THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS
BOARD ACTION SUMMARY

DEPT: Environmental Resources

BOARD AGENDA: 7.1
AGENDA DATE: January 27, 2026

SUBJECT:
Approval and Adoption of a Well Mitigation Plan and Management Actions Including a Groundwater Use and Management Program for the Modesto Subbasin Groundwater Sustainability Plan

BOARD ACTION AS FOLLOWS: **RESOLUTION NO. 2026-0045**

On motion of Supervisor Withrow **Seconded by Supervisor** B. Condit
and approved by the following vote,
Ayes: Supervisors: B. Condit, Withrow, Grewal, C. Condit, and Chairman Chiesa
Noes: Supervisors: None
Excused or Absent: Supervisors: None
Abstaining: Supervisor: None

1) _____ **Approved as recommended**
2) _____ **Denied**
3) X **Approved as amended**
4) _____ **Other:**

MOTION: **Amended** the item to add Staff Recommendation No. 8 to direct staff to hire a third-party consultant to review the two different existing studies and develop recommendations for the Board based on that review; to add Staff Recommendation No. 9 to acknowledge the County serves as the management area steward for Non-District East and will assist in the implementation of the sustainability plan on behalf of that region, with Supervisor Withrow and Supervisor B. Condit appointed to lead and coordinate that effort on behalf of the County; and, approved Staff Recommendations Nos. 1-7 as amended

ATTEST: MARY E. HARTSFIELD, Clerk of the Board of Supervisors

File No.

THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS
AGENDA ITEM

DEPT: Environmental Resources BOARD AGENDA:7.1
AGENDA DATE: January 27, 2026

CONSENT ☐

CEO CONCURRENCE: YES 4/5 Vote Required: No

SUBJECT:

Approval and Adoption of a Well Mitigation Plan and Management Actions Including a Groundwater Use and Management Program for the Modesto Subbasin Groundwater Sustainability Plan

STAFF RECOMMENDATION:

1. Approve a Resolution Adopting a Well Mitigation Plan for the Modesto Groundwater Subbasin Groundwater Sustainability Plan.
2. Approve a Resolution Adopting a Groundwater Use Management Program in the Modesto Groundwater Subbasin.
3. Authorize the Department of Environmental Resources to take such actions as may be reasonably necessary to approve and implement the Well Mitigation Plan, as attached to this agenda item, in collaboration with the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA), its member agencies, consultants, stakeholders and the County of Tuolumne Groundwater Sustainability Agency (GSA).
4. Authorize the Department of Environmental Resources to take such actions as may be necessary to approve and implement the Groundwater Use Management Program (GWUMP), as attached to this agenda item, in collaboration with the STRGBA GSA, its member agencies, consultants, stakeholders, and the County of Tuolumne GSA.
5. Direct the Department of Environmental Resources to return to the Board of Supervisors for direction on policy questions related to the implementation of the GWUMP.
6. Direct the Department of Environmental Resources to develop Action Plans for Board of Supervisors' approval with the goal of initiating implementation of demand management actions identified in the GWUMP no later than January 31, 2027.
7. Identify and support no more than two members of the Board of Supervisors to participate in discussions on GWUMP Action Plans.

DISCUSSION:

Background

In September 2014, Governor Edmund G. Brown signed the Sustainable Groundwater Management Act (SGMA), requiring the formation of Groundwater Sustainability Agencies (GSAs) and the development of Groundwater Sustainability Plans (GSPs) to ensure groundwater sustainability over a 20-year period.

In early 2017, the member agencies of the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA), established in 1994, entered into a Memorandum of Understanding (MOU) to form the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, (STRGBA GSA). The Stanislaus County Board of Supervisors approved the MOU on February 14, 2017, through Board Resolution 2017-69. The STRGBA GSA includes the following public agencies:

- City of Modesto
- City of Oakdale
- City of Riverbank
- City of Waterford
- Modesto Irrigation District
- Oakdale Irrigation District
- Stanislaus County

The STRGBA GSA provides a forum for coordinated planning and sustainable groundwater management in the Modesto Subbasin. On May 8, 2018, a Cooperation Agreement allowed Tuolumne County, as a separate Groundwater Sustainability Agency (GSA), to partner with the STRGBA in developing and implementing a GSP for the Modesto Subbasin. The Tuolumne County GSA manages approximately 1,000 acres of the Modesto Subbasin within its jurisdiction.

Work on a single, basin-wide GSP began in 2018. The 2022 Modesto Subbasin GSP was adopted by the Stanislaus County Board of Supervisors on December 7, 2021, through Board Resolution 2021-0592, and by the STRGBA GSA on January 30, 2022. It was submitted to the Department of Water Resources (DWR) before the deadline for high priority subbasins.

On January 18, 2024, the DWR issued an Incomplete Determination letter to the Modesto Groundwater Subbasin (Subbasin) for their 2022 GSP. In that letter, DWR stated that the GSAs "…should revise the GSP to include a reasonable means to arrest groundwater level declines and stop the overdraft that is continuing to occur in the Subbasin." Specifically, the GSAs should describe feasible, effective proposed projects and management actions that are commensurate with the level of understanding of groundwater conditions in the Subbasin and provide sufficient details for DWR staff to be able to clearly evaluate how the Plan's projects and management actions will ensure achieving the sustainability goal in the Subbasin.

In responding to this Corrective Action, in the Revised July 2024 GSP, which was approved by DWR on February 27, 2025, the STRGBA GSA and the Tuolumne County

GSA committed to preparing management actions consisting of a Pumping Management Framework (including a groundwater allocation and pumping management program), in addition to the *Modesto Subbasin Well Mitigation Plan*. On June 25, 2024, Stanislaus County adopted Resolution No. 2024-0362, committing to the development and implementation of the *Modesto Subbasin Well Mitigation Plan by January 31, 2026,* and development of the pumping management program by January 31, 2026, with implementation beginning January 31, 2027. This resolution was incorporated into the 2024 Amended GSP for the Modesto Subbasin which was submitted by the STRGBA GSA and the Tuolumne County GSA and approved by DWR.

In October 2024, the STRGBA GSA selected a proposal from Woodard and Curran in partnership with Todd Groundwater for *Development of a Well Mitigation Plan & Management Actions for the Modesto Subbasin Groundwater Sustainability Plan*, provided as Attachment 5, and formed an Ad Hoc Stakeholder Workgroup which pivoted to a STRGBA GSA Committee Meeting and Public Workshop approach so that all voices would have an equal opportunity to be heard. Three STRGBA GSA member volunteers and the consultant team formed an ad hoc workgroup to identify and screen feasible concepts and options before creating a viable Plan and recommendation for approval.

Development of the *Modesto Subbasin Well Mitigation Plan*

Groundwater levels are anticipated to decline before recovering due to the implementation of projects and management actions, therefore DWR is requiring the STRBGA GSA provide mitigation for affected wells. The GSP estimates that 29 wells can possibly go dry if groundwater levels fall below Minimum Threshold Levels (MTs) to Interim Milestones (IMs) as projected by modeling and the GSP. The GSP includes 2027 Interim Milestones recognizing that groundwater levels may continue to decline temporarily below established minimum threshold levels during the early years of implementation. These potential impacts are expected to be temporary while projects and management actions are fully implemented, and groundwater levels begin to recover.

The purpose of the well mitigation plan is to provide mitigation for domestic and small water system drinking water wells experiencing adverse impacts due to declining groundwater levels from groundwater management activities since the January 31, 2022, GSP Adoption. This plan will only apply to wells impacted by basin management activities not other problems (say electrical or problems due to age of well).

The well mitigation plan includes a clear application and eligibility process. Wells determined to be eligible for mitigation will be provided emergency drinking water supplies until a long-term solution is obtained, (well replacement, connection to public water system, etc.,) and the STRGBA GSA will contract with Self Help Enterprises to provide these services in addition to completing an initial assessment of the well to determine eligibility. The maximum mitigation award amount per well will be $40,000.

The assessment will be reviewed by a program and technical review committee to be assembled by the STRGBA GSA in the near future and will include representatives from the STRGBA GSA, a Registered Environmental Health Specialist from the Department of Environmental Resources (DER), and a third-party Qualified Professional (Professional Engineer, Geologist or Equivalent). This committee will determine eligibility in addition to appeals of denied mitigation applications.

Member agencies of the STRGBA GSA previously committed to developing and implementing a Well Mitigation Plan by January 31, 2026, and this commitment was included in the 2024 Amended GSP approved by DWR. The *Draft Modesto Subbasin Well Mitigation Plan* has been presented at public workshops and can be viewed with workshop agendas, presentations, and video recordings of the STRGBA GSA meetings at https://www.strgba.org/meetings-workshops/meetings-agendas/:

1. Well Mitigation Program & Management Actions Workshop held on February 19, 2025;
2. Well Mitigation Program Workshop held on May 28, 2025;
3. Well Mitigation Plan Workshop held on October 15, 2025.

The *Draft Modesto Subbasin Well Mitigation Plan* was posted on the STRGBA GSA website for public review on October 1, 2025, with a request for comments to be submitted to the STRGBA GSA by October 24, 2025. The STRGBA GSA has now developed the final *Draft Modesto Subbasin Well Mitigation Plan*, provided as Attachment 2, and has incorporated input from stakeholders where possible. Upon approval by the STRGBA GSA, the draft shall be deemed final and effective January 31, 2026.

Due to the structure of the MOU governing the administration of the STRGBA GSA, all member agencies must approve and adopt the *Modesto Subbasin Well Mitigation Plan* through their respective governing bodies before it is formally adopted by the STRGBA GSA at the January 28, 2026, meeting. All documents pertaining to the revised 2024 Modesto Subbasin GSP may be found at the following: https://www.strgba.org/

Development of the Groundwater Use Management Program (GWUMP)

The *Draft Groundwater Use Management Program* was developed as part of the consultant proposal to fulfill the GSA and County's commitment to prepare management actions for managing groundwater pumping and has been presented at three public workshops that can be viewed with workshop agendas, presentations, and video recordings at https://www.strgba.org/meetings-workshops/meetings-agendas/:

1. Well Mitigation Program & Management Actions Workshop held on February 19, 2025;
2. Management Actions Workshop held on July 16, 2025;
3. Management Actions Workshop held on November 18, 2025.

This GWUMP, provided as Attachment 4, has now been prepared, incorporating an allocation framework and demand reduction program. While it is still the goal of the STRGBA GSA to first implement supply projects, such as the Long-Term Groundwater Replenishment Program established by the Modesto Irrigation District, to reach basin sustainability, the GWUMP is a management action intended to respond to direction provided by DWR and outlines the demand management actions that will be taken as long as supply actions are not effective in meeting overall basin sustainability goals.

The STRGBA GSA has developed the GWUMP through collaboration among member agencies and stakeholder input received. The GWUMP establishes a framework to allocate the sustainable yield of the Modesto Subbasin among management areas. The GWUMP also allows each management area steward to take actions to allocate the

management area's portion of the sustainable yield and to take actions to meet the allocation.

Unincorporated areas within the Stanislaus County portion of the Subbasin that are not within an irrigation district are under the jurisdiction of Stanislaus County as the management area steward and member of the STRGBA GSA. County GSA membership is represented by the Department of Environmental Resources. These areas are known as "white areas" and are located mostly in the eastern Subbasin which is the Non-District East Management Area, and along the San Joaquin, Stanislaus and Tuolumne Rivers, as the Non-District West Management Area, and collectively represent approximately 22 percent of the Subbasin. As a steward of these areas, Stanislaus County must decide how to implement components of the GWUMP framework as needed to operate within allocations.

Stakeholder feedback and recommendations have been incorporated into the Final Draft GWUMP where possible modifying the July 2025 allocation framework to remove the non-municipal agencies appropriative use. Additional refinements based on feedback included developing a Subbasin-wide GWUMP with implementation by management area, to include all the Subbasin's developed supply, to distribute groundwater allocations based on total area, excluding urban areas, and to evaluate opportunities for collaborative resource sharing**.**

It is important to note that a technical evaluation was funded and submitted by Non-District East landowners presenting differing assumptions and conclusions. The Department of Environmental Resources will retain a qualified, independent, third-party consultant to review the competing studies to develop recommendations to ensure fairness, transparency, and confidence in implementation, and to provide recommendations to support the development of future Action Plans.

Groundwater allocations are equitably distributed to management areas using a consistent subbasin-wide approach, based on the best data available at this time. The GWUMP includes an opportunity for collaborative resource sharing between management areas for the benefit of the Subbasin as a whole. The Collaborative Management approach temporarily spreads surplus from Oakdale Irrigation District's redistribution of developed water to the other management areas to reduce their reductions required over the first five years of implementation (2027-2031).

