stanislaus County Board of Supervisors provided a letter of support for the Del Puerto Canyon Reservoir Project being proposed by the Del Puerto Water District and the San Joaquin River Exchange Contractors Water Authority (Project Partners). I echo that support.

As the department charged with transportation planning, design, construction and maintenance responsibilities for Stanislaus County, the Department of Public Works has responsibility for Del Puerto Canyon Road. Because a portion of the existing Del Puerto Canyon Road will need to be relocated to allow for the development of the proposed Del Puerto Canyon Reservoir, we are pleased to have been engaged by your Program Team over the past few years of planning for a more detailed proposal regarding the location of the relocated road.

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Most recently, during the Project's Design Alternatives Analysis Phase for the Roadway Relocation, we had the opportunity to meet multiple times with you and your project team relative to Design Intent, Design Standards, and a detailed Evaluation of many good and viable Alternatives for the relocated portion of roadway. We appreciate the opportunity provided by the Project Partners to support and offer the County's input to this process.

The Department of Public Works values safety and cost-effective maintainability for our roadways. Alternative #9, which rose to the top as the preferred alternative from Design Alternatives Analysis, provides the safety and maintainability the County was seeking, among many other favorable features. The proposed Alternative #9 also supports our County transportation goals with regard to biking facilities. As such, the Stanislaus County Department of Public Works is pleased to submit this letter of support for the development of the project featuring Alternative #9 as the preferred alternative for the Del Puerto Canyon Road relocation.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Leamon', with a long horizontal flourish extending to the right.

David Leamon, P.E.

Director of Public Works

Cc: Supervisor Channce Condit, District 5  
Tina Rocha, Assistant CEO

DEL PUERTO WATER DISTRICT (DPWD) AND  
SAN JOAQUIN RIVER EXCHANGE CONTRACTORS WATER AUTHORITY (SJRECWA)

**DEL PUERTO CANYON RESERVOIR PROJECT  
TECHNICAL REVIEW BOARD MEETING NO. 6**

August 7, 2024

Anthea Hansen, General Manager  
Del Puerto Water District  
PO Box 1596  
Patterson, CA 95363

Subject: Technical Review Board Meeting No. 6, Del Puerto Canyon Reservoir Project,  
July 23, 2024

Dear Anthea,

The sixth meeting of the Technical Review Board (TRB or Board) regarding the Del Puerto Canyon Reservoir Canyon (DPCR) Project was held by Teams conference call on Tuesday, July 23, 2024.

The meeting was attended by representatives of the project partners, Del Puerto Water District (DPWD) and San Joaquin River Exchange Contractors Water Authority (SJRECWA), the Program consultant (Woodard & Curran), the Design Team consultants (TERRA/GeoPentech, IEC, InfraTerra, Schnabel), and the TRB. A list of meeting attendees is provided in Attachment A.

The purpose of this meeting was to update the TRB on the status of the geotechnical characterization and fault investigation work. The meeting was comprised of presentations by the Design Team, discussions by participants, and responses by the TRB to questions posed by the Design Team. The meeting agenda is provided in Attachment B. The TRB was provided with copies of the draft Geotechnical Data Report (GDR) and Geotechnical Interpretative Report (GIR) prior to the meeting (read-ahead documents are listed in Attachment C). In addition, the TRB was provided with copies of the meeting presentations prior to the meeting.

This letter report contains the TRB's responses to the questions posed by the Design Team during the meeting. This letter report was finalized after addressing the editorial comments from you and your consultants regarding the draft submitted July 23, 2024.

**Question 1:**

*Does the TRB have any comments regarding the completeness of the GDR?*

The GDR is comprehensive and provides a well-organized summary of the project site investigations and laboratory test results obtained to date. The laboratory test program was well done including classification, index, and strength testing of foundation rock units and dam embankment materials as well as durability testing of possible rip rap materials. There are several items still in progress that will be added to the final report (e.g., CPTs at Saddle Dam 1 and ongoing laboratory testing).



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The following are other items that warrant consideration for inclusion in the GDR (or the GIR).

- 3D model: Consider including a movie file to show various perspectives, views, or flythroughs of the site, or a program link to use the 3D model with project data files.
- Lugeon plots: For the packer tests that have more than one pressure step, it would be helpful to provide the standard Lugeon plots (pressure versus flow rate).
- Sections (fence diagrams): Consider adding the hydraulic conductivity to the borehole stick plots and note by symbol where drilling water loss occurred.
- CPTs at Saddle Dam 1: The TRB looks forward to seeing the results at our next meeting.
- Photos of site and outcrops: Consider adding an appendix with selected photos as they would provide insight for those not able to visit the site in person.

The TRB thinks that the information collected provides a comprehensive and representative characterization of borrow sources within the project area. The characterization work has focused on "blends" and for this reason, the TRB offers two comments for the design phase. The quantities of the available materials for each of the zones in the dam embankment need to be estimated. Blending has risks for producing a quality product when it is done on a large scale. Moisture issues during blending are easier to overcome. The construction costs of blending and stockpiling need to be considered in the cost estimate.

The result of laboratory testing of the Panoche source were unexpected and informative. The LA abrasion tests results clarify that this is not a possible source of rip rap. The wet/dry testing results are promising for this material as a downstream shell. In addition, the TRB suggests that rip rap may not be your only solution for the upstream dam face. Good rip rap sources are few and expensive. RCC or soil cement may be possibilities for upstream face protection.

**Question 2:**

*Does the TRB have any comments regarding the preliminary conclusions of the geotechnical characterization? Does the TRB concur that the bedrock is acceptable as a foundation material without extensive excavation and that design of the grouting program will require special attention to the high take zone? Does the TRB concur that sufficient characterization has been done for matching borrow source to embankment zoning and that appropriate engineering properties have been established for embankment fill materials?*

There has been a substantial investigation, which included geotechnical exploration, field and laboratory testing and groundwater monitoring data, to support the design of the proposed project including the main dam, two saddle dams, spillway and inlet/outlet structure. Together with the remaining exploration planned, the TRB believes there has been adequate information collected to complete the design of the proposed project. The TRB believes the results of the investigation including the shear strengths, permeability and other material characteristics are well supported and is an accurate portrayal that can be used during the design phase of the project.

The investigation of the bedrock for the proposed dams included exploration and testing of the proposed foundation. Consistent with the characterization of the embankment material, the TRB believes the results of the bedrock strength characteristics is an accurate portrayal and can be used in design. The information



can be used to support the assumption that the foundation will be adequate, and that relatively minimal excavations would be required to meet the required factors of safety.

The investigation revealed the various foundation materials are relatively impermeable. However, the data has also shown that water takes are substantial at the contact of the fanglomerate sandstone and conglomerate. Therefore, special attention will be required for grouting and surface treatment of these zones.

The TRB concurs that sufficient characterization of borrow sources has been completed for supporting the selection of borrow sources for construction of the major embankment zones. The characterized borrow sources were binned into five categories: alluvium (for shell material), landslide debris (for core material), Moreno Formation (for core and shell materials), Fanglomerate Unit (for downstream shell material), and Tesla Formation (for shell material). The Design Team identified preferred borrow sources for the major embankment zones: the weakly cemented Fanglomerate for the downstream shell, the Tesla Sandstone and Moreno Sandstone for the upstream shell, and the Moreno Shale and Moreno Claystone for the core. The TRB believes the selection of these borrow sources is well supported.

The TRB concurs that sufficient laboratory testing has been completed for developing strength parameters for the major embankment zones constructed with the identified borrow materials. The Phase 2 laboratory testing reasonably focused on five blends: Blend 10 (weakly cemented Fanglomerate) for the downstream shell, Blends 11 (Tesla Sandstone) and 12 (Moreno Sandstone) for the upstream shell, and Blends 13 (Moreno Shale) and 14 (Moreno Claystone) for the core. Effective stress (drained) shear strength envelopes were presented and compared to those obtained for the different foundation bedrock units. Unconsolidated undrained shear strength envelopes for the upstream shell and core materials, to support end-of-construction stability analyses, were also presented. The Phase 1 and 2 datasets together provide good coverage of different borrow sources and different levels of relative compaction. The TRB recommends that the next draft of the GIR include a summary of recommended strength parameters for all the loading cases to be evaluated in embankment design.

**Question 3:**

*Does the TRB have any comments regarding the completeness and general conclusions of the fault investigation? Does the TRB concur that faulting associated with the San Joaquin fault is located east of the Main Dam and I-5? Does the TRB concur that ground deformation that could occur in an earthquake would be associated with a broad zone of uplift, no discrete fault scarps, and likely broad surface warping?*

Significant information was collected and presented by the Design Team about the San Joaquin frontal fault zone location and how the most recent fault activity has deformed shallow geologic deposits. The location of the fault zone has been mapped east of Interstate 5 and near the State Water Project canal. The Design Team's site investigations consisted of review of nearby and regional fault studies; mapping with the use of historic aerial photography and recent high resolution LiDAR imagery; electrical and seismic geophysical surveys; and fault trenches to expose near surface deformed materials. The efforts also included a detailed study of alluvial terrace formation and deformation along Del Puerto Creek. The TRB thinks these studies are sufficient and adequate and commends the Team on the quality of this work.

One aspect of site investigations that was not completed due to environmental issues was the CPT soundings at Saddle Dam 1. We recognize the importance of this information and urge the Design Team to pursue the completion of the CPT soundings.

The fault studies conducted by the design team concluded that the most significant future surface deformation generated by the San Joaquin fault zone would be located some distance east of the project. The study further concluded that some minor general warping of the area west of the mapped trace, including portions of the project, could occur. To date, efforts to quantify the amount of this warping and its effect on the dam foundations and appurtenances have not been performed. The TRB suggests estimates of past deformations need to be developed, along with an evaluation of how well such estimates are constrained (or not) by the geologic data. The specification of deformations to be used in design analyses can be included in the 30% design TM but the evaluation of geologic constraints on these values would be appropriate for the GIR. We encourage the design team to assimilate their data towards this goal.

**Closure:**

The TRB appreciates the clarity of the Design Team's presentations and the collaborative discussions during the meeting.

The next full meeting of the TRB is scheduled to be in-person from Monday to Wednesday, November 18-20, 2024. The purpose of this meeting will include reviewing review final drafts of the GDR and GIR but will focus on progress toward completing the 30% design Technical Memorandum.

The TRB appreciates the opportunity to be of assistance to DPWD and SJRECWA in this assignment.

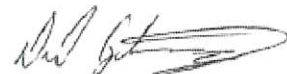
Respectfully submitted,



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Attachment A: List of Participants  
Attachment B: Agenda for TRB Meeting  
Attachment C: List of Read Ahead Documents

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**Attachment A:  
List of Participants**

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Anthea Hansen	<i>DPWD</i>	Guilaine Roussel	<i>TERRA/GeoPentech</i>
Chris White	<i>SJRECWA</i>	Robert Kirby	<i>TERRA/GeoPentech</i>
Andy Neal		Andrew Dinsick	<i>TERRA/GeoPentech</i>
Xavier Irias	<i>Woodard &amp; Curran</i>	Bob McManus	<i>TERRA Engineers</i>
Andy Neal	<i>Woodard &amp; Curran</i>	Chris Hitchcock	<i>InfraTerra</i>
Ross Boulanger	<i>TRB</i>	Phil Martin	<i>IEC</i>
Kerry Cato	<i>TRB</i>	Brian Toombs	<i>Schnabel</i>
David Gutierrez	<i>TRB</i>		
Gregg Korbin	<i>TRB</i>		
Mike Pauletto	<i>TRB</i>		

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**Attachment B:  
Agenda for TRB Meeting**

- 8:00 AM Introduction and Objectives of Meeting
- 8:10 AM Progress to Date
- 8:20 AM **Update of Geotechnical Characterization**
- Foundation Rock and its Impact on Construction and on Stability of Cut Slopes
  - Riprap Investigation
  - Properties of Final Blends for Fill Materials
  - What Remains to be Done
- 10:20 AM **Break**
- 10:30 AM **Update of Fault Investigation**
- Results of Additional Geomorphic Mapping
  - Findings from Geophysical Profiles
  - Test Pit Exposures
  - Summary of Fault Rupture Hazard
- 11:30 AM **General Discussion**
- 12:00 PM **Lunch and TRB Off-Line Discussion**
- 3:00 PM **TRB Comments**
- 4:00 PM **Meeting Close**

**Attachment C:  
List of Read Ahead Documents**

Geotechnical Interpretive Report (GIR) – Interim Draft, July 2024

- DPCR-GIR\_Interim Draft.pdf

Geotechnical Data Report (GDR) – Final Draft, July 2024

- DPCR-GDR\_Final Draft\_Rev.pdf
- Appendix A - Final Draft GDR.pdf
- Appendix B - Final Draft GDR.pdf
- Appendix C - Final Draft GDR.pdf
- Appendix D - Final Draft GDR.pdf
- Appendix E - Final Draft GDR.pdf
- Appendix F - Final Draft GDR.pdf
- Appendix G - Final Draft GDR.pdf





**TERRA / GeoPentech**

a Joint Venture  
235 Montgomery Street, Suite 1025  
San Francisco, CA 94104  
415-543-0330

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**Progress  
Report**

**DEL PUERTO CANYON RESERVOIR  
DESIGN OF DAMS AND APPURTENANT STRUCTURES**

Progress Report No.: PR-25

Prepared by: G. Roussel

Reporting Period: June 1, 2024 through June 28, 2024

Date: 07/17/2024

**ACTIVITIES DURING REPORTING PERIOD**

**Task 1 – Project Administration**

- Prepared for and attended one biweekly status meeting with Program Team, prepared meeting notes, and maintained action item list.
- Prepared progress report (including Earned Value Analysis) and submitted with invoice.
- Held weekly internal status meetings with TGP technical staff involved in the work to monitor progress and address issues, as necessary.
- Provided direction to TGP staff for prioritizing and re-scheduling activities and resolved logistics issues as they arose.

**Task 3 – Geotechnical Evaluation**

- Continued assembly of materials to be included in GDR.
- Continued laboratory testing and interpretation of laboratory test results as they became available.
- Continued geotechnical characterization and updated 3-D model of subsurface conditions with additional information on rock quality.
- Completed three test trenches in support of the Fault Investigation.
- Continued preparation of GIR, documenting the results of the on-going geotechnical characterization.

**Task 4 – Preliminary Design (30% Design)**

- Updated stability analyses with new information on strength of rock.
- Developed 3D sketch for PG&E to help them visualize the relationship between the new tower locations and the spillway excavation, including the access road to the towers.

**SIGNIFICANT ISSUES ENCOUNTERED / ADDRESSED**

No new issues encountered.

**ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD (thru July 26, 2024)**

**Task 1 – Project Administration**

- Prepare for and attend biweekly status meetings with Program Team, prepare meeting notes, and maintain action item list.
- Monitor weekly progress and address issues, as necessary.
- Provide logistical direction to the TGP Team as project needs and requirements evolve.
- Address special requests from Program Team.

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**Task 3 – Geotechnical Evaluation**

- Complete assembly of GDR and submit final draft document for review by Technical Review Board (TRB), understanding that the laboratory tests will not all be completed and will be included in a future revised version of the GDR.
- Start preparation of Design Memorandum DM-02 - Fault Rupture and Permanent Ground Displacement Hazard Assessment.
- Continue interpretation of laboratory test results as they become available.
- Complete preparation of Interim Draft GIR, documenting the results of the geotechnical characterization with the available results of laboratory tests and submit document for review by TRB. A final draft of the GIR will be prepared at a later date when all laboratory tests have been completed and CPTs at Saddle Dam 1 have been performed.
- Prepare for, and participate in, virtual TRB meeting on July 23, 2024.

**PROGRESS AND COST TO DATE**

Work on the project is authorized by Task Orders that assign partial budgets to the various Tasks as the project progresses. The following table provides a summary of the cost and progress by Task for work authorized under Task Orders 01 & 03 to 05, as of June 28, 2024.

ACTIVITY	Estimate for Task Orders 01 & 03 to 05	Prior Billed (\$)	Current Billed (\$)	Total Billed (\$)	Remaining Budget (\$)	Percent Spent	Percent Complete
Task 1 - Project Administration	810,555	470,658	5,130	475,788	334,767	58.7%	74%
Task 3 - Geotechnical Evaluation	8,094,581	6,832,185	119,114	6,951,299	1,143,282	85.9%	90%
Task 4 - Preliminary (30%) Design	1,330,906	802,592	7,358	809,950	520,956	60.9%	45%
<b>TOTAL</b>	<b>10,236,042</b>	<b>8,105,436</b>	<b>131,601</b>	<b>8,237,037</b>	<b>1,999,005</b>	<b>80.5%</b>	<b>81%</b>

The results of the Earned Value Analysis (EVA) for the project as of June 28, 2024 are listed in the following table and are shown graphically on Figure 1. As a reminder, the latest planned value takes advantage of the savings that were achieved in the Phase 2 explorations and reallocates budgets to Task 4 to complete design analyses that were not previously authorized by Task Order 03 without the need for additional funding through the end of 2024.