The STRGBA GSA will continue to gather data and refine the allocations in future updates to the GWUMP. Even with the collaborative management approach, the Non-District East Management Area under County stewardship will be required to prepare a management area action plan by November 1, 2026, for the STRGBA GSA to approve to initiate reductions in groundwater use. The Department of Environmental Resources will work with experienced technical advisors and stakeholders to develop an Action Plan for GWUMP for Board of Supervisors' approval and implementation in the Non-District East Management Area which will identify options for distributing Management Area allocations to landowners that are most appropriate for the local economy, community, and beneficial users of groundwater.

In order to fairly develop an Action Plan for GWUMP implementation in the Non-District East Management Area, the Department of Environmental Resources will need to engage the services if an independent third-party consultant to review the *Technical Evaluation of Proposed Groundwater Allocation and Demand Management Framework*

by the STRGBA GSA, dated July 28, 2025, by EKI Environment & Water, Inc., provided as Attachment 6, and GWUMP to evaluate the technical validity of each report and issue a recommendation for a plan that is fair, equitable, and in accordance with best practices and GSP regulations.

The Action Plan will be a living document that will be refined and updated with continued collaboration with stakeholders, technical advisors and STRGBA GSA member agencies as projects and management actions are executed, additional data and monitoring results become available, and with the objective of best meeting the needs of beneficial groundwater users. Approval of Action Plans that include recommendations from an independent third-party consultant will inform the development of amendments to the GWUMP, guide the preparation and implementation of interim actions to be incorporated into near-term Action Plans, and ensure progress towards long-term sustainable groundwater management in the interim period until the time the GWUMP can be refined during the 2032 Modesto Subbasin Periodic Update.

In addition to contracting with technical consultants and collaboration with stakeholders, staff is recommending the Board support the participation of up to two of its members in discussions on the development of goals and corrective actions that will be incorporated into the Action Plan and provide staff with direction. Staff will bring any policy decisions before the full Board of Supervisors prior to adoption of the Action Plan. Staff will then incorporate the Board's direction into the final draft Action Plan for approval.

Since groundwater levels are relatively stable in the Modesto Irrigation District and Non-District West management areas, no Action Plans are necessary at this time. These areas will continue to assess data as it becomes available and ensure water management practices maintain compliance with the GSP regulations to prevent future overdraft and undesirable results in the Subbasin.

Reducing groundwater demand can be done through a variety of strategies, including voluntary conservation, land repurposing or land fallowing, changing cropping patterns and increasing supply. Supply projects are listed in the GSP and are intended to recharge groundwater with surface water or substitute surface water for use to meet groundwater demand so that pumping is reduced. Due to uncertainties related to project implementation, climate change, and hydrological uncertainty, reductions in groundwater use according to the schedule provided in the GWUMP will be required to meet the Subbasin's sustainability goals. The GWUMP is adaptive, allowing adjustments over time based on groundwater conditions, obtaining additional and more accurate data, monitoring results, and evaluating the effectiveness of supply and recharge projects.

<u>Governance and Non-Compliance</u>

Following January 31, 2027, the GWUMP will transition from planning to implementation. However, based on initial allocation estimations, the Action Plan for the Non-District East Management Area will be due to the STRGBA GSA for review by November 1, 2026. The County is the Management Area Steward, and the Department of Environmental Resources will be responsible for coordinating with the landowners and developing the Action Plan. The Department of Environmental Resources is authorized to take action for non-compliance under Stanislaus County Ordinance Code Section (SCOC), 9.37.045 which provides the authority to regulate groundwater extractions, SCOC Section 9.37.060, which provides the authority to investigate and

prohibit unsustainable groundwater extractions and SCOC Chapter 2.92 which provides provisions for enforcement of County code violations.

The STRGBA GSA will retain basin-wide oversight and independently assess groundwater use in each management area as part of its annual reporting process and procedures. The STRGBA GSA will review and approve Management Area Action Plans as needed to ensure Management Area Stewards are complying with the GSP sustainable management criteria.

Management Area Stewards will be responsible for administering allocations and implementing management actions locally. Groundwater use will be monitored and evaluated by Management Area Stewards on a regular basis to ensure groundwater users are operating within their assigned allocations. Management Area Stewards will develop Management Area Action Plans as needed for STRBGA GSA approval to outline management strategies that will enable the management area to correct its course and operate within the parameters of the GWUMP.

In the event that a Management Area fails to comply with the requirements of the GWUMP mandated allocation framework or to obtain an approved Action Plan within two years, the STRGBA GSA will be responsible for developing and executing a GSA Action Plan for the area and follow the State's probationary measures for metering groundwater extractions and assess fees until the area returns to compliance. Failure to approve and implement the GWUMP would put the Subbasin in non-compliance with the GSP regulations and could result in the groundwater resources of the basin being subject to regulation by the State of California Water Resources Control Board.

<u>Key Considerations</u>

- Early, collaborative demand management may reduce the risk of State intervention and/or adjudication.
- The GWUMP is intended as a backstop, not a replacement, for supply-side groundwater projects. The STRGBA GSA is strongly encouraging landowners to participate in Subbasin projects that can restore groundwater levels and achieve the Subbasins' sustainability goals.
- The program provides a structured, and enforceable approach to managing groundwater demand if supply projects do not produce benefits quickly enough to raise groundwater levels above interim milestones in 2027, to raise levels above minimum thresholds in 2032, and reach measurable objectives and achieve Subbasin sustainability goals by 2042.
- The program allows for local control through Management Area Stewards while promoting collaboration and resource sharing during the first five years of program implementation while maintaining basin-wide accountability.
- Board of Supervisors' direction will directly influence the County's vote and role as the Management Area Steward, responsible for oversight of groundwater use and management actions in the unincorporated areas of the Non-District East and Non-District West Management Areas, in further development and implementation of a thoroughly analyzed, objective and reasonable GWUMP.

Due to the structure of the MOU governing the administration of the STRGBA GSA, all member agencies must provide approval of the Resolution Adopting a Groundwater

Use and Management Program in the Modesto Groundwater Subbasin through their respective governing bodies. All documents pertaining to the revised 2024 Modesto Subbasin GSP may be found at the following electronic address: https://www.strgba.org/

POLICY ISSUE:

This proposed action is compliant with State legislation known as the "Sustainable Groundwater Management Act" which mandates the adoption and implementation of a GSP for groundwater basins categorized as high priority, but not in a condition of critical overdraft by January 31, 2022. Progress toward the implementation of the 2024 Modesto Subbasin GSP, including meeting agreed upon timelines for the well mitigation plan development and implementation, will be reviewed by the DWR annually and at the time of the 2024 Modesto Subbasin GSP Periodic Evaluation. Failure to develop and implement this Plan as agreed upon by the STRGBA GSA member agencies in the 2024 Modesto Subbasin GSP revision could result in the groundwater resources of the basin being subject to regulation by the State of California Water Resources Control Board.

FISCAL IMPACT:

The total estimated cost to complete the scope of work for development of the *Modesto Subbasin Well Mitigation Plan* and management actions for the Modesto Subbasin GSP is $300,000. Each STRGBA GSA member agency will be responsible for paying one-seventh of the total cost. Of this amount, Stanislaus County will pay $42,857, which does not include any appropriations for the Tuolumne County GSA. The Tuolumne County GSA only has de minimis extractors within the boundaries of the Modesto Subbasin and will be covered by these programs if needed in the future. The Department of Environmental Resources has included sufficient funds within the Groundwater Program's 2026 Adopted Budget for this purpose.

The STRGBA GSA operating budget for 2025 included an initial $300,000 to establish baseline funding to begin implementation of the *Modesto Subbasin Well Mitigation Plan*. Additional funding needs for implementation will be identified by the STRGBA GSA at a minimum of an annual basis and member agencies will continue to meet and confer in good faith to determine appropriate ongoing funding mechanisms**.**

Implementing the GWUMP may require various funding mechanisms in the future, which could include:

- Proposition 218 compliant processes
- GSA fees and assessments
- Landowner groundwater pumping fees and penalties
- Agency funds
- State/Federal grant funding

Costs associated with GWUMP implementation may vary depending on required actions, future demand management programs and action plans, and funding availability. Some costs may require approval through Proposition 218 proceedings.

There will be additional costs associated with implementing the GSP including but not limited to further development and implementation of the well mitigation plan and

management actions, for future Modesto Subbasin GSP annual reports and plan updates, and to support additional staffing needs. These costs, once determined, will be subject to future County budget considerations and Board of Supervisors' approval.

BOARD OF SUPERVISORS' PRIORITY:

The recommended actions are consistent with the Board's priority of *Enhancing Community Infrastructure* by committing to the responsible management of sustainable groundwater resources.

STAFFING IMPACT:

Existing staff will continue to oversee the work associated with this item.

CONTACT PERSON:

Robert Kostlivy, Director, Department of Environmental Resources	209-525-6768
Christy McKinnon, Water Resources Manager	209-525-6818

ATTACHMENT(S):

1. Well Mitigation Plan Resolution
2. Exhibit A - Well Mitigation Plan
3. Groundwater Use Management Program Resolution
4. Exhibit A - Groundwater Use Management Program
5. Well Mitigation Plan Management Actions - Consultant Proposal
6. EKI Technical Evaluation Updated

THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS
STATE OF CALIFORNIA

Date: January 27, 2026 2026-0045(a)

On motion of Supervisor Withrow Seconded by Supervisor B. Condit
and approved by the following vote,
Ayes: Supervisors: B. Condit, Withrow, Grewal, C. Condit, and Chairman Chiesa
Noes: Supervisors: None
Excused or Absent: Supervisors: None
Recused: Supervisor: None

THE FOLLOWING RESOLUTION WAS ADOPTED: Item # 7.1

RESOLUTION ADOPTING A WELL MITIGATION PLAN IN THE MODESTO GROUNDWATER SUBBASIN

WHEREAS, the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency (GSA), consisting of the City of Modesto, Modesto Irrigation District, City of Oakdale, Oakdale Irrigation District, City of Riverbank, City of Waterford and County of Stanislaus was formed on February 16, 2017, for the purpose of sustainably managing groundwater in the Modesto Subbasin, within its jurisdictional boundaries, pursuant to the requirements of the Sustainable Groundwater Management Act (SGMA);

WHEREAS, the STRGBA GSA coordinated with the County of Tuolumne GSA to develop a single, coordinated groundwater sustainability plan (GSP) for the Modesto Subbasin which was approved by both the STRGBA GSA and County of Tuolumne GSA;

WHEREAS, the final Modesto Subbasin GSP was submitted to the Department of Water Resources (DWR) on January 31, 2022;

WHEREAS, a revised 2024 GSP Amendment for the Modesto Subbasin was developed by the STRGBA GSA and County of Tuolumne GSA in response to an Incomplete Determination by DWR;

WHEREAS, the 2024 Amended GSP for the Modesto Subbasin was ultimately approved by DWR on February 27, 2025;

WHEREAS, 2027 Interim Milestones (IMs) were established in the Modesto Subbasin GSP to acknowledge the continued groundwater level decline anticipated to occur temporarily during the initial years of GSP implementation;

WHEREAS, Stanislaus County acknowledges that during the 20-year GSP implementation period, in particular within the initial IM timeline, it is possible for wells to be negatively impacted by continued groundwater level decline;

WHEREAS, on June 25, 2024, Stanislaus County adopted a resolution committing to the development and implementation of a Well Mitigation Plan by January 31, 2026;

WHEREAS, the June 25, 2024, resolution was incorporated into the 2024 Amended GSP for the Modesto Subbasin, which was submitted and approved by DWR;

WHEREAS, the STRGBA GSA has developed a Well Mitigation Plan, as set forth in Exhibit "A," through the collaboration of the STRGBA GSA and its member agencies with input from stakeholders through 3 public workshops;

WHEREAS, the STRGBA GSA has established a baseline funding source of $300,000 from the member agencies to begin implementing the Well Mitigation Plan;

WHEREAS, the Well Mitigation Plan provides the framework for the following elements:
(a) an application process and well mitigation program parameters for landowners of impacted wells;
(b) establishment of a Well Mitigation Program Committee and Technical Review Committee to oversee the claim process; and
(c) STRGBA GSA will contract with Self-Help Enterprises for coordination of emergency water supplies, well assessment, and well replacement;

WHEREAS, Stanislaus County acknowledges that it cannot control groundwater conditions or well failures caused by actions not taken by the GSA;

WHEREAS, Stanislaus County commits to implementing this Well Mitigation Plan in collaboration with the STRGBA GSA, its member agencies and the County of Tuolumne GSA; and

WHEREAS, the STRGBA GSA will provide annual funding for implementation of the Well Mitigation Plan, and the member agencies will meet and confer in good faith, as needed, to determine the appropriate funding mechanisms.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Stanislaus County authorizes collaboration with the STRGBA GSA, its member agencies, consultants, stakeholders and the County of Tuolumne GSA to take such actions as may be reasonably necessary to approve and implement the Well Mitigation Plan for the Modesto Subbasin GSP.