Actual Cost of Work Performed (ACWP)	Budgeted Cost of Work Performed (BCWP)	Budgeted Cost of Work Scheduled (BCWS)	Cost Variance (BCWP - ACWP)	Schedule Variance (BCWP - BCWS)
\$8,237,037	\$8,290,335	\$9,574,848	\$53,297	(\$1,284,514)

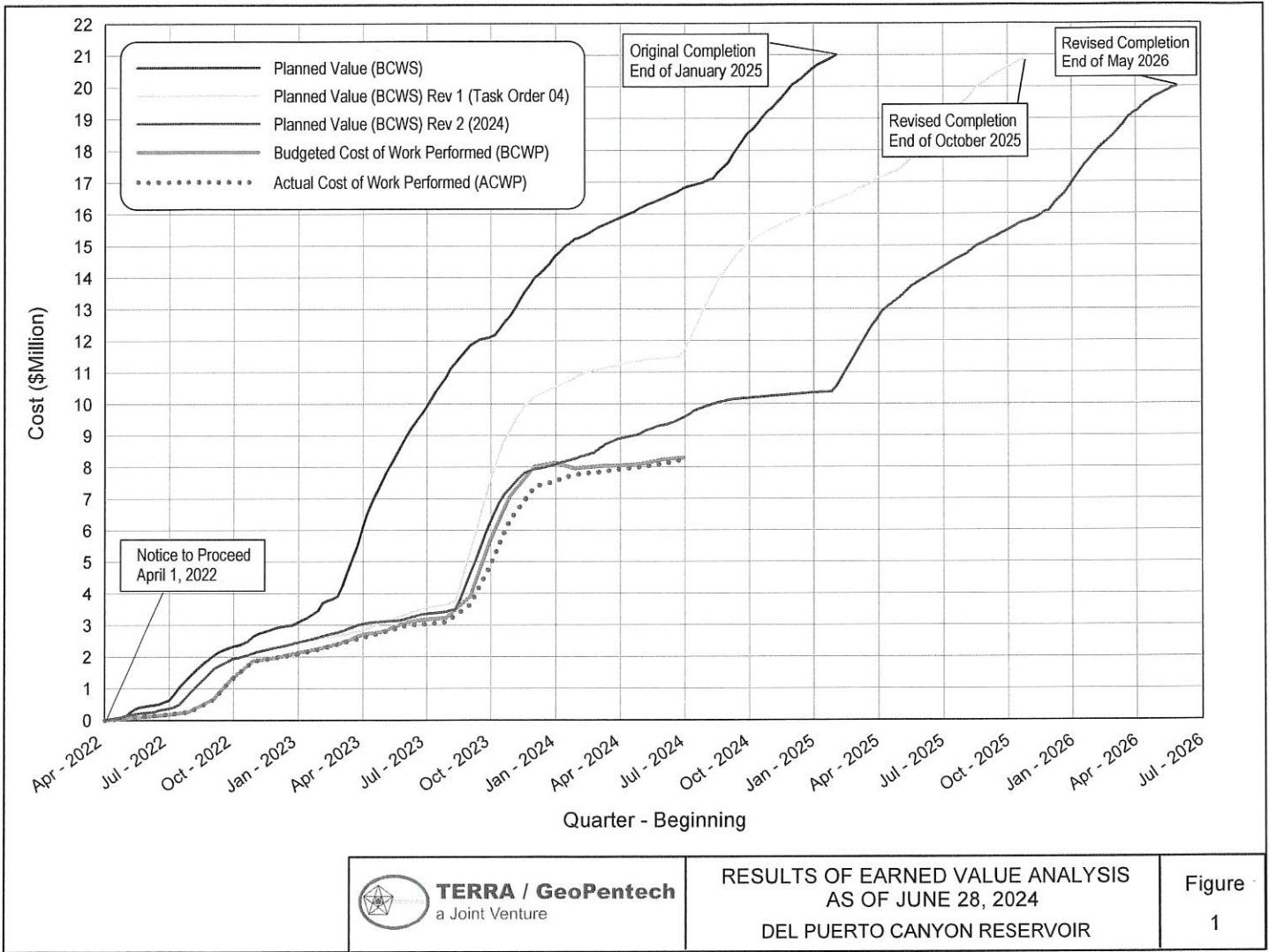
The EVA is based on an Estimate-to-Complete (ETC) by subtask and indicates that the work planned to be done in 2024 is likely to be completed slightly under the budget authorized by Task Orders 01 & 03 to 05. This under budget amount will be available to address special requests from the Program Team that fall outside our specific scope of work.

The schedule variance continues to increase. This is a combination of the predicted under budget amount and delays in some of the planned activities including the additional surface geophysics, the fault investigation test trenches, the Cone Penetrometer Tests, and the laboratory testing that has encountered difficulties because of the characteristics and the rather poor quality of the foundation rock being tested. These delays have been affecting the

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production of the GIR and have required changing the scheduled 3-day in person July, 2024 TRB meeting to a one-day virtual meeting and rescheduling the in-person TRB meeting for November 18 to 19, 2024.





RESULTS OF EARNED VALUE ANALYSIS  
AS OF JUNE 28, 2024  
DEL PUERTO CANYON RESERVOIR

Figure  
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## MEMORANDUM



**TO:** Chris White, Executive Director, San Joaquin River Exchange Contractors Water Authority  
Anthea Hansen, General Manager, Del Puerto Water District

**FROM:** Andy Neal

**DATE:** July 30, 2024

**RE:** Del Puerto Canyon Reservoir Progress Update for August 2024 Board Meeting

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Mr. White and Ms. Hansen:

Below is a summary of our progress on the Del Puerto Canyon Reservoir project.

Project Goals:

- 1) Design, permit, and construct an 82,000 AF south-of-delta reservoir to provide locally-owned and controlled water storage for agricultural and west-side communities water supply.
- 2) Seek to obtain up to 25% federal cost share through the Water Infrastructure Improvements in the Nation (WIIN) Act. A proportional share of the project benefits are the federal benefits.

### Dam Design/Engineering

The Terra-GeoPentech team continued work to analyze the samples and process information obtained during the extensive fieldwork that concluded in November. A virtual meeting of the dam Technical Review Board (TRB) was held on July 23. The TRB was complimentary of work done by the project team. Another TRB meeting is planned for November; at that time, it is anticipated that all of the data from field investigations will be available.

### Utility Relocation

The Program team continues to work with PG&E and the dam designer TGP to coordinate and define adjustments to avoid a potential conflict between the proposed dam spillway and proposed PG&E electrical towers. While the proposed tower locations all appear feasible, they need to be further validated by further advancing the design of access roads and tower pads. TYLin has developed a cost proposal for that work, which will be done in concert with their work related to relocation of Del Puerto Canyon Road.

### New Road Alignment

Based on feedback from Stanislaus County at a May 14 meeting, focused stakeholder outreach was done. That effort is now complete, and a preferred alignment has been identified. The alignment selection, and the County's concurrence with the selection, will be documented in the coming month.

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### Environmental

The Program team is continuing to work on the EIS, further defining the physical features of the Ingram Canyon Alternative. Work is also advancing to support the relocation of Del Puerto Canyon Road, including assessment of permitting needs associated with field investigations for the design of the roadway relocation.

The Program team continues to meet regularly with Reclamation to move the EIS forward. With the road alignment confirmed, several quantitative analyses will be able to move forward as the preliminary design of the selected alignment begins.

### Public Outreach

Focused outreach was done relative to the road relocation.

### Project Financing

The team is coordinating with Reclamation on the latest progress reporting and is working to gain the release of additional WIIN Act funds under the budget authorized by Reclamation.

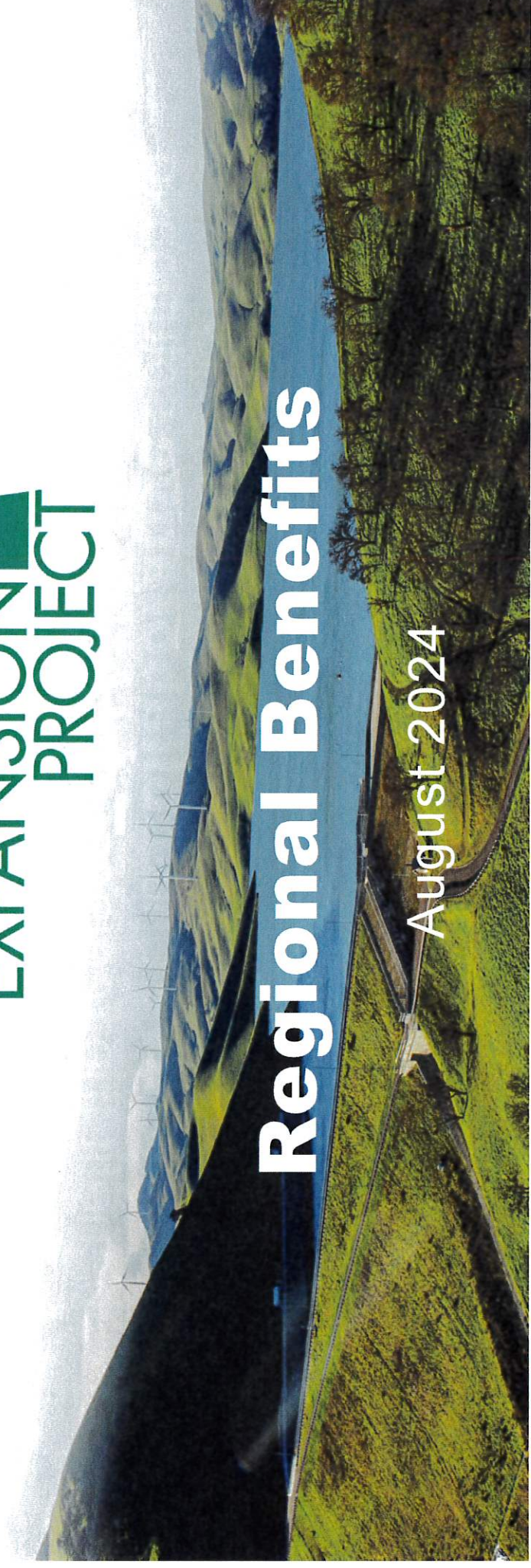
### Programmatic

- 1) Weekly client meetings
- 2) Weekly Reclamation meetings
- 3) Weekly internal team meetings
- 4) Bi-weekly internal meetings with the TGP dam design team, TYLin road design team, and clients

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# LOS VAQUEROS RESERVOIR EXPANSION PROJECT



## Regional Benefits

August 2024



The Los Vaqueros Reservoir Expansion is an **innovative** and **collaborative** solution to benefit the regional **ecosystems** and create a **climate-resilient water supply** for over 11 million Californians.