ATTEST: **MARY E. HARTSFIELD, Clerk**
Stanislaus County Board of Supervisors,
State of California

File No.

Stanislaus & Tuolumne Rivers
Groundwater Basin Association
Groundwater Sustainability Agency

Draft
Modesto Subbasin
Well Mitigation Plan

November 5, 2025 Draft

GSA Adoption Anticipated January 28, 2026

TODD GROUNDWATER

TABLE OF CONTENTS

ACRONYMS

CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
NGOs	non-governmental organizations
PMAs	Projects and Management Actions
SAFER	Safe and Affordable Funding for Equity and Resilience
SHE	Self-Help Enterprises
SGMA	Sustainable Groundwater Management Act
STRGBA GSA	Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
WY	Water Year (October 1 through September 30)
VWC	Valley Water Collaborative

Introduction

Background

In September 2014, the Governor of California signed legislation creating the Sustainable Groundwater Management Act (SGMA) "to provide local groundwater sustainability agencies with the authority and technical and financial assistance necessary to sustainably manage groundwater" (Water Code, § 10720.1(d)). Groundwater Sustainability Agencies (GSAs) were provided the authority to adopt rules, regulations, ordinances, and resolutions for the sustainable management of a groundwater basin and to conduct and carry out activities necessary to achieve and maintain sustainable conditions.

The Modesto Subbasin (5-22.02) (Subbasin), a high-priority basin as defined by the Department of Water Resources (DWR), is subject to SGMA and is being managed in compliance with SGMA. Groundwater management within the Stanislaus County footprint of the Modesto Subbasin is being coordinated and overseen by the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA), consisting of the following member agencies: the City of Modesto, Modesto Irrigation District, City of Oakdale, Oakdale Irrigation District, City of Riverbank, City of Waterford and County of Stanislaus. The STRGBA GSA is governed by a Committee (GSA Committee) made up of one designated staff member from each of the seven member agencies. The STRGBA GSA was formed on February 16, 2017, for the purpose of sustainably managing groundwater in the Modesto Subbasin, within its jurisdictional boundaries and pursuant to the requirements of SGMA. The STRGBA GSA coordinated with the County of Tuolumne GSA to develop a single, coordinated groundwater sustainability plan (GSP) for the Modesto Subbasin, which was submitted to DWR on January 31, 2022.

In January 2024, DWR determined the GSP to be incomplete and identified two deficiencies. The County of Tuolumne and STRGBA GSAs submitted a revised GSP to DWR on July 12, 2024 (Revised GSP). The Revised GSP, which was approved by DWR on February 27, 2025, is responsive to DWR-defined Corrective Actions and incorporates additional details, analyses, projects, and management actions. The STRGBA GSA also committed to development and implementation of a Well Mitigation Program (Program) no later than January 31, 2026. This Well Mitigation Plan (Plan) provides the framework for the Program to address Management Action 7 described in the Revised GSP.

Initial conception of the Program is described in the Revised GSP. This description addresses domestic wells drilled in the Subbasin and the Sustainable Management Criteria (SMC), including Minimum Thresholds, which define undesirable results based on those wells affected by groundwater level declines. An analysis of the number of wells that could potentially go dry with additional groundwater level declines is described in Revised GSP Section 6.3.3.1. A

description of the conceptual Program is provided in Revised GSP Section 8.1.3. In addition, Appendix C of the Revised GSP presents the *Resolution Adopting a Revised Groundwater Sustainability Plan and Documenting the Commitment to Develop and Implement a Well Mitigation Program and Demand Management Actions in the Modesto Groundwater Subbasin*.

The projects and management actions in the Revised GSP are intended to achieve sustainability and to reduce the potential for more wells to go dry. Modeling of the Projects and Management Actions (PMAs) in the Revised GSP demonstrates the feasibility of achieving sustainability by 2042. However, the STRGBA GSA recognizes that the GSP objectives in arresting groundwater level declines quickly could be hindered by significant drought cycles or other factors.

Purpose

The purpose of the Program is to provide mitigation for drinking water wells that have experienced adverse impacts due to declining regional groundwater levels associated with groundwater pumping during the GSP implementation period, since January 31, 2022. As described in the Modesto Subbasin Revised GSP (Section 6.3.3.1), an analysis was conducted that included all 4,563 water supply wells (municipal, industrial, domestic and agricultural) with available construction information in the Modesto Subbasin. This analysis showed potential impacts to water supply wells due to groundwater levels declining below established Minimum Thresholds (MTs). Potential impacts are expected to be limited to an interim period before planned Projects and Management Actions are fully implemented.

The focus of this Program is on mitigation for drinking water wells that have experienced adverse impacts due to declining groundwater levels resulting from basin management actions during the GSP implementation period (defined as ending in 2042 by SGMA legislation). Drinking water wells are defined here as any well used to supply potable water to a household, including domestic wells that supply water for potable, minor irrigation, and other domestic purposes. It may also include state small water systems with between 5 and 14 connections.

The Revised GSP analysis also considered potential impacts to water quality and land subsidence. The analysis indicated that groundwater levels declining below the MTs during the implementation period would not likely have an impact on groundwater quality or on land subsidence. Consequently, this Program focuses on the direct impacts of drinking water wells going dry. In general, a well is considered to be going dry when water can no longer be pumped in sufficient quantity to meet domestic water demands because groundwater levels have fallen too low for the well to produce the required groundwater quantities. While the well is going dry, this typically results in diminished well yield or unreliable productivity. Once groundwater levels have fallen below the pump intake, the well is considered dry and does not produce any water. In some cases, it may be possible to lower the pump to restore sufficient yield, but in other cases, the well must be deepened or a new, deeper well must be constructed.

The purpose of this document is to describe a detailed process for mitigating impacts on drinking water wells adversely affected by declining groundwater levels during the GSP implementation period.

Program Management

This document establishes a framework for the mitigation of drinking water wells demonstrated to have been adversely affected by declining groundwater levels resulting from basin management activities during the SGMA implementation period. It has been developed in consideration of recommendations found in the following two public documents: *Framework for a Drinking Water Well Impact Mitigation Program* (Self-Help Enterprises, *et al*.) and *Considerations for Identifying and Addressing Drinking Water Well Impacts* (CA Department of Water Resources).

Partnerships with Existing Programs

There are local non-governmental programs that offer support for those affected by impaired access to drinking water within the Modesto Subbasin and across the San Joaquin Valley. During implementation of the Program, additional agencies or non-governmental organizations (NGOs) may be identified for potential collaboration that have interest in or authority over drinking water. The Valley Water Collaborative (VWC), for example, was formed to address nitrate groundwater contamination in private domestic wells used for drinking water in the Modesto and Turlock Subbasins. VWC provides well testing and replacement water or water treatment systems for nitrate contamination to all qualifying applicants, regardless of income level.

Self-Help Enterprises (SHE) is another NGO that offers emergency drinking water supplies, long-term mitigation support, and well stewardship educational resources for those who qualify under their program in Stanislaus County. SHE is a non-profit in the San Joaquin Valley that can provide water quality testing and emergency water service (including bottled water, outdoor tank and hauled water support) for eligible landowners (see https://www.selfhelpenterprises.org). When first contacted for assistance with a dry well, SHE establishes basic eligibility (e.g., well / land ownership); the eligible applicants must then submit an application to SHE with information on the well, property, and household, including income. SHE provides emergency response (e.g., bottled water) within 24 hours and conducts an onsite well assessment. If a well replacement is warranted, the process includes completion of a grant agreement between SHE and the well owner. SHE provides a well modification/replacement grant for qualifying landowners who make 80% or less of the mean household income and are willing to not sell their property for a 5-year period after well replacement. Currently, the SHE grants (funded by the SWRCB) can amount to nearly $60,000.

The STRGBA GSA has coordinated this Program with SHE to minimize overlapping efforts. The STRGBA GSA will enter into an agreement to reimburse SHE for costs associated with program

administration (including bilingual communications and well stewardship educational services), emergency and interim drinking water supplies, and long-term mitigation measures for all drinking water well applications that qualify for Modesto Subbasin mitigation. SHE serves as the contract mediator and lender for the applicants to make arrangements with contractors such as well drillers, pump companies, and plumbers to perform the long-term mitigation.

Program Development Committee

The STRGBA GSA has established a Well Mitigation Program Committee (WMP Committee) and will continue to appoint Committee members at its discretion. This WMP Committee will include representatives from STRGBA GSA member agencies. This WMP Committee will further develop and refine this Plan and recommend approval by the STRGBA GSA when modifications are needed. Upon approval of this Program by the STRGBA GSA, the WMP Committee will implement the Program as defined in the Plan.

Consistent with the stated purpose of this Program, the WMP Committee will have the responsibility for development and implementation of the Program, including but not limited to the following:

- Recommendations to the STRGBA GSA to engage in public outreach.
- Recommendations to the STRGBA GSA to collaborate and contract with non-governmental organizations to assist with outreach and/or well mitigation services.
- Coordination with County Office of Emergency Services to provide well mitigation services.
- Development and oversight of the process for affected well owners to apply for mitigation.
- Development and oversight of the procedures for application review, decision, and appeal including decisions to provide complete or partial mitigation or to reject an application.
- Establishment of a Well Mitigation Technical Review Committee (TR Committee) to review each application for eligibility and potential mitigation.
- Development and oversight of the process for well owner agreements for mitigation.
- Keeping the STRGBA GSA informed of Program implementation and any claims that are received.

Technical Review Committee

The WMP Committee will establish a Technical Review Committee for each claim under this Program. The TR Committee will consist of the following members:

- A STRGBA GSA member agency representative where the well is located or a County representative if the well is within a non-district area or outside City limits.
- A registered Environmental Health Specialist from the Stanislaus County Environmental Health Department or Environmental Resources Department.

- At the WMP Committee and/or STRGBA GSA's discretion and designation, a qualified technical representative (e.g., Professional Geologist or Engineer) that is not part of the STRGBA GSA member agency where the well is located.

The TR Committee will document the eligibility and submit a recommendation regarding STRGBA GSA mitigation to the WMP Committee.

Program Process

Eligibility

The Program is intended to address impacts to drinking water wells from declining groundwater levels associated with groundwater pumping during the GSP implementation period. Drinking water wells are defined as any well used to supply potable water to a household, including domestic wells that supply water for potable, landscape irrigation and other domestic purposes to several homes or parcels. It may also include state small water systems with between 5 and 14 connections. Mitigation for other types of supply wells (e.g., agricultural irrigation, industrial or stock wells) or for non-domestic uses may be considered under this Program by the STRGBA GSA on a case-by-case basis.

At this time, emergency drinking water supplies can be requested in Stanislaus County (and elsewhere in the San Joaquin Valley) via online request or telephone call to an NGO, such as VWC or SHE, which establishes basic information (e.g., well location) and eligibility to receive emergency bottled water under those programs and then requires additional information in an application.

This Program is being coordinated with non-governmental programs, such as SHE, in order to avoid duplication of efforts. As noted above, this Program has been developed to address well impacts due to declining groundwater levels associated with groundwater pumping during the GSP implementation period. To be eligible for mitigation assistance from the STRGBA GSA's Program, the WMP Committee will require that an application from the well owner be submitted to SHE. SHE will then review the application to determine whether the well impacts (including failure or diminished well yields such that reasonable demands can no longer be met) occurred on or after January 31, 2022, and are attributable to sustainable groundwater management under the Subbasin GSP. January 31, 2022, is the date that the GSP was adopted by the STRGBA GSA and submitted to DWR.

The County of Tuolumne and STRGBA GSAs manage groundwater levels in the Modesto Subbasin in accordance with the GSP, including as it may be amended or revised in the future. Wells eligible for the Program are those that have experienced adverse impacts due to declining groundwater levels as a result of basin management under the Subbasin GSP.

At its discretion, the WMP Committee may also review an application and recommend that the Well Mitigation Technical Advisory Committee address other aquifer problems affecting a well, such as water quality problems caused by STRGBA GSA basin management actions that occurred after January 31, 2022. Water quality problems that are not the result of STRGBA GSA basin management actions will not be eligible for mitigation under this Program.