# Unprecedented Challenges Require Regional Partnerships



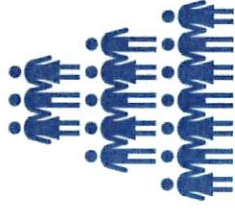
Climate  
Change



Increasing  
Regulatory  
Constraints



Degrading  
Ecosystems



Shifting  
Population and  
Strained Local  
Economies

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## Why Los Vaqueros Reservoir Expansion?

### Collaborative solution to create climate-resilient water supply

- Expand storage in strategic location
- Leverage existing facilities to create a regional connected system
- Provide access to additional intakes in the Delta and lower Sacramento River
- Broad multi-benefits and partnership

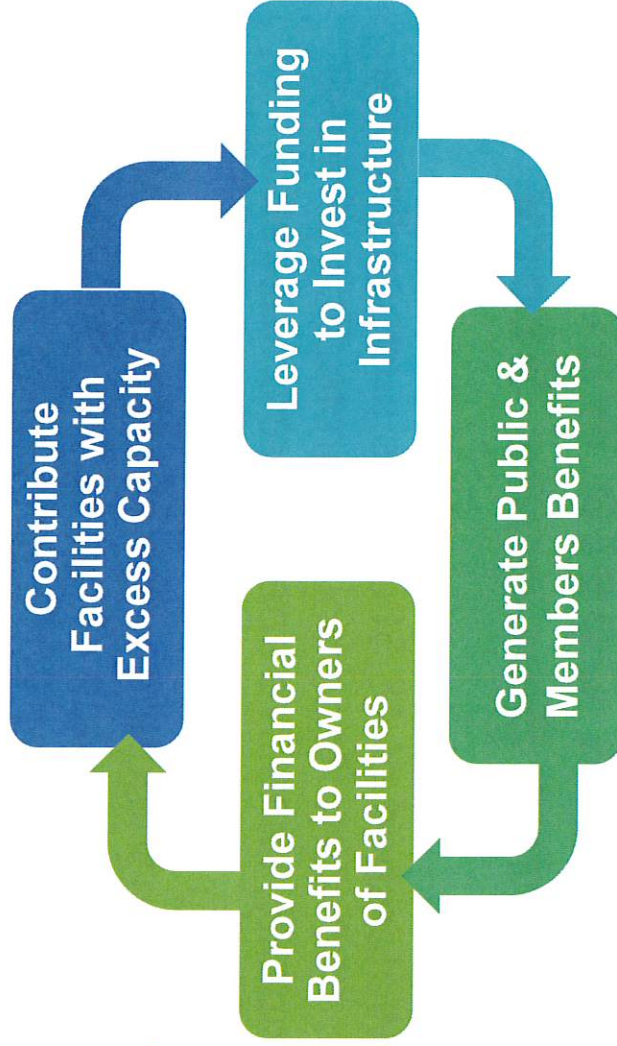






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# Benefits of Excess Capacity



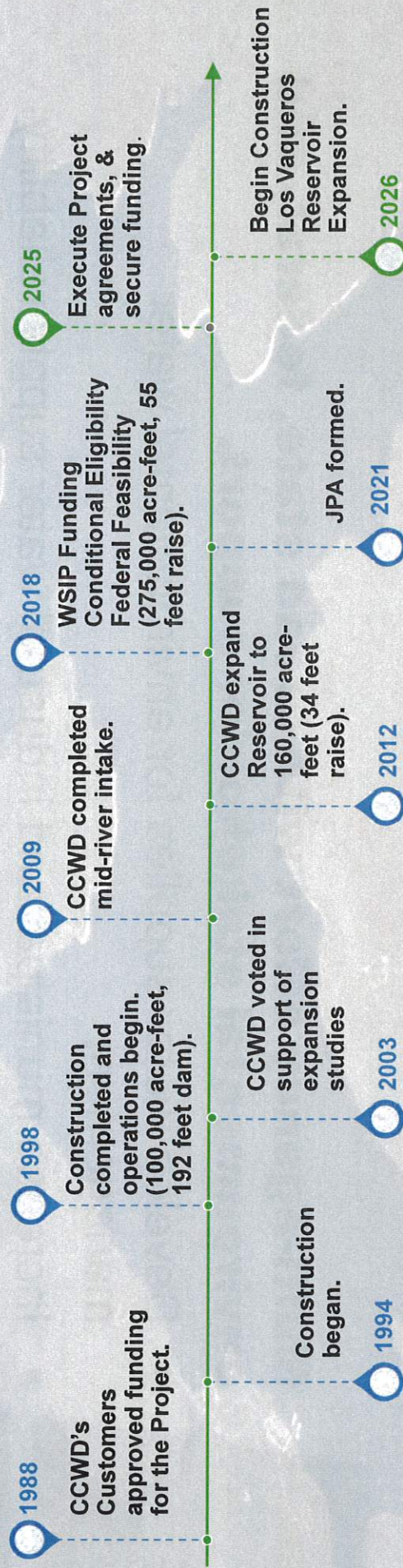


## **Los Vaqueros Reservoir, a Contra Costa Water District Success Story**

- Watershed of 18,500 acres surrounding the 1,900-acre Reservoir for protection of water quality, sensitive species, and habitat.
- CCWD successfully financed and implemented the original 1998 dam, intake, and conveyance construction, the 2009 new intake, and the 2012 dam raise which was completed on schedule and under budget.



# A History of Los Vaqueros Reservoir



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# Objectives for the Los Vaqueros Reservoir Expansion



## Multi-agency effort with broad state, federal, and environmental stakeholder support.

- Develop water supplies for environmental water management
- Increase municipal and industrial water supply reliability
- Improve the quality of water deliveries



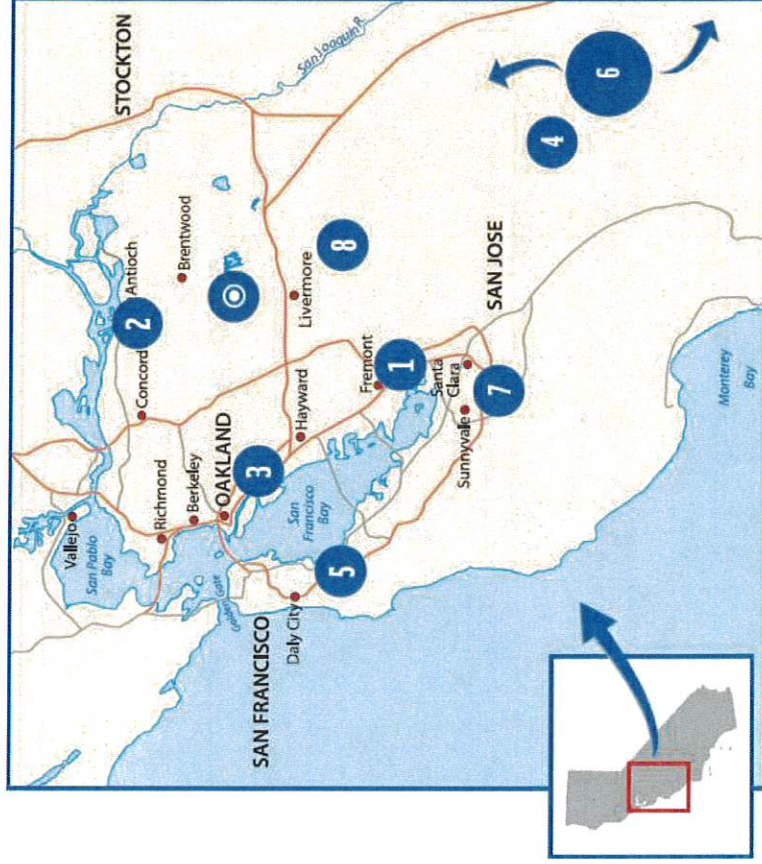


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# Regional Partnerships



1. Alameda County Water District
2. Contra Costa Water District  
City of Brentwood
3. East Bay Municipal Utility District
4. Grassland Water District
5. San Francisco Public Utilities Commission  
Bay Area Water Supply & Conservation Agency
6. San Luis & Delta-Mendota Water Authority  
Byron Bethany Irrigation District  
City of Tracy  
Del Puerto Water District  
Panoche Water District  
Westland Water District
7. Santa Clara Valley Water District
8. Zone 7 Water Agency