Application Process

The Program application will be available on the SHE website. A link to the application will also be posted on the STRGBA GSA website (STRGBA.org). If requested, designated STRGBA GSA and/or SHE staff will assist applicants with filing the application.

The Program Application Process involves the following steps that begin with completion and submittal of an application by the well owner.

Completion and Submittal of Application. The well owner will fill out an application form and submit it to SHE. The application will request available information from the well owner that includes, but may not be limited to, the following:

- Well owner and contact information
- Well location and age
- Well construction information such as location and access, total well depth, screen interval depths, annular seal depth, and pump type and depth
- Inspection reports from a licensed well driller or pump and well contractor identifying the cause of the well failure
- Any other evidence in applicant's possession that the well failure was caused by STRGBA GSA basin management actions occurring after January 31, 2022 (e.g., depth to water measurements from nearby wells, etc.)

Applicants are encouraged to provide evidence, such as a well assessment report from a licensed well driller identifying the cause of the well failure, other certification from a qualified professional, and all other evidence in applicant's possession to demonstrate that the failure was caused by STRGBA GSA basin management actions. Applicants must allow onsite inspection of their well facilities as necessary by staff of SHE, the TR Committee and the WMP Committee to be eligible for assistance. A right-of-entry agreement granting SHE access to the property is required to be completed.

The WMP Committee is authorized to summarily reject any application if the well failure can be remedied by implementing mechanical or construction solutions that are not related to Subbasin management (such as replacing failed electrical or mechanical pump components with no need to re-drill the well). This Program does not apply to a well installed after January 31, 2022, if the well was installed with a screened interval depth shallower than minimum threshold levels as designated in the Modesto Subbasin GSP.

Limitations Period. All applications brought under this Program must have had well impacts that occurred after January 31, 2022, and were caused by STRGBA GSA basin management activities. Applications for impacts that occurred between January 31, 2022, and the adoption of this Program must be submitted within six months of the date of adoption of this Program. The limitations period for applications submitted after the adoption of this policy will be the limitations process and period provided by the California Government Tort Claims Act (Government Code Section 810 and following).

Assessment of Eligibility. SHE will initially review the applications and if an application is potentially eligible for the STRGBA GSA's Program, SHE will forward the application to the WMP Committee. The TR Committee, assigned by the WMP Committee, will then be responsible for reviewing applications (including attachments) to assess the applicant's eligibility to receive mitigation under the Program. Participation in the STRGBA GSA's Program will not be limited or otherwise dictated by the well owner's income. The TR Committee will have the authority to conduct an independent investigation of the evidence (at their discretion and at the STRGBA GSA's expense), including, but not limited to, engaging hydrogeologists and well drillers, well inspection and testing, research of county well records, and requesting records from the applicant.

The TR Committee will provide written documentation to the WMP Committee of its determination regarding the applicant's eligibility for mitigation and a recommendation of whether to mitigate and how to mitigate. Upon concurrence with the TR Committee's recommendation, the WMP Committee will forward this decision to SHE. Otherwise, should the WMP Committee decide that further review and discussion is warranted, the TR Committee's determination and recommendation will be forwarded to the STRGBA GSA for final direction to SHE. In either case, SHE will communicate the final decision to the well owner.

The WMP Committee may decide to provide complete or partial mitigation for a particular application based on the TR Committee's determination of whether the well failure was related to the STRGBA GSA's groundwater management as opposed to other contributing factors, such as the construction of the well.

An applicant may appeal a decision of the WMP Committee by submitting a written appeal by email to the STRGBA GSA at strgba@mid.org within 30 days of the decision. The appeal shall contain a copy of the original application, the decision, and a statement of the basis for the appeal. The STRGBA GSA Chair will include the appeal on the agenda for the next STRGBA GSA meeting and provide written notice and the agenda to the appellant. The STRGBA GSA will act on the appeal and issue a written decision. The decision of the STRGBA GSA will be final.

Well Owner Agreement. After application, eligibility, and mitigation development (coordinated with SHE), any mitigation must be accompanied by an agreement between the well owner and SHE. The agreement will include but is not limited to the following:

- Priority. The Program will be operated on a first-come, first-serve basis as of the date a completed and submitted application is received by SHE.
- Well access agreement (consistent with SHE agreement).
- Mitigation Award. To the extent sufficient funding exists, the maximum mitigation award provided under the Program will be $40,000. In no case, is the maximum mitigation award guaranteed and the STRGBA GSA retains exclusive control over the determination of the maximum mitigation award. The STRGBA GSA will be responsible for the maximum mitigation award or the actual cost of the mitigation, whichever is less. The well owner may seek additional and/or alternate funding beyond the mitigation provided by the Program. Eligible mitigation in excess of $40,000 will be reviewed by the TR Committee on a case-by-case basis with review of the following criteria:
    a. Receipt and review of multiple bids with comparable construction means and methods yielding an estimated mitigation cost exceeding $40,000.
    b. System consolidation yielding new domestic water service to two or more domestic water users.
    c. Construction means and methods review, including, but not limited to required depth and required casing diameter.
    d. Occurrence of additional associated costs (e.g., pump replacement).
- Grant term. SHE requires a 5-year grant term during which the well owner must (1) maintain continuous residence on the well site property (if owner occupied), and (2) not transfer the title of the property within 5 years, otherwise the grant would need to be repaid.
- Preferred Contractors. The STRGBA GSA intends that all analysis, inspection, and eligible mitigation be completed by competent and qualified contractors. SHE maintains a list of approved contractors for program participants to select from and requires the following from each contractor: a contractor application, W-9 Form, C57 contractor license for drillers, proof of workers compensation insurance, proof of general liability insurance, and Federal contractor suspension and debarment check.
- Recordation of Mitigation Award. Eligible mitigation provided under the Program for diminished yield (dry well) issues will only occur once per drinking water well and will run with the land. This Agreement will be recorded with the applicable county and will bind the well owner and/or their heirs and assigns. Recordation will not occur until mitigation is complete.
- Post-mitigation Responsibility. Once the mitigation work is completed, the well owner will be responsible for operation, maintenance, and repair of the water well.
- Continuing Education. Through execution of the agreement with SHE, the well owner will acknowledge and confirm having successfully completed education on well maintenance (e.g., SHE's education program).
- Monitoring. The well owner will agree to allow the STRGBA GSA, at the STRGBA GSA's sole discretion, to access and monitor groundwater levels in the new or modified well.

The well owner will agree to the public use of groundwater level data that may be collected for the purposes of complying with SGMA or as deemed appropriate by the STRGBA GSA.

- Indemnification of the STRGBA GSA consistent with then applicable agreement.
- Easement or land use permissions consistent with then applicable agreement. No mitigation, except for interim and emergency solutions, will commence until the well owner has executed an agreement with SHE.

Process for Establishing STRGBA GSA-Related Well Impacts

The TR Committee will review the application provided by SHE via the WMP Committee and, with the authority to conduct an independent investigation, will provide a recommendation about the condition of the well and the cause(s) of the well failure. The TR Committee will consider other contributing factors, such as the condition and use of the well, or the condition of pumping equipment, in determining the degree to which an applicant is eligible for mitigation. The TR Committee will make a recommended determination of the cause of well failure and whether or not an application is eligible for mitigation, which the WMP Committee may adopt in its decision. The WMP Committee will consider the recommendation of the TR Committee and may also consider other contributing factors. Upon concurrence with the TR Committee's recommendation, the WMP Committee will forward this decision to SHE. Otherwise, should the WMP Committee decide that further review and discussion is warranted, the TR Committee's determination and recommendation will be forwarded to the STRGBA GSA for final direction to SHE. In either case, SHE will communicate the final decision to the well owner. If appealed to the STRGBA GSA, the STRGBA GSA will take all relevant factors into consideration in making a final decision.

Process for Implementing Mitigation Measures

Mitigation measures may include emergency water supply, interim solutions, and long-term solutions. Emergency water supplies will be provided by SHE after receiving an eligible request and application. To continue emergency water supply or to access interim or long-term solutions funded by the STRGBA GSA, the landowner must provide authorization to allow for well access.

Emergency Water Supply

SHE will ensure that an emergency water supply is provided to all applicants who have submitted a complete application with a reasonable complaint for damages. An emergency water supply consists of bottled water intended to meet drinking water and cooking needs while the application is reviewed and processed. If the application is approved, SHE will ensure that an interim emergency water supply will continue at the STRGBA GSA's expense until the mitigation is complete.

Interim Solution

Interim solutions may include ongoing deliveries of bottled drinking water and/or temporary provision and filling of a water tank (hauled water) to meet drinking water, hygiene, and cooking needs while the application is reviewed and processed. Every effort will be made to process applications in a timely manner and to provide adequate domestic water supply to applicants while applications are verified, site-specific mitigation eligibility and requirements are determined, and mitigation is implemented and completed. If the application is found to be ineligible under this plan, the WMP Committee and/or SHE may refer the application to another agency or program for additional assistance, if possible.

Long-term Solutions

Following review and initial approval of the application, the most appropriate long-term mitigation measure will be selected. Long-term mitigation measures may include setting the well pump at a deeper depth, replacing the well pump, deepening the well, or replacing the well (including destruction of the existing well). As an alternative to well replacement, a mitigation measure could involve connection to a nearby municipal or public water system. The TR Committee will make a recommendation for long-term mitigation. Upon concurrence with the TR Committee's recommendation, the WMP Committee will forward this decision to SHE. Otherwise, should the WMP Committee decide that further review and discussion is warranted, the TR Committee's recommendation will be forwarded to the STRGBA GSA for final direction to SHE. In either case, SHE will communicate the final decision to the well owner. If appealed to the STRGBA GSA, the STRGBA GSA will take all relevant factors into consideration in making a final decision.

Plan Outreach

Plan Outreach will be coordinated with SHE or other consultant and the STRGBA GSA. The WMP Committee will recommend staff or representatives for the STRGBA GSA's approval to engage in public outreach that will inform well owners and residents of their opportunity to request assistance under this Program, and how to apply for assistance.

Outreach during Program development may include, but is not limited to:

- Discussion of the Plan at public STRGBA GSA meetings and at workshops.
- Establishment of Program-specific information on the STRGBA GSA website (English and Spanish) https://www.strgba.org/. This will include a link to the SHE website.

Outreach during Program implementation will be coordinated with SHE and include information about when and how to submit an application, and the subsequent assessment process. It will include the following:

- Maintenance of the Program-specific information on the STRGBA GSA website.
- Regular update and discussion at public STRGBA GSA meetings.
- Regular reporting in Annual Reports of mitigation efforts and accomplishments.

Funding and Anticipated Costs

A Well Mitigation Fund (Fund) has been established to finance program implementation. The purpose of the Fund is twofold: to support implementation of the Program as described above, and to provide funding for well mitigation in response to eligible applications at the discretion of the STRGBA GSA as described below.

Initial Funding. The Program is initially being funded by the STRGBA GSA as part of their respective annual budgets and apportioned between the STRGBA GSA using the existing annual budget allocation methodology.

Baseline Fund. To initiate implementation of the Program, the STRGBA GSA has established a baseline Well Mitigation Fund amounting to three hundred thousand dollars ($300,000).

Annual Funding. The STRGBA GSA has agreed to fund the Program on an annual basis as may be required to address the needs of the Program until groundwater sustainability is achieved. The STRGBA GSA member agencies will meet and confer in good faith to determine the appropriate funding mechanism, replenishment amount, and STRGBA GSA member allocation methodology prior to Fund replenishment. Funding for the Program will be recommended by the WMP Committee and approved by the STRGBA GSA.

According to DWR's Dry Well Reporting System, 15 domestic wells were reported dry or failed since the GSP was adopted (13 in 2022, 2 in 2023, and 0 in 2024). However, it is unclear whether these dry or failed wells were due to GSA management of groundwater levels. As such, it is not possible to estimate the number of future eligible claims and annual costs.

It is anticipated that the Program funding will come from one, or a combination, of the following sources established by the Parties:

- STRGBA GSA funds
- One or more STRGBA GSA member agencies
- Funds generated through implementation of projects and management actions (e.g., fines and/or penalties)
- County/state/federal funding, as available
- Other sources, as identified.

Accounting. Annual funding will be placed in STRGBA GSA's account.

Funding Cycle. The budget cycle of the Program will be on a calendar year basis.

Funding and Implementation Review. Not less than once per year, the STRGBA GSA will convene a joint meeting of WMP Committee to review Program implementation progress in that year and plan for Program implementation in the subsequent year.

In-Kind Services. Each STRGBA GSA member agency is likely to provide in-kind services and subsequently incur in-kind costs as part of continued Program development and management. These costs will be the responsibility of each STRGBA GSA member agency unless otherwise agreed to in writing.

Supplemental Funding.

SHE provides a well modification/replacement grant for qualifying landowners who make 80% or less of the mean household income and are willing to not sell their property for a 5-year period after well replacement. Currently, the SHE grants (funded by the SWRCB) can amount to nearly $60,000. If an applicant does not qualify for mitigation through STRGBA GSA's Program, then the applicant may be eligible for mitigation by SHE.

THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS
STATE OF CALIFORNIA

Date: January 27, 2026 2026-0045(b)

On motion of Supervisor Withrow Seconded by Supervisor B. Condit
and approved by the following vote,
Ayes: Supervisors: B. Condit, Withrow, Grewal, C. Condit, and Chairman Chiesa
Noes: Supervisors: None
Excused or Absent: Supervisors: None
Recused: Supervisor: None

THE FOLLOWING RESOLUTION WAS ADOPTED: Item # 7.1

RESOLUTION ADOPTING A GROUNDWATER USE MANAGEMENT PROGRAM IN THE MODESTO GROUNDWATER SUBBASIN

A. WHEREAS, the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency (GSA), consisting of the City of Modesto, Modesto Irrigation District, City of Oakdale, Oakdale Irrigation District, City of Riverbank, City of Waterford and County of Stanislaus was formed on February 16, 2017, for the purpose of sustainably managing groundwater in the Modesto Subbasin, within its jurisdictional boundaries, pursuant to the requirements of the Sustainable Groundwater Management Act (SGMA);

B. WHEREAS, the STRGBA GSA coordinated with the County of Tuolumne GSA to develop a single, coordinated groundwater sustainability plan (GSP) for the Modesto Subbasin which was approved by both the STRGBA GSA and County of Tuolumne GSA;

C. WHEREAS, the final Modesto Subbasin GSP was submitted to the Department of Water Resources (DWR) on January 31, 2022;

D. WHEREAS, a revised 2024 GSP Amendment for the Modesto Subbasin was developed by the STRGBA GSA and County of Tuolumne GSA in response to an Incomplete Determination by DWR;

E. WHEREAS, the 2024 Amended GSP for the Modesto Subbasin was approved by DWR on February 27, 2025;

F. WHEREAS, Stanislaus County acknowledges that during the 20-year GSP implementation period it will be necessary to implement projects and management actions to achieve and maintain sustainable groundwater conditions in the Modesto Subbasin on or before 2042;

G. WHEREAS, Stanislaus County acknowledges that successful implementation of planned GSP projects to achieve their intended recharge benefits during the 20-year GSP implementation period (prior to 2042) is dependent in part on uncertainties related to hydrologic conditions, including precipitation and snowpack, and available water supply during that time period;

H. WHEREAS, Stanislaus County acknowledges that implementation of demand management actions will be necessary to offset these uncertainties related to project implementation and project benefits to ensure that sustainable groundwater conditions are achieved in the subbasin by or before 2042;

I. WHEREAS, on June 25, 2024, Stanislaus County adopted a resolution committing to the development of demand management actions by January 31, 2026, with implementation of those demand management actions by January 31, 2027;

J. WHEREAS, the June 25, 2024 resolution was incorporated into the 2024 Amended GSP for the Modesto Subbasin, which was submitted and approved by DWR;

K. WHEREAS, the STRGBA GSA has developed a Groundwater Use Management Program (GWUMP), as set forth in Exhibit "A" to this resolution, through collaboration of the STRGBA GSA and its member agencies with input from stakeholders through 3 public workshops;

L. WHEREAS, the GWUMP provides the framework to allocate the sustainable yield of the Modesto Subbasin by management area. The GWUMP also allows each management area steward to take actions to allocate the management area's portion of the sustainable yield and to take actions to meet the allocation. The GWUMP is an adaptive plan that provides tools for the management area steward(s) to respond and take various actions and an implementation schedule that may be further refined in the future;

M. WHEREAS, Stanislaus County acknowledges that the GWUMP is a framework to implement necessary demand management actions, and groundwater supply and allocations, which may be revisited as groundwater conditions improve or decline within the Modesto Subbasin;

N. WHEREAS, Stanislaus County acknowledges that it cannot control groundwater conditions caused by actions not taken by the GSA;

O. WHEREAS, Stanislaus County commits to the implementation of this GWUMP along with the County of Tuolumne GSA; and

P. WHEREAS, funding sources for implementation of the GWUMP and any associated action plans may be subject to the Proposition 218 process and may include GSA fees and assessments, landowner groundwater pumping fees and penalties, agency funds, and grant funding.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Stanislaus County finds as follows:

1. The Board of Supervisors of Stanislaus County authorizes collaboration with the STRGBA GSA, its member agencies, consultants, stakeholders, and the County of Tuolumne GSA to take such actions as may be reasonably necessary to:

a. Approve and implement the GWUMP for the Modesto Subbasin to ensure long-term groundwater sustainability.

b. Develop action plans which ensure the demand management actions identified in the GWUMP are under implementation beginning January 31, 2027.

ATTEST: **MARY E. HARTSFIELD, Clerk**
Stanislaus County Board of Supervisors,
State of California

Modesto Subbasin

Groundwater Use Management Program

FINAL DRAFT

801 T Street
Sacramento, CA 95811
800.426.4262

woodardcurran.com

0012848.00
STRGBA GSA
January 6, 2026

TABLE OF CONTENTS

TABLES

FIGURES

1. PURPOSE AND BACKGROUND

1.1 Purpose

On January 18, 2024, the California Department of Water Resources (DWR) issued an Incomplete Determination letter to the Modesto Groundwater Subbasin (Subbasin) for their 2022 Groundwater Sustainability Plan (GSP or Plan). In that letter, DWR stated that the Groundwater Sustainability Agencies (GSAs) "…should revise the GSP to include a reasonable means to arrest groundwater level declines and stop the overdraft that is continuing to occur in the Subbasin. Specifically, the GSAs should describe feasible, effective proposed projects and management actions that are commensurate with the level of understanding of groundwater conditions in the Subbasin and provide sufficient details for DWR staff to be able to clearly evaluate how the Plan's projects and management actions will ensure achieving the sustainability goal in the Subbasin." In responding to this Corrective Action, in the Revised July 2024 GSP, the Stanislaus & Tuolumne Rivers Groundwater Basin Association (STRGBA) GSA and the County of Tuolumne GSA (Tuolumne GSA) committed to preparing management actions consisting of a Pumping Management Framework (including a groundwater allocation and pumping management program, groundwater extraction and surface water reporting program, groundwater extraction fee and groundwater pumping credit market and trading program), Demand Reduction Strategies (consisting of voluntary conservation and/or land use fallowing and conservation practices), and a Dry Well Mitigation Program. In response, this Groundwater Use Management Program (GWUMP or Program) was prepared, incorporating a pumping management framework and demand reduction strategies. A Dry Well Mitigation Program was prepared as a separate, stand-alone program.

While it is still the goal of the Subbasin GSAs to first implement supply projects to reach basin sustainability, this GWUMP is a management action intended to respond to direction provided by DWR and outlines the demand management actions that will be taken as long as supply actions are not effective in meeting overall basin sustainability goals. Nothing in this framework is intended to be a determination of water rights and is not evidence for or against any claim of a water right that can be used in any adjudication of water rights[1].

1.2 Background

1.2.1 Modesto Subbasin

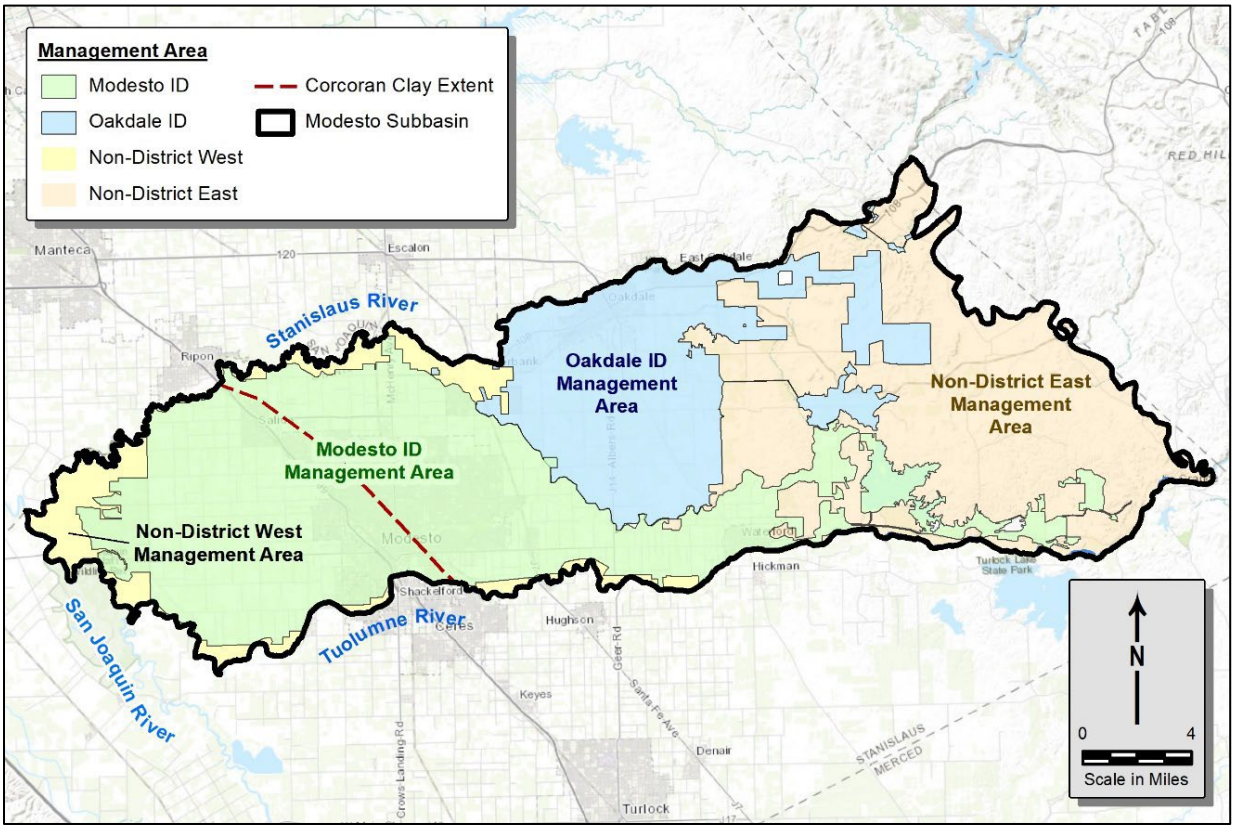
The Modesto Groundwater Subbasin (5-22.02) is a high-priority basin covering approximately 245,253 acres in the northern San Joaquin Valley Groundwater Basin. The Subbasin is bounded by the Stanislaus River on the north, the Tuolumne River on the south, the San Joaquin River on the west, and the crystalline basement rocks of the Sierra Nevada Foothills on the east. The Modesto Subbasin relies on two primary sources of water supply – surface water from the Stanislaus and Tuolumne Rivers and groundwater pumped from the principal aquifers described in the GSP. About 64 percent of the Modesto Subbasin is agricultural, with major crop types including almonds and other deciduous trees, corn, grains, pasture, vines, citrus and truck crops. Urban areas cover about 13 percent of the Subbasin. Remaining lands consist of non-agriculture, non-irrigated agriculture, undeveloped areas, and surface water (23 percent). Most of the undeveloped land

[1] Consistent with California Water Code Section 10720.5 the Sustainable Groundwater Management act may not determine or alter surface water rights or groundwater rights under the common law. This GWUMP is meant to provide an equitable allocation of yield to each management area.

is in the eastern portion of the Subbasin. A significant expansion of irrigated agriculture occurred in the Subbasin during the GSP study period. In 1996, irrigated agriculture covered approximately 46 percent of the Subbasin (approximately 111,946 acres). Over the next 20 years, irrigated agriculture expanded by about 40 percent, and by 2017 had added another 45,965 acres (totaling 157,911 acres, approximately 64 percent of the Subbasin). The increase in irrigated agriculture primarily resulted from a conversion of pasture and previously non-irrigated and undeveloped areas to deciduous/almond orchards. Much of this expansion occurred in the eastern portion of the Subbasin – outside of Modesto Irrigation District (MID) and Oakdale Irrigation District (OID) service areas – where groundwater is the primary source of water supply.

The GSP delineates four separate Management Areas (MAs) to reflect areas of similar water supplies, streamlining coordination of water management and prioritizing areas for GSP project implementation. These management areas include the Modesto Management Area, Oakdale Management Area, Non-District East (NDE) Management Area, and Non-District West (NDW) Management Area as shown on **Figure 1**.