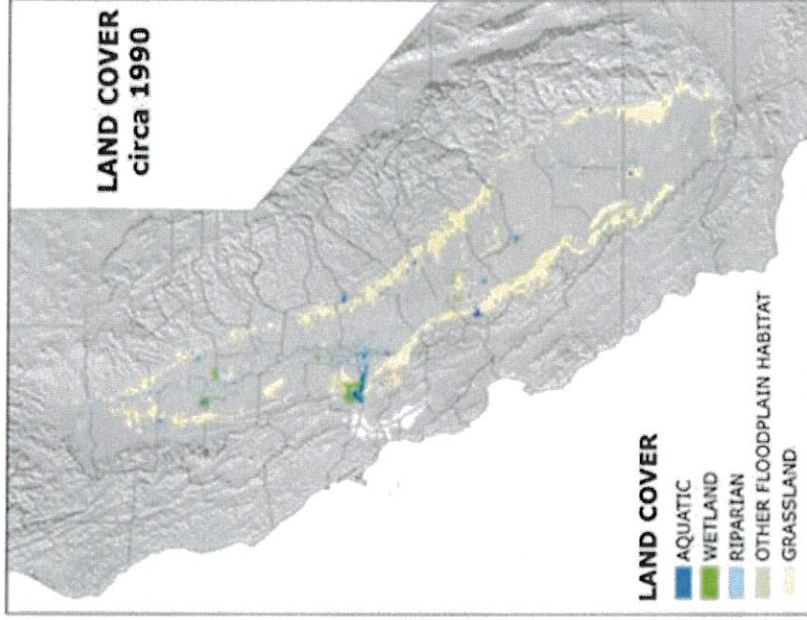
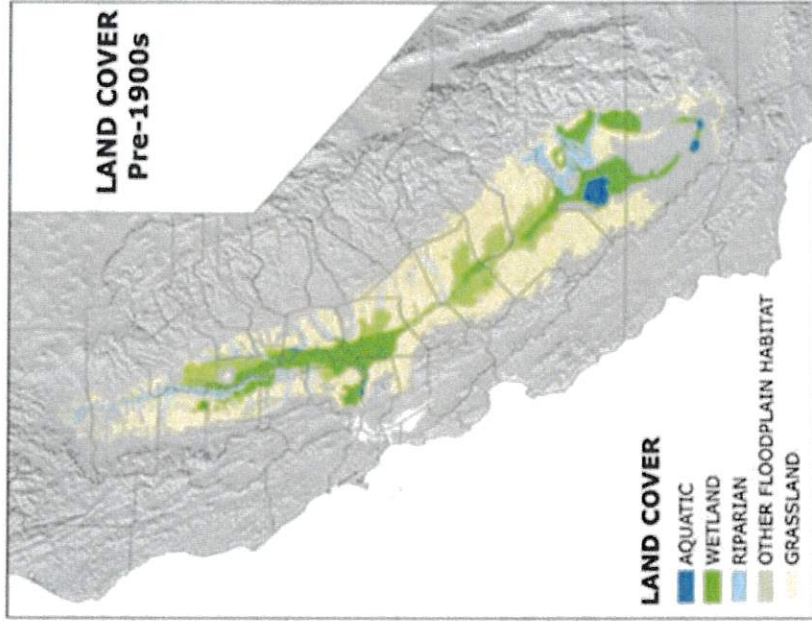
# Refuges & Ecosystem Benefits

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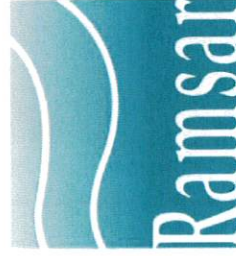
# South of Delta Wildlife Habitat: 95% Loss Since 1850



Disappearance of Central Valley wetlands © Central Valley Historic Mapping Project, California State University, Chico, Geographic Information Center, 2003

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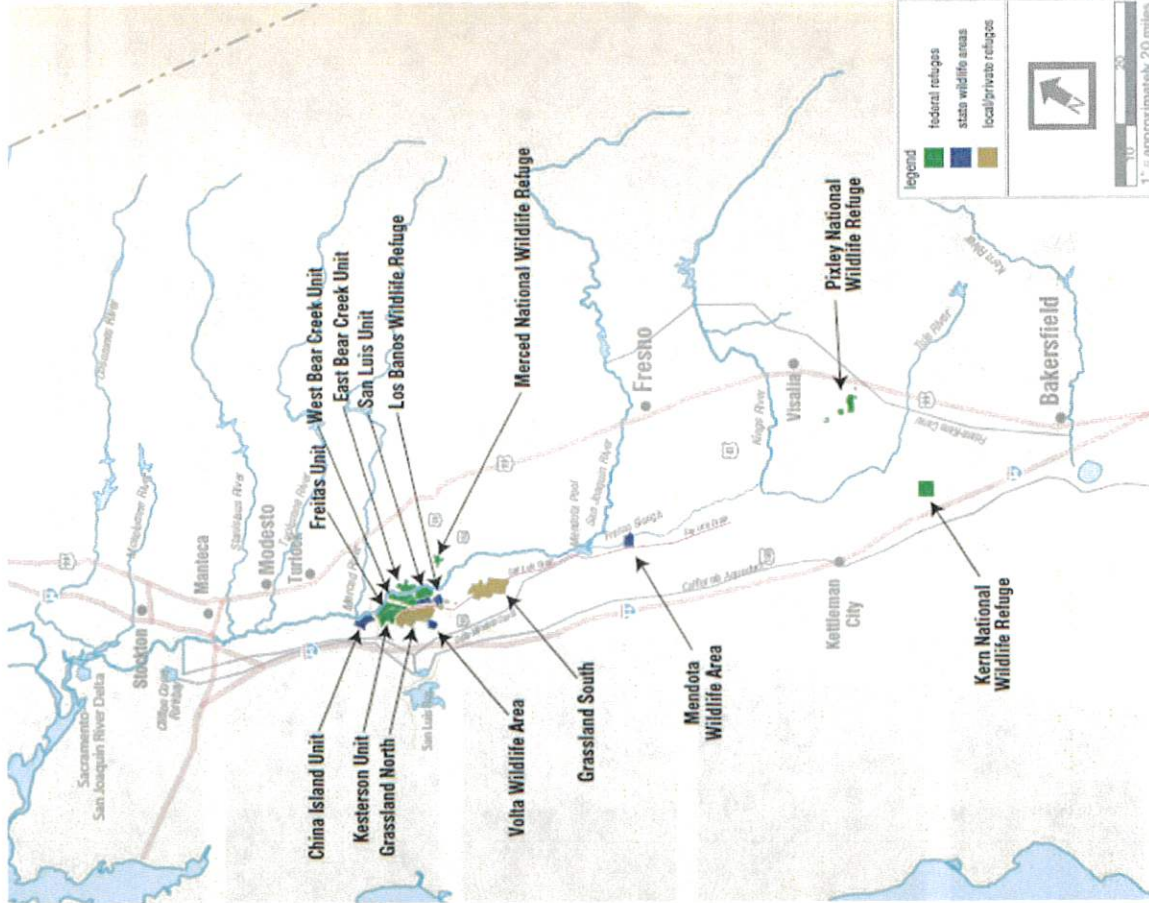
# South of Delta Wildlife Refuges



Wetlands of  
International  
Importance



Western  
Hemispheric  
Shorebird Reserve



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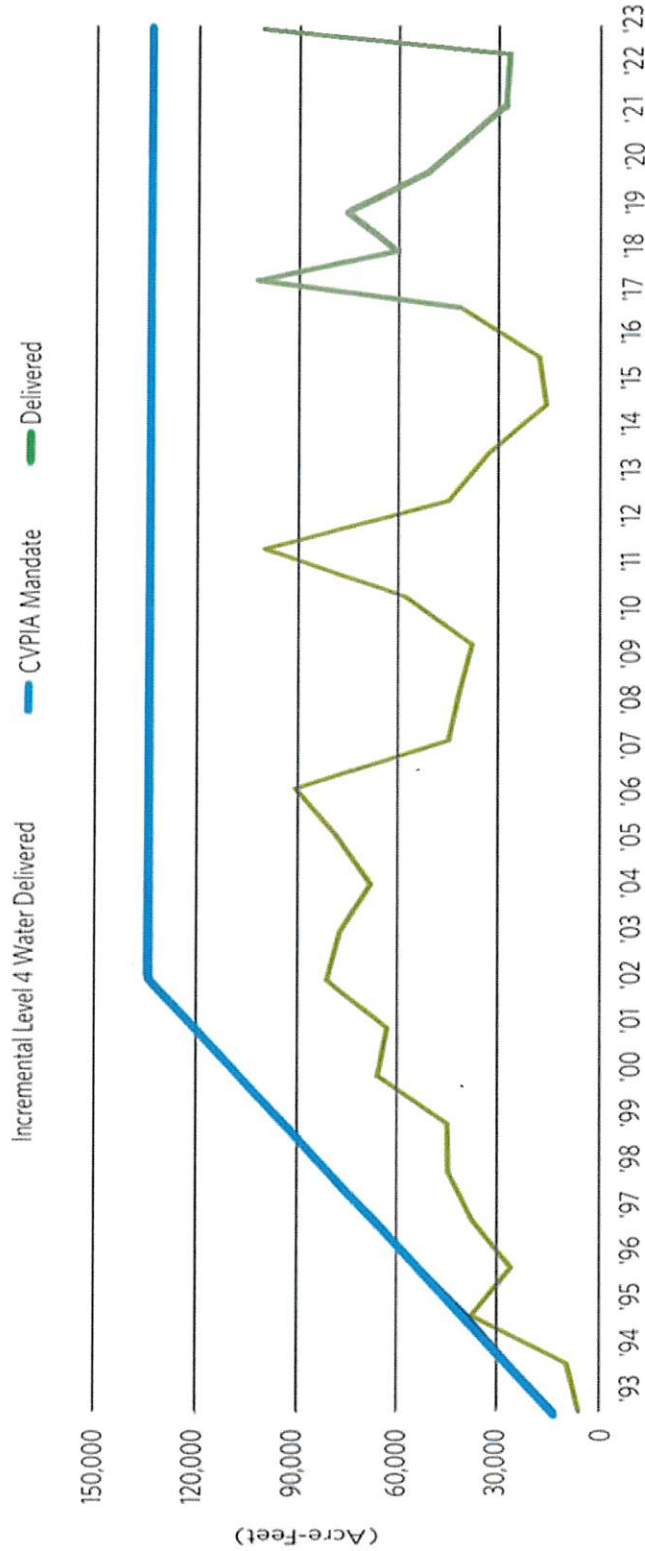