FIGURE 1: MODESTO SUBBASIN MANAGEMENT AREAS



The Non-District West Management Area contains lands along the western rim of the Subbasin, where both groundwater and surface water are available for beneficial uses. The Non-District East Management Area includes lands outside of MID and OID service areas in the eastern portion of the Subbasin where groundwater is the primary water supply. The Modesto and Oakdale Management Areas coincide with the service area boundaries of their respective irrigation districts. MID manages Tuolumne River water and groundwater conjunctively, and OID manages Stanislaus River water and groundwater conjunctively. The

Non-District East and Non-District West Management Areas cover remaining lands outside of MID and OID jurisdiction, where Stanislaus County is the lead member agency.

1.2.2 Determination Letter and Commitments

The Revised 2024 Modesto Subbasin GSP was approved by DWR in 2025 and is currently being implemented by the STRGBA GSA and the Tuolumne GSA. The goal of the GSP is to achieve sustainability by 2042 in compliance with the Sustainable Groundwater Management Act (SGMA).

As described in the Revised 2024 GSP, long-term declines in groundwater levels have occurred in the NDE Management Area and currently are impacting groundwater levels in the Oakdale Management Area. As a result, 2027 Interim Milestones (IMs) below the Minimum Threshold (MT) have been developed for representative monitoring wells in those management areas. The anticipated decline between adoption of the initial GSP in 2022 and 2027 (the first interim milestone) depends on future unknown hydrologic conditions. Since drought conditions began in Water Year (WY) 2013, dry hydrologic conditions have persisted in the Subbasin with five out of seven water years between WY 2014 and WY 2020 having been categorized as below normal, dry, or critically dry. Water level declines associated with the last seven years may continue if hydrologic conditions do not improve, and/or if the aquifer response to GSP project implementation is delayed or overestimated. To evaluate and prevent undesirable results, 2027 IMs have been developed for monitoring sites based on groundwater level declines observed over the last seven years. Based on modeling completed in support of the GSP, by 2032, projects and management actions are expected to support water level recovery; therefore, the 2032 IMs were set as the MT. If needed, the IMs for 2037 have been defined as the halfway point between the MT and the Measurable Objective (MO).

In general, there are two principal ways to reach the Subbasin IMs and ultimately achieve basin wide sustainability as the GSP is implemented:

1. Increase supply; or
2. Decrease demand; or

Reducing groundwater demand can be done through a variety of strategies, including changes to cropping patterns, land fallowing, land repurposing, and conservation in response to numeric groundwater allocations, which would be less than those currently extracted. Strategies to increase supply have been identified by the GSA and are included as projects in Chapter 8 of the Revised 2024 Subbasin GSP. These projects are proposed to either recharge groundwater with surface water or provide surface water to meet groundwater demand so that groundwater pumping is reduced without changing the land use or total water demand (in-lieu recharge). To date, the GSP has focused on implementing projects to address overdraft. However, the schedule of implementation, source, and timing of the funding, design, and construction of the supply projects poses uncertainties in terms of realizing the benefits in the expected timeline. Recognizing these uncertainties, the GSAs acknowledge that more timely reductions in groundwater use will be required to meet the planned IMs. For this reason, this GWUMP has been developed as a backstop to prevent significant and unreasonable impacts related to groundwater level decline.

The GWUMP, as outlined herein, is the first step in demand management. The GSAs may adjust the GWUMP as projects are implemented and further develop additional aspects of the overall Program as it is implemented and evolves.

2. GROUNDWATER ALLOCATION FRAMEWORK

GSAs have the authority to develop and implement management actions within their GSPs that are based on local conditions, priorities, and management objectives. Under the California Water Code, a GSA has the authority to regulate, limit, or suspend groundwater extractions from individual wells or other facilities within a groundwater basin.[1] As a result, this Groundwater Allocation Framework has been developed to equitably distribute the sustainable yield amongst the Management Areas (Allocation Framework) to achieve groundwater sustainability consistent with SGMA. Any demand reductions actions must be approved by the applicable GSA(s) and would be implemented by Management Area Stewards if authorized and directed by the GSA(s).

This Allocation Framework is intended to be an adaptive program, modified over time to reflect changing hydrologic conditions and implementation of water supply projects. Nothing in this framework is intended to be a determination of water rights, and is not evidence for or against a water right that can be used in any adjudication of water rights[2].

2.1 Groundwater Allocation Framework

The STRGBA GSA developed a groundwater allocation framework based on the estimated sustainable yield of the Subbasin as documented in the GSP and considering developed supply and local groundwater use. The goal of the framework is to equitably distribute the sustainable yield to each Management Area throughout the Subbasin and allow the Management Area Stewards to decide how to implement components of the framework in their respective management areas as needed to operate within those allocations. Only de minimis extractions occur in the Tuolumne GSA which are exempt from receiving allocations (see Section 2.1.2.2).

As used herein, the Management Area Steward is defined as the STRGBA GSA member agency/agencies from each Subbasin management area. The Modesto Subbasin Stewards in the STRGBA GSA area are shown below in **Table 1**.

Overall, the process of developing the Allocation Framework included establishing the sustainable yield, accounting for special considerations of allocatable groundwater, determining the volume of developed water, allocating the sustainable yield of native groundwater, and establishing measures for management area stewardship by the STRGBA GSA member agencies.

[1] CWC § 10726.4(a)(2)

[2] Consistent with California Water Code Section 10720.5 the Sustainable Groundwater Management act may not determine or alter surface water rights or groundwater rights under the common law. This GWUMP is meant to provide an equitable allocation of yield to each management area.

TABLE 1: MODESTO SUBBASIN STEWARDS

Management Area	Stewards
Modesto Management Area	Modesto Irrigation District
	City of Modesto
	City of Waterford
Oakdale Management Area	Oakdale Irrigation District
	City of Oakdale
Non-District West Management Area	Stanislaus County
	City of Riverbank
Non-District East Management Area	Stanislaus County Tuolumne County GSA

2.1.1 Sustainable Yield

Sustainable yield is defined under SGMA as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."[1] The sustainable yield for the Modesto Subbasin was calculated to be 267,000 acre-feet per year (AFY). Sustainable yield for the Subbasin was calculated using a C2VSimTM numerical modeling scenario in which the long-term (50-year) sustainable management criteria are maintained. The development of sustainable yield incorporates the reduction of groundwater demand from net groundwater extractors, which forms the basis for the Allocation Framework. Additional information on the methodology utilized to determine the sustainable yield is presented in Section 5.3 of the Revised 2024 GSP.[2]

While the sustainable yield provides the basis for the volume of allocatable water within the Subbasin, special considerations for certain entities were considered and incorporated into the Allocation Framework (see Section 2.1.2). The amount of water allocatable to applicable entities is termed "native sustainable yield", which is discussed further in Section 2.1.3.

2.1.2 Special Considerations

Special considerations for the Allocation Framework were evaluated by the STRGBA GSA and included legal considerations and local management objectives. The following entities were determined to have limited requirements under the Allocation Framework:

[1] CWC §10721(w))

[2] Modesto Subbasin GSP, Revised July 2024, Section 5.3, pp. 303-310

- Federal & Tribal Lands (not present)
- Adjudicated Areas (not present)
- Developed Water Supplies
- *De Minimis* Water Users
- Municipal Water Use

Federal lands, tribal lands, and adjudicated areas are not present within the Subbasin. As a result, developed water, supplies for *de minimis* water users, and municipal water use were the only entities with special considerations or limitations under the Allocation Framework. Additional information on developed water supplies, *de minimis* water users, and municipal water users are discussed further herein.

2.1.2.1 Developed Water Supply Users

Developed supplies are water that is intentionally sourced, imported and made available for use through human-made systems. California law recognizes imported water that is added to and withdrawn from an underground basin and credits this 'developed water' to the importer bringing the water into the basin. California law also recognizes that a party who imports water into a basin or develops new supplies may retain rights to that water, including the right to recapture that water. As such, Developed Supply is controlled by the entity that developed the imported water supply.

Developed supply systems in the Modesto Subbasin include:

- **Imported Water**: Surface water brought into the basin from external sources, such as through canals, pipelines, or water transfers.
- **Recycled Water**: Wastewater or other non-traditional water sources that are treated to meet specific quality standards for reuse.
- **Artificial Recharge Projects**: Groundwater replenishment efforts using intentionally captured and injected water.

Recovery of imported and recycled water includes seepage resulting from storage, conveyance and/or land application. Recovery of water from artificial recharge projects correlates to the volume of water recharged by the project.

During the development of the Allocation Framework, estimates of developed supplies were refined into seepage from canals, reservoirs, drainage, and deep percolation of applied surface waters. Quantified values of developed water were sourced from MID's and OID's 2020 Agricultural Water Management Plans, the City of Modesto's 2020 Urban Water Management Plan, and are summarized below in **Table 2.**

TABLE 2: DEVELOPED SUPPLY IN THE MODESTO SUBBASIN

Developed Supply (AF)	MID[1]	OID[2]
Deep Perc of Applied Surface Water	51,500[3]	14,800[3]
Canal and Reservoir Seepage	39,400	13,100
Drainage Seepage	--	3,700
M&I Seepage	4,700	--
Total	**95,600**	**31,600**

Notes:
[1] Includes 2018 as a representative water year
[2] Average value covering water years 2006-2019
[3] estimated based on the fraction of applied surface water

MID generates approximately 95,600 AFY of recharge from their developed supply, and OID generates approximately 31,600 AFY of recharge from their developed supply. These estimations were incorporated into the Allocation Framework and the Management Areas' demand reduction targets, which are discussed further in Section 2.2.2 and Section 2.2.3. These values were estimated using the most recent data available and will be refined as the GWUMP is periodically re-evaluated.

2.1.2.2 *De Minimis* Water Users

De minimis extractors are classified as water users that extract two (2) acre-feet (AF) or less of groundwater per year.[1] *De minimis* water use totals approximately 13,800 AFY within the Subbasin. During the development of the Allocation Framework, it was determined that *de minimis* extractors should be exempt from receiving allocations and reducing their groundwater use. Of note, with only de minimis extractions in the Tuolumne GSA area, implementation of the GWUMP will not restrict or alter existing groundwater pumping activities there unless and until that were to change in the future.

2.1.2.3 Municipal Water Users

Municipal water use refers to the provision of water for residential, commercial, and public services within a city. Municipal water users within the Subbasin include the City of Modesto, City of Oakdale, City of Riverbank, and the City of Waterford. These entities account for approximately 35,000 AFY of groundwater use. During development of the Allocation Framework, the STRGBA GSA designated municipal water users as a special case and limited their future groundwater use to their historical groundwater use. This decision was supported by several local and state requirements for implementing water use efficiency programs. These requirements include:

[1] CWC § 10721(e)

- **Making Conservation as a California Way of Life** – a State regulation that establishes efficiency goals and Urban Water Use Objectives (UWUOs) for urban water suppliers to reduce municipal demands. The regulation requires urban water suppliers to determine their water use objectives and demonstrate compliance annually.[1]
- **Growth Obligations** – Municipalities have State mandated housing and population growth targets that drive water demand.
- **Public Service Constraints** – Cities are non-profit entities that typically operate with limited flexibility in pricing for the purchase of water supplies.
- **Supply Limitations** – Groundwater supplies are limited and meeting future demand will require surface water development, recharge projects, additional conservation, or purchased allocation credits.

Under this Allocation Framework, groundwater allocations are set at current groundwater use quantities per annum for municipalities, and the municipalities will be required to conserve water or provide other water supplies to supply future growth. If additional lands are annexed into municipal water provider's service areas, those lands will be removed from the overlying allocation of the sustainable yield in future updates of the GWUMP, and the special case allocation to municipal water users will remain unchanged.

2.1.3 Allocation Framework Methodology

Multiple approaches to Subbasin groundwater allocation were considered by the STRGBA GSA to determine the best method for reducing groundwater demand to achieve the Subbasin's sustainability goals. The approaches included allocations based on consumptive use (amount of water used and not returned to the Subbasin), pumping (total volume extracted), and other metrics such as crop type, economic value, or negotiated agreements. Ultimately, pumping, or the total volume of groundwater extracted by user, was selected as the basis for the Allocation Framework as it was both directly measurable and could easily be estimated by other means in cases where metering data were not available.

A proportional allocation by the overlying area, excluding those urban and domestic areas where the service area was provided a special consideration, was selected as the approach for distributing allocatable yield by management area within the Subbasin. This method was selected as it facilitates resource pooling in management areas that are more reliant on groundwater, eliminates the 'double allocation' of water to municipal and *de minimis* areas, and promotes equity across all overlying users, despite their intended use.

Following the selection of the Allocation Framework's basis and distribution method, estimations of allocations for the Subbasin and each Management Area (as defined in the Revised 2024 GSP) were made. As previously discussed, allocations are calculated by distributing the allocatable yield (i.e., non-special considerations) across the Subbasin's overlying area, where:

[1] 23 CCR, § 966

$$AY = SY - D - M - DS$$

AY = Allocatable Yield
SY = Sustainable Yield
D = *De minimis* Users
M = *Municipal Users*
DS = Developed Supply

The allocatable yield calculated for the Modesto Subbasin was determined to be 95,700 AFY.

Overlying Allocation: The Subbasin-wide overlying allocation of 95,700 AFY was subsequently distributed amongst the Management Areas using a proportional allocation methodology based on each zone's overlying land area minus the area covered by urban and domestic land uses (referred to herein as Overlying, Non-Urban Area). This equitable distribution approach ensures that water allocations correspond directly to the spatial extent of overlying land use within each Management Area without 'double allocating' water to urban and domestic land areas. The proportional distribution method calculates each Management Area's share by dividing its overlying non-urban acreage by the total subbasin overlying acreage, then multiplying this percentage by the total overlying allocation. An illustrative calculation demonstrating how individual Management Area overlying allocations are determined is presented below.

$$OVR_{MA} = (OVR_S)(\frac{Area_{MA}}{Area_S})$$

$\boldsymbol{OVR_{MA}}$ = Overlying Allocation of the Management Area
$\boldsymbol{OVR_S}$ = Overlying Allocation of the Subbasin
$\boldsymbol{Area_{MA}}$ = Overlying Non-Urban Area of the Management Area
$\boldsymbol{Area_s}$ = Total Area of the Subbasin

Table 3, below, summarizes the 'baseline' allocations for the individual management areas as calculated using the above methodology.

TABLE 3: BASELINE MODESTO SUBBASIN GROUNDWATER ALLOCATIONS

	Subbasin TOTAL	Modesto MA	Oakdale MA	NDW MA	NDE MA
Developed Supply[1]	127,200	95,600	31,600	0	0
Special Cases[1]	48,800	33,700	8,900	6,200	0
Overlying Use[1]	91,000	33,600	22,000	5,300	30,100
Total Allocation[1]	267,000	162,900	62,500	11,500	30,100
Total Historical Pumping[1]	317,600	173,000	39,800	15,100	89,700
Reduction Required[1]	50,600	10,100	-22,700	3,600	59,600
Total Allocation (Percent of Historical)	84%	94%	157%	76%	34%

[1] *Volumes are presented in acre-feet.*
NDW – Non-District West
NDE – Non-District East

The initial allocation estimations ("Baseline Allocations") indicate an average annual reduction of Total Historical Pumping by approximately 16% is needed. However, allocations applied to certain management areas, such as the Oakdale Management Area, were greater because of OID's development and use of surface water and thus appear in **Table 3** as negative required reductions. To collaborate and assist in easing reductions in other Management Areas, and to allow supply projects to be constructed, OID has agreed to redistribute the portion of its developed supply that is not anticipated to be used by OID in the near term to other Management Areas on a temporary basis, not to exceed five years (2027-2031), at no cost to the beneficiaries. The reallocation option, referred to herein as 'Collaborative Management, is presented below in **Table 4**. It is important to note that any potential 'reallocation' of the native sustainable yield would have to be agreed upon by the STRGBA GSA. However, reallocation of developed supply is controlled by the entity that developed the imported water supply. Any such redistribution of OID's developed water is not a forfeiture of the right or claim of right in the future. Furthermore, by reallocating developed supply to another party under this Framework, the potential pumping reduction in other management areas is reduced from what it may have to be in the future. OID specifically hereby disclaims that by approving this Plan it waives any of its water rights and/or the rights of its landowners; but rather, affirms that it puts all water to which it or its landowners have a right to full beneficial use.

TABLE 4: COLLABORATIVE MANAGEMENT OF GROUNDWATER ALLOCATIONS

	Subbasin TOTAL	Modesto Management Area	Oakdale Management Area	NDW Management Area	NDE Management Area
Base Allocation[1]	267,000	162,900	62,500	11,500	30,100
Historical Pumping[1]	317,600	173,000	39,800	15,100	89,700
Developed Water[1]	-	0	-22,700	0	0
Redistribution of Developed Water[1]	0	10,100	-22,700	1,900	10,700
Allocation with Redistribution of Developed Water[1]	267,000	173,000	39,800	13,400	40,800
Reduction Required[1,2]	50,600	0	0	1,700	48,900
Allocation with Redistribution[2] (Percent of Historical)	84%	100%	100%	89%	45%

[1] Volumes are presented in acre-feet.
[2]Assumes long-term use of Redistributed Developed Water.
NDW – Non-District West
NDE – Non-District East

Long-term redistribution of developed water would result in smaller reduction targets for the Modesto, Non-District West, and Non-District East Management Areas - 6%, 13%, and 12%, respectively. However, OID has only agreed to allow temporary utilization of their developed water for the first five years of implementation (2027-2031).

The STRGBA GSA prepared an implementation schedule for meeting the allocation targets while allowing groundwater users the opportunity to adapt to reductions in groundwater use. The implementation schedules for the Management Areas are presented in Section 4. Distribution of these allocations to groundwater users will be completed by Management Area "Stewards", as discussed in Section 2.1.4. However, it is important to keep in mind that this framework is one of the Subbasin's first steps towards achieving groundwater sustainability, and this Program will continue to be reviewed and adjusted as needed in future updates.

3. IMPLEMENTATION

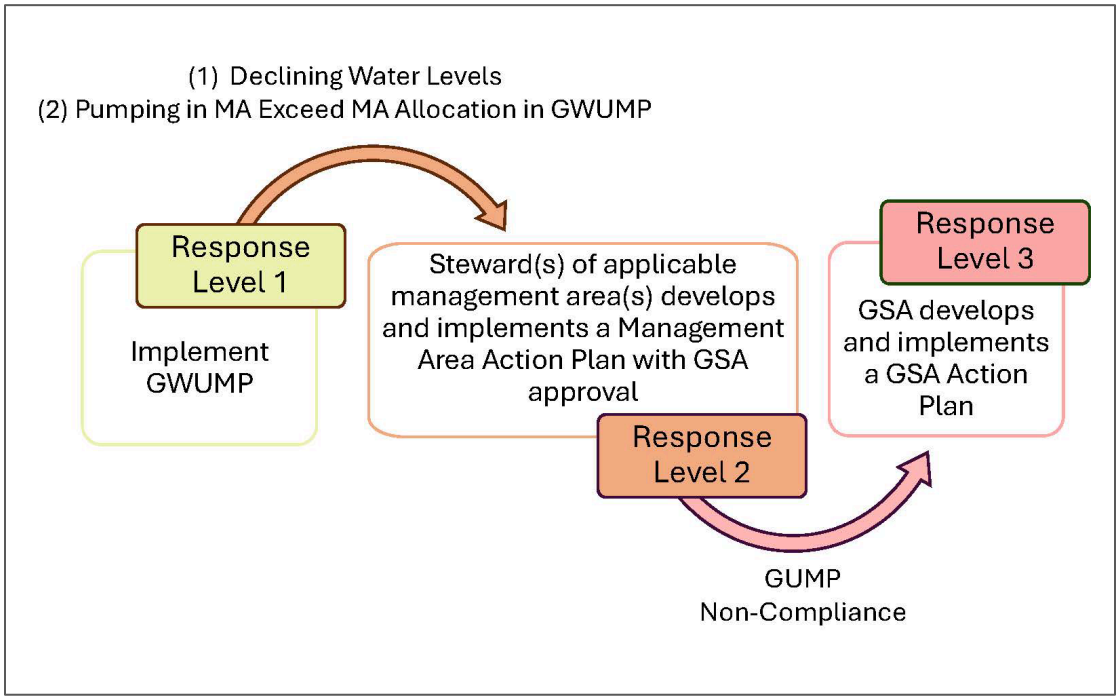
Member agencies of the STRGBA GSA determined that the GWUMP would be best implemented locally in the individual Management Areas within the Subbasin. As previously noted, with only having de minimis extractors, groundwater pumping activities in the Tuolumne GSA area will not change with implementation of the GWUMP. The Management Areas are defined in the Revised 2024 GSP as areas of similar water supplies and similar ongoing water management activities.[1] As discussed in Section 2 and shown in **Figure 1**, four management areas are present within the Modesto Subbasin: Modesto Management Area, Oakdale Management Area, Non-District West Management Area, and Non-District East Management Area. These management areas and their Stewards (agencies with jurisdiction) are shown in **Table 1**.

Following the adoption of this GWUMP, the Management Area Stewards will distribute allocations as credits to groundwater users no later than January 31, 2027, per the Revised 2024 Modesto Subbasin GSP. The total allocations, per Management Area, in the first five years of implementation will be consistent with the "Collaborative Management" allocation volumes presented in **Table 4**. Management Area Stewards will monitor and evaluate groundwater use and the assigned allocations on a regular basis to ensure groundwater users are operating within their assigned allocations. The STRGBA GSA will also continue to independently assess groundwater use in each management area as part of its annual reporting process and procedures.

The intent of localized management by the Management Area Steward is to achieve sustainable management criteria, such as interim milestones and measurable objectives, as established in the GSP and prevent the occurrence of undesirable results, but to do so in a fashion that is achievable within the characteristics of each individual area. Should groundwater data and parameters, such as groundwater levels, indicate that a particular management area is not achieving their sustainable management objectives, Management Area Stewards will develop a Management Area Action Plan for STRGBA GSA approval as a corrective course of action and may, at their discretion, escalate the allocation implementation schedule to comply with these sustainable management criteria if needed. Non-compliance with these criteria may trigger other additional management strategies. **Figure 2** outlines the methodology the Management Area Stewards will follow in implementing the GWUMP. For the purposes of this GWUMP, non-compliance is defined as two (2) consecutive years of not meeting the GWUMP-mandated allocations and/or not having a GSA-approved Action Plan implemented within two (2) years.

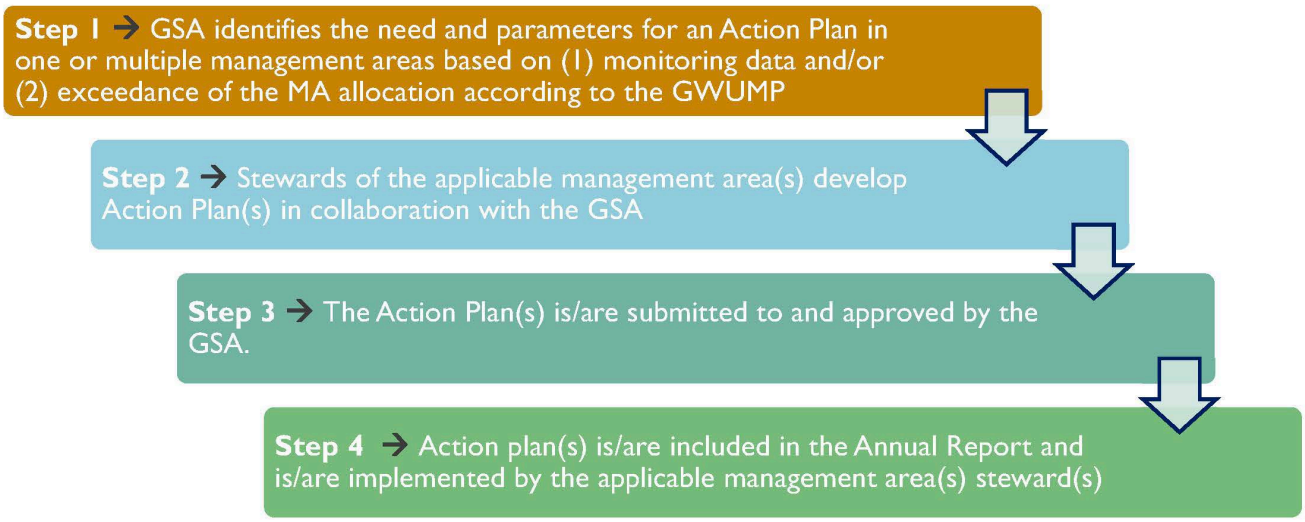
[1] Modesto Subbasin GSP, Revised July 2024, Section 6.2.3, p. 317