# Water Supply Challenges for South of Delta Refuges

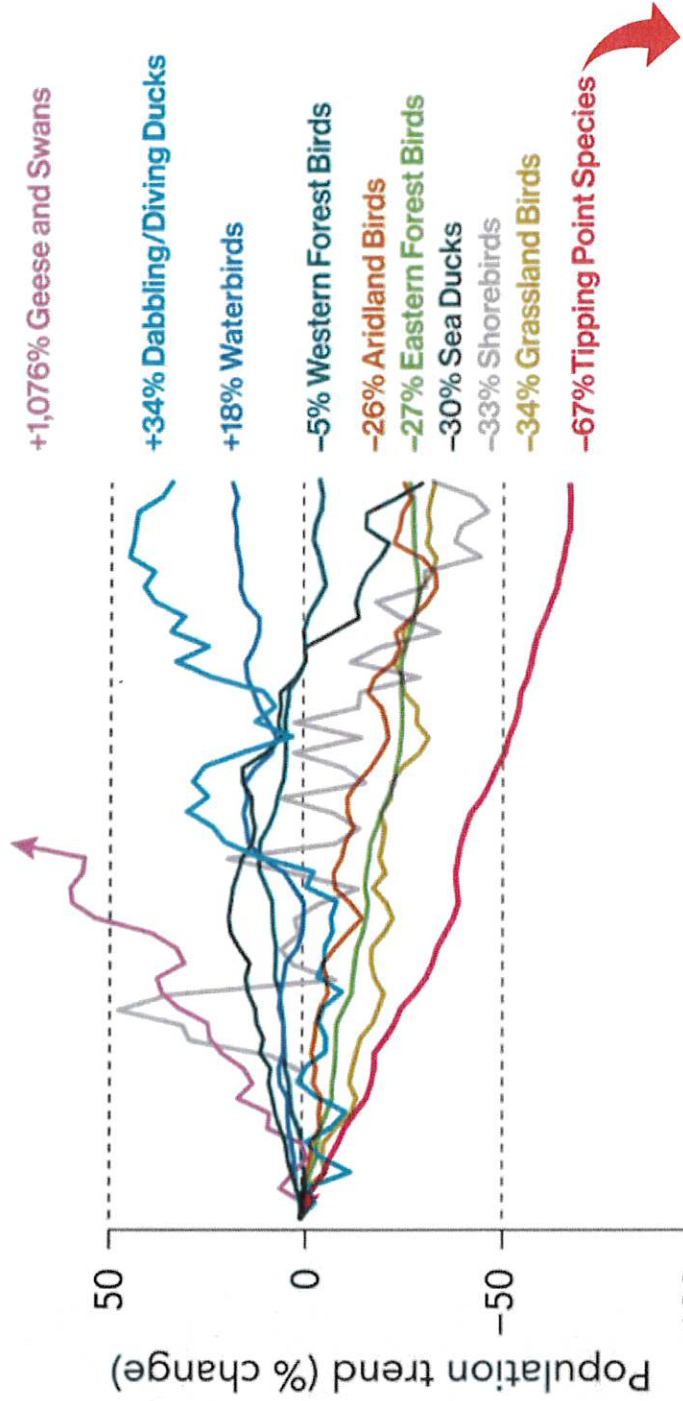


Wildlife Refuge Water Supply 1992-2022



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# State of the Birds Report 2022

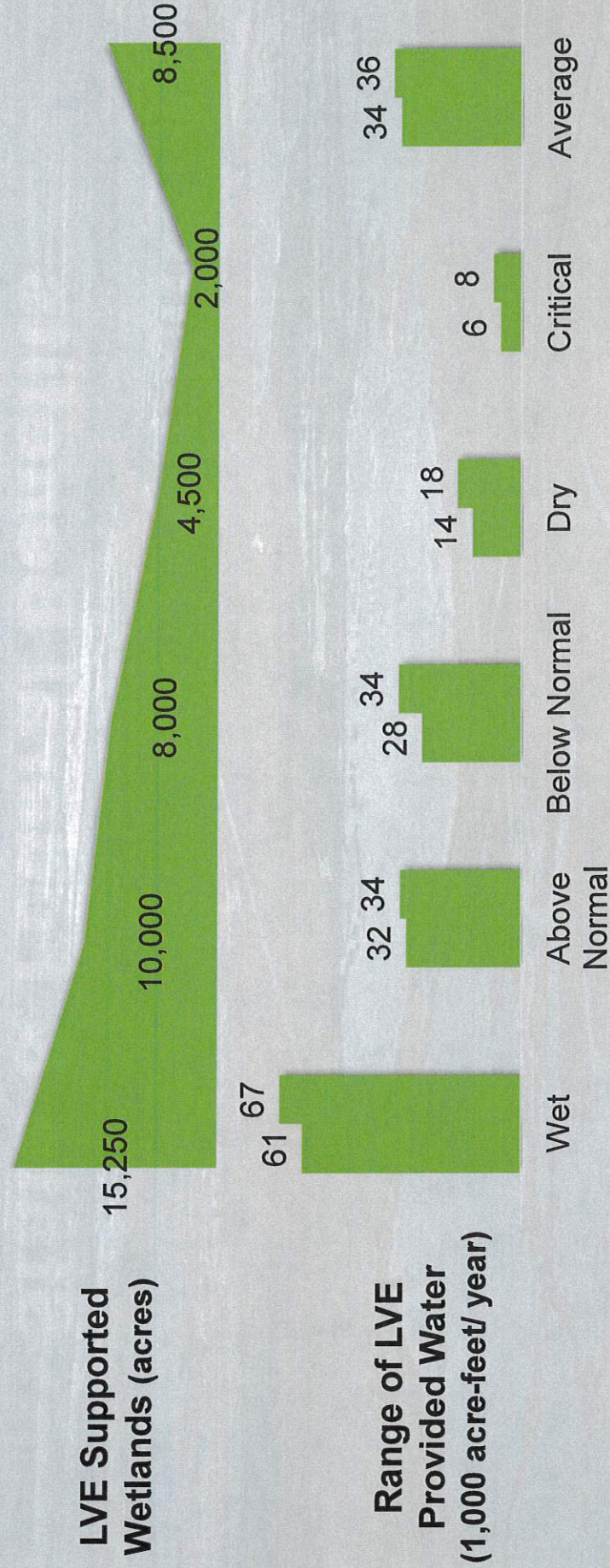


**14 Shorebird Species Nearing Extinction**





# South of Delta Wildlife Refuge Benefits from the Los Vaqueros Reservoir Expansion



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# State & Federal Benefits

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# Access to Funding



The multi-agency **partnerships** and broad **range of benefits** developed because of the Los Vaqueros Reservoir Expansion project have allowed the program to **secure, otherwise inaccessible, public investments.**

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Merced Wildlife Refuge

# Federal Benefits

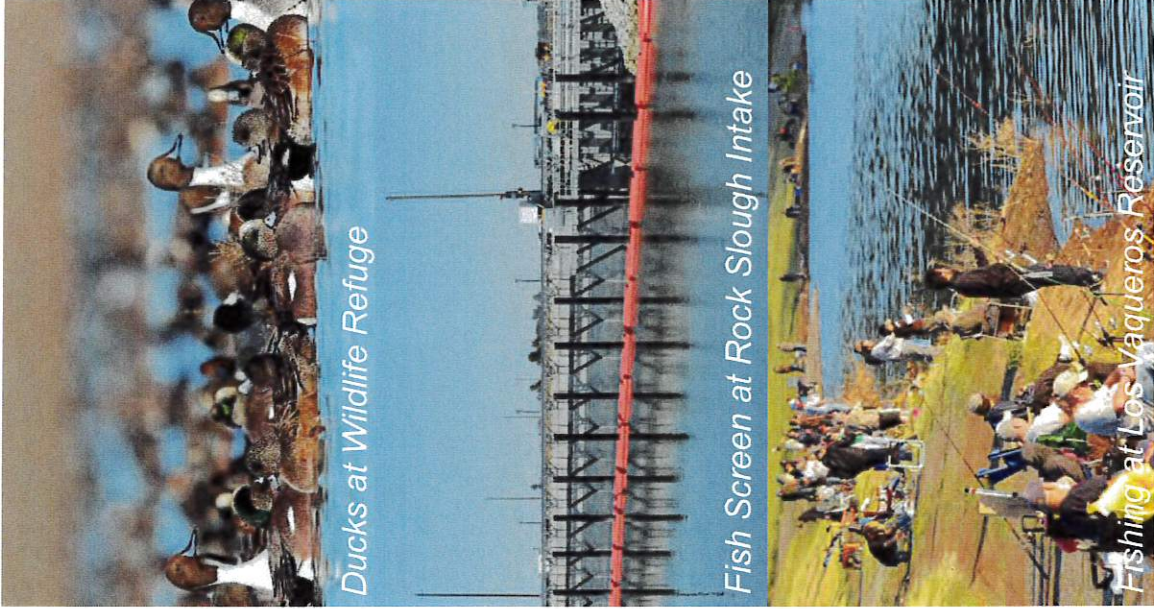
## Ecosystem

- Improves water supply for south of Delta wildlife refuges and access to storage to optimize delivery of water supplies.
- Addresses long-standing unmet CVPIA mandate for Refuge water supplies.

## Water Supply Reliability

- Potential to enhance south of Delta Central Valley Project deliveries.





# State Public Benefits



## Ecosystem

- Water supply for south of Delta wildlife refuges and access to storage to optimize delivery of water supplies.
- Improved survival of salmonids migrating through Delta by reducing entrainment at Rock Slough intake.

## Emergency Response

- Improves drought preparedness and resilience.
- Non-drought emergency access to storage and conveyance during Delta outage emergencies due to natural disasters or infrastructure failures.

## Recreation

- Enhance recreation at reservoir & Watershed
- Helps implement State's resiliency portfolio

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## Regional Economic Benefits

- Creates up to 13,000 construction and suppliers related jobs.
- Boosts local tax revenues during project construction.
- Supports long-term economic stability by ensuring a reliable water supply, crucial for region's agricultural and industrial sectors.





# Operational & Water Supply Benefits

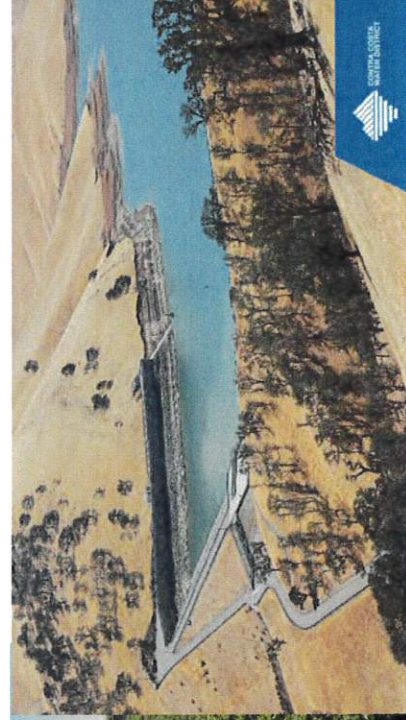
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# Member Benefits

## Increased Water Supply Reliability

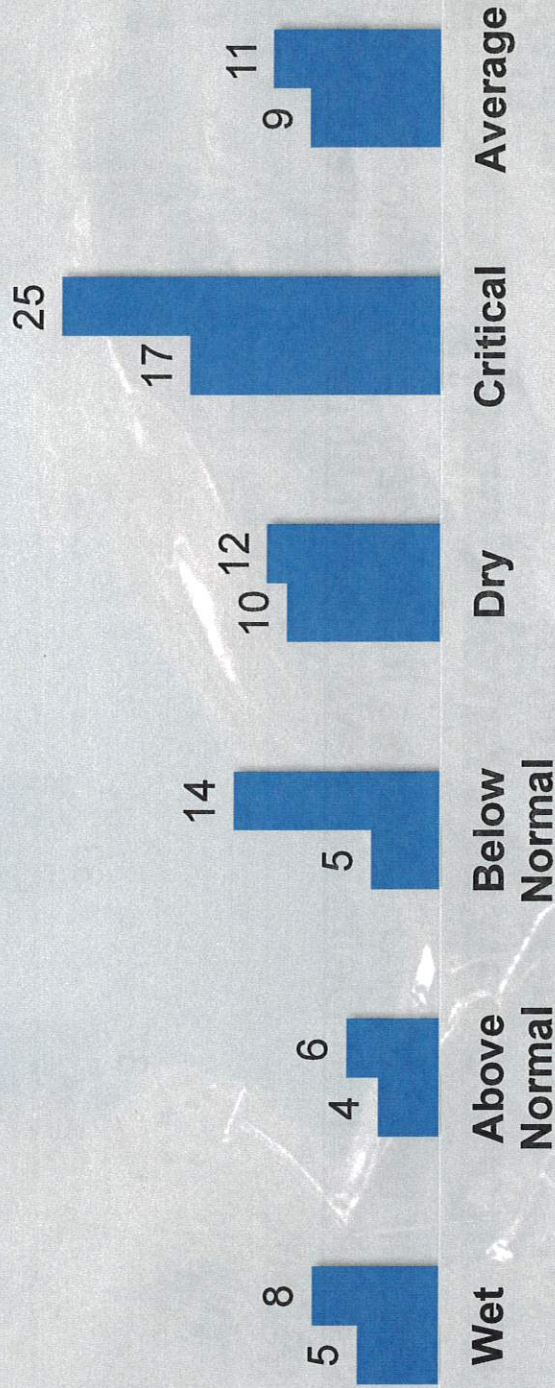
- Drought preparedness and resilience.
- Emergency storage during natural disasters or infrastructure failure.
- Diversify members water supplies.
- Facilitate transfers and exchanges.
- Improve climate change resiliency.





## Range of M&I Water Reliability Benefits

- The expanded storage will allow Members to optimize use of existing and new sources of supplies, enhance supply reliability, and increase drought protection.

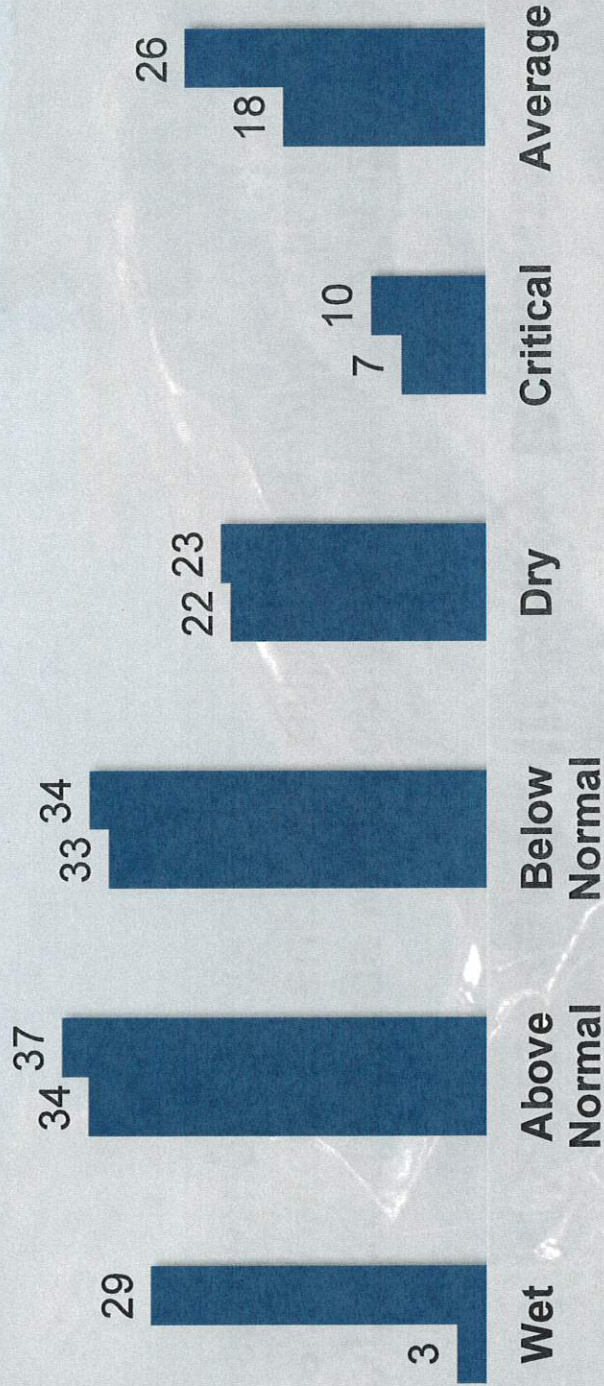


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## Range of Agricultural Water Supply Benefits

- Members will use CCWD's excess intake capacity to access North of Delta water supplies when Delta conveyance constraints make them otherwise inaccessible.



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# A Systemwide and Regional Win-Win

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# Systemwide and Regional Operational Benefits

**Improves operational flexibility of the statewide water system:**

- Additional system storage at key location.
- Ability to move water around south of Delta State & Federal pumps.





# Systemwide and Regional Connectivity Benefits

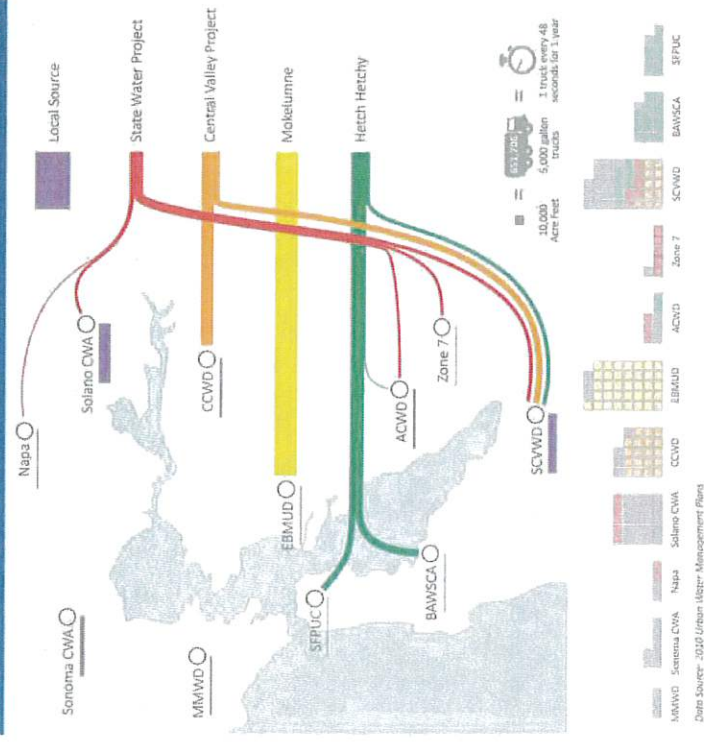


**Leverages existing facilities to create a regional connected system:**

- Physical interties between multiple agencies
- Maximizes use of existing regional facilities
- Local storage to leverage uses of other supply sources
- Part of Bay Area Regional Reliability Program
- Improves operational flexibility of the statewide water system



Water System Source Portfolio (11 Largest Bay Area Water Districts) & Annual Normal Supply



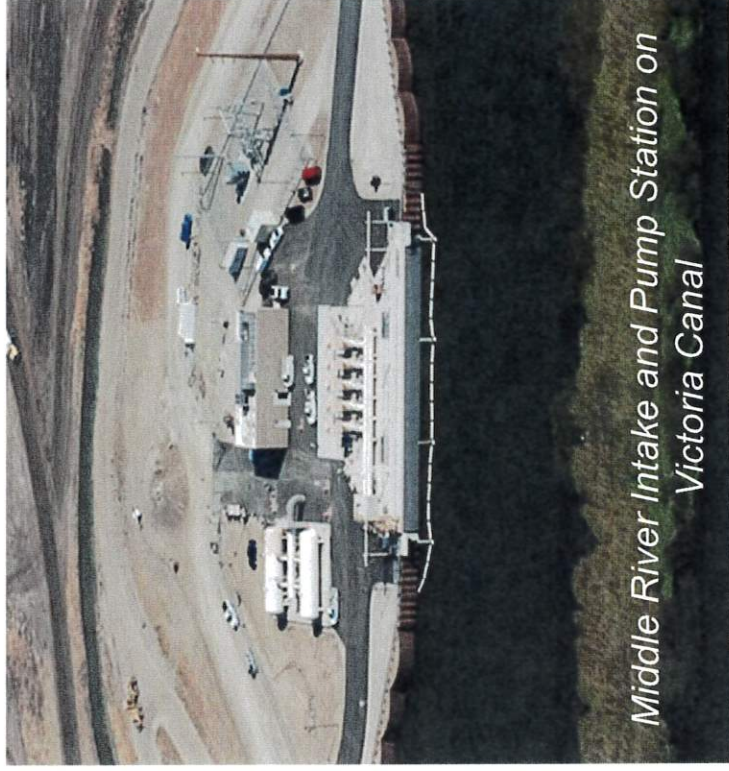
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# Win-Win Project for Members



- ✓ Members benefit from access to excess capacity at CCWD's and EBMUD's facilities.
- ✓ Opportunities to modernize and enhance CCWD's and EBMUD's existing facilities.
- ✓ Support recovery of some of CCWD's and EBMUD's investments in the constructed facilities.
- ✓ Members will share the O&M expenses for some of CCWD and EBMUD facilities.



Middle River Intake and Pump Station on Victoria Canal

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**LOS VAQUEROS**  
RESERVOIR  
EXPANSION  
PROJECT

# Collaborating Agencies



CONTRA COSTA  
WATER DISTRICT



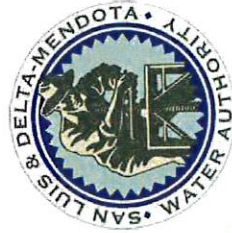
**WATER  
AGENCY**



San Francisco  
Public Utilities  
Commission



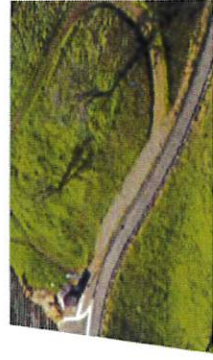
Valley Water



Del Puerto  
WATER  
District

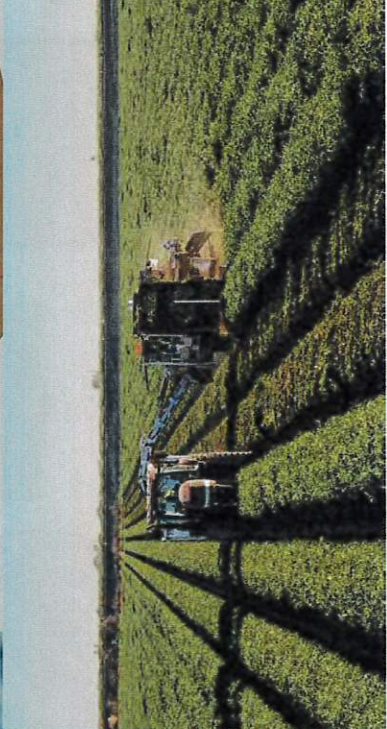
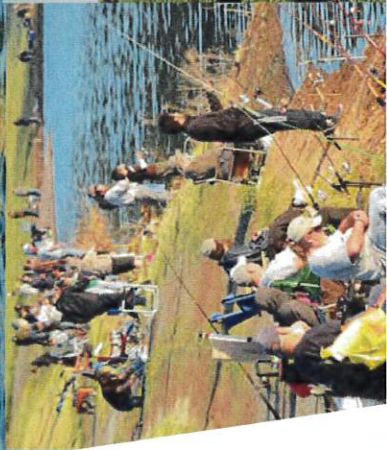


**Westlands**  
Water District





# A rare opportunity.

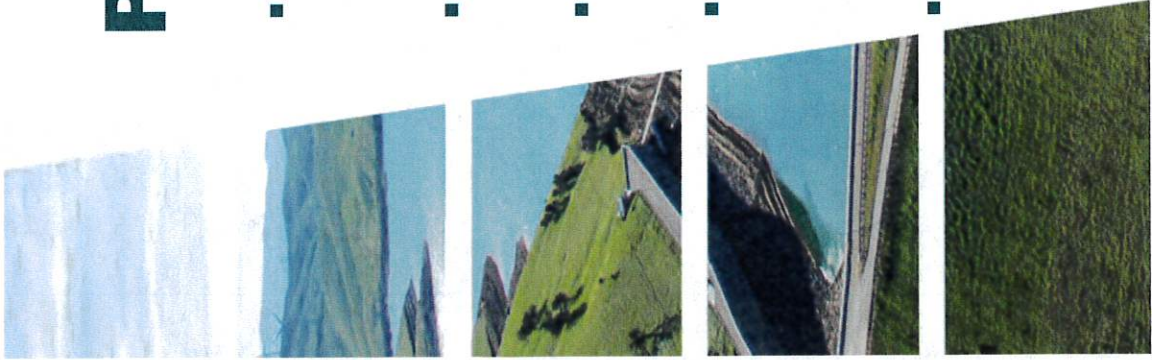




# Additional Resources

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# Proposed Facilities

- Expand Los Vaqueros Reservoir from 160 to 275 TAF
- Add pipeline, connecting to the California Aqueduct
- Add/upgrade pumping facilities
- Implement EBMUD system improvements to support deliveries to Project Partners
- Reoperate existing CCWD and EBMUD facilities