FIGURE 2: GWUMP RESPONSE LEVELS



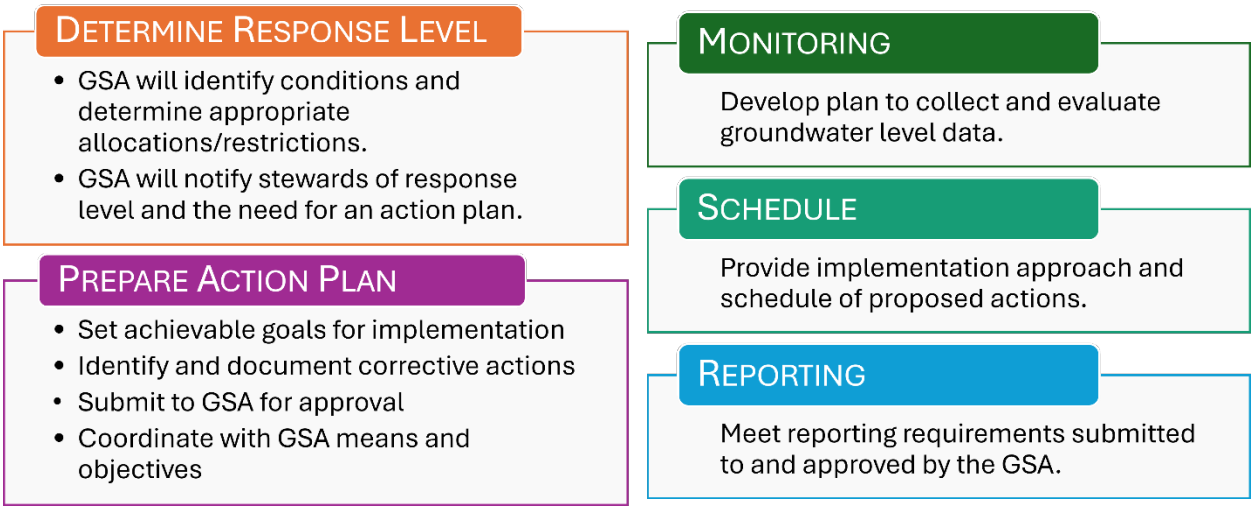
If, based on the Subbasin's monitoring program and annual analysis, it is determined that a Management Area Action Plan is required, the following steps will be implemented in developing that plan (**Figure 3**). Should a Management Area move into Response Level 3 as a result of non-compliance, the STRGBA GSA would follow the State's probationary emergency protocols/measures to meter groundwater extractions and assess fees while the STRGBA GSA drafts and executes a GSA Action Plan for the Management Area(s) and returns the Management Area(s) to the planned path towards sustainability.

FIGURE 3: MANAGEMENT AREA ACTION PLAN DEVELOPMENT PROCESS



The content of the Action Plan will vary depending on the Management Area, hydrologic condition, situation and other parameters, but in general, Actions Plans will include the following content (**Figure 4**).

FIGURE 4: ACTION PLAN CONTENT



Section 3.1 provides a list of potential adaptive management strategies that the Management Area Stewards may choose to implement to ensure the Subbasin progresses towards sustainability. In the event the Management Area Stewards are unable to progress towards sustainability (i.e., failure to achieve interim milestones or continuously exceeding minimum thresholds), the STRGBA GSA will implement additional measures to prevent the occurrence of undesirable results.

While the GWUMP will be reassessed no less than once every five years (see **Section 4** for further discussion), the condition of the Subbasin will be evaluated annually as part of the SGMA-mandated annual report process. If identified as part of that reporting process and as needed, the Management Area Stewards may opt to modify their Action Plan with STRGBA GSA approval between GWUMP assessments to proactively address any negative trends identified at that time. However, any planned regulation, limitation or suspensions of groundwater extractions from individual wells or other facilities by Management Area Stewards will require prior approval by the STRGBA GSA.

3.1 Adaptive Management Strategies

While the groundwater allocation framework discussed above in Section 2 is intended to move the Subbasin towards sustainability, it is recognized that Subbasin hydrogeology and future hydrologic conditions will impact the success of the program. As the GWUMP is envisioned, the Management Area Stewards will be responsible for monitoring progress towards achieving the Interim Milestones set forth in the Revised 2024 GSP, and for implementing adaptive management strategies and responses as needed to achieve the desired results.

Adaptive management is a key component of the GWUMP. A program that is flexible and developed to adapt to changing conditions will be the most effective. The unknown factors in meeting the demand management goals may include, but are not limited to, the following:

- Hydrology of the next five years: The benefits (recharge) accrued from planned projects vary based on the availability of surface and storm water over the next few years. Projects that rely on excess surface water to be implemented may not produce the same level of benefits in drought years.
- Implementation schedule of planned projects: It is unknown what legal, financial, or environmental hurdles could delay the implementation of the identified projects. These delays could be specific to a GSA, management area, or the Subbasin as a whole.
- Estimation of Project Contributions: Not all projects may be able, once implemented, to produce the anticipated benefits estimated during the planning process, even without project delays.
- Model Uncertainty: Through future monitoring, the GSAs will be able to assess model uncertainty and improve model estimations as new data becomes available.

To aid the Management Area Stewards with adaptively managing their areas, the following is a list of some potential strategies that may be employed to help reduce groundwater use and support achieving the Subbasin Interim Milestones and ultimately groundwater basin sustainability. This list is not intended to be all inclusive.

- Implementation of voluntary or mandatory conservation measures including, but not limited to:
    - Land repurposing to enhance groundwater recharge
    - Land repurposing for habitat restoration (recreational use, GDE benefit, etc.)
    - Land repurposing for clean energy incentives (i.e., solar power fields)
    - Replacing higher value/water using crops with lower value/water using crops or replanting or repurposing with crops/agriculture requiring lower water demands
    - Fallowing – total or partial crop removal, rotational fallowing, dry farming

- Acceleration of the allocation reduction schedule
- Implementation of groundwater extraction fees
- Increased groundwater use reporting requirements to quarterly or monthly
- Prioritization of implementation of Supplemental Projects (Group 3)
- Incentivization of surface water deliveries/in-lieu recharge
- Implementation of targeted pumping reductions or restrictions
- Reduction of allocations beyond base allocation limits
- Restriction of pumping in areas where MTs have been exceeded
- Required flowmeter installation on extraction wells
- Invasive species removal
- Urban retrofitting and/or irrigation improvements to reduce water loss and use

It will be at the Management Area Stewards discretion and responsibility to effectively use some or all of these and potentially other measures to achieve the targeted groundwater use extractions and reach Interim Milestones, and it will be the responsibility of the STRGBA GSA to ensure there is consistency amongst the Management Areas with respect to implementation and application of adaptive management measures.

4. IMPLEMENTATION SCHEDULE

As previously described, in response to Recommended Corrective Action #2 of DWR's 2025 Determination letter, the STRGBA GSA and Tuolumne GSA committed to developing this GWUMP by no later than January 31, 2026, and will implement the program beginning no later than January 31, 2027. To meet this schedule and achieve the Interim Milestones established in the Revised 2024 GSP, the GWUMP will be the primary tool to guide the Subbasin towards sustainability as additional projects and management actions are implemented to offset continued groundwater use.

This Program is the first step towards achieving long-term sustainability. It is designed to effectively manage groundwater use while allowing growers the flexibility to adapt to new policies and frameworks within the Subbasin. Ultimately, however, groundwater management will be driven by observed groundwater level data relative to the Minimum Thresholds and Interim Milestones established in the Revised 2024 GSP and will be supported through adaptive management. The timeline for achieving Interim Milestones, as set forth in the Revised 2024 GSP, is as follows:

2027 - Arrest overdraft and groundwater level decline

2032 - Raise groundwater levels to Minimum Thresholds

2037 - Raise groundwater levels to halfway between Minimum Thresholds and Measurable Objectives

2042 - Raise groundwater level to Measurable Objectives

It is important to recognize that the allocations presented in this GWUMP are based on the best available data at this time. The STRGBA GSA will continue to gather data and refine the allocations presented herein in future updates to the GWUMP. However, even with the temporary redistribution of the OID developed water supply in the first five years of program implementation and considering historical groundwater level trends, **the NDE Management Area will begin the GWUMP Phase 1 implementation period in the Phase 2 Response Level and therefore will require preparation of a Management Area Action Plan by November 1, 2026 for STRGBA GSA approval to initiate reductions in groundwater use.** Only having de minimis extractors, the Tuolumne GSA area will be exempt from any reductions in groundwater use.

Following implementation of this GWUMP and the NDE Action Plan on January 31, 2027, reductions in groundwater extractions will 'ramp up' in five-year increments as necessary to arrest overdraft and raise groundwater levels to the Measurable Objectives identified in the GSP. **Table 5,** below, is the implementation schedule for the NDE Management Area.

TABLE 5: NDE MANAGEMENT AREA REDUCTION SCHEDULE

Year	Percent Reduction of Target Allocation	Required Reduction (Acre-Feet)
2027-2030	34% of 47,600 (Total Reduction Required less 10,400 AF of Redistributed Developed Water	16,000
2030-2035	67%	39,000
2035-2040	100%	58,000

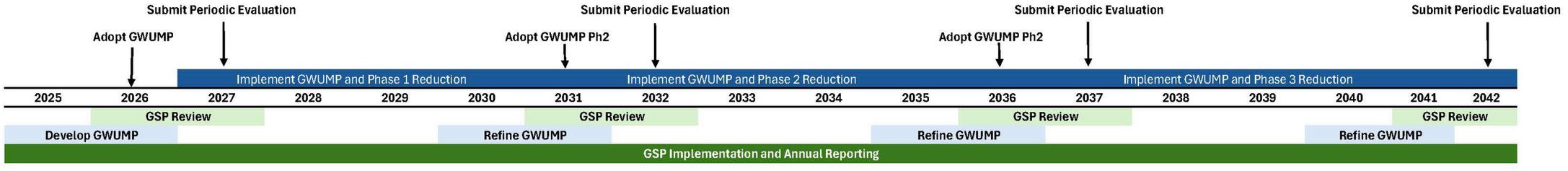
The Modesto Management Area currently exceeds its base allocation. However, after accounting for the redistribution of developed water, the management area is in balance. Additionally, groundwater levels remain relatively stable in most monitoring wells within the MID and City of Modesto service areas. The management area requires continued assessment of data and groundwater/surface water operations to prevent future overdraft, but no Action Plan is necessary at this time.

Although some reduction in groundwater pumping is indicated for the Non-District West Management Area in the first five-year implementation period, observed groundwater levels in most of the monitoring wells in the western upper and lower principal aquifers in the Management Area are currently at or above the measurable objective. Additionally, there are no indications of any long-term water level declines in the Non-District West Management Area, therefore, no Action Plan is required in the Non-District West Management Area at this time.

Even though OID's development and use of surface water results in a surplus of developed supply, groundwater levels in the eastern portion of the Oakdale Management Area continue to decline due to the influence of overdraft in the Non-District East Management Area. No reductions or Action Plan are required for the eastern portion of the Oakdale Management Area at this time.

Per SGMA, every five years, the Subbasin GSP is re-evaluated and a Periodic Evaluation is prepared for submission to DWR. Evaluation of, and any necessary revisions to, the GWUMP will occur prior to and in parallel with each GSP review and Periodic Evaluation. Additionally, other related management actions and tools, such as the development of a groundwater banking and trading program, may be developed by the STRGBA GSA in the future to further support sustainable management of the Subbasin. **Figure 5,** below, is the planned implementation and review schedule for the GWUMP.

FIGURE 5: GWUMP IMPLEMENTATION SCHEDULE



Woodard & Curran

woodardcurran.com

Statement of Qualifications and Proposal for Modesto Irrigation District on behalf of the Stanislaus & Tuolumne Rivers' Groundwater Basin Association Groundwater Sustainability Agency

Development of a Well Mitigation Plan & Management Actions for the Modesto Subbasin Groundwater Sustainability Plan

September 30,
2024

Woodard & Curran

TODD GROUNDWATER

Section One

Cover Letter

801 T Street
Sacramento, CA 95811
www.woodardcurran.com

T 800.426.4262
T 916.999.8700
F 916.999.8701

9/30/2024

Jesse Franco
Civil Engineering Manager
Modesto Irrigation District
Civil Engineering Department
1231 11th Street
Modesto, CA 95354

RE: Proposal for Consultant Services to Develop a Well Mitigation Plan and Management Actions for the Modesto Subbasin Groundwater Sustainability Plan

Dear Mr. Franco:

Woodard & Curran is pleased to submit our proposal to provide Modesto Irrigation District (MID) and the Stanislaus & Tuolumne Rivers' Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) with services to assist with the development and implementation of a Well Mitigation Plan and Management Actions to support the 2022 Groundwater Sustainability Plan (GSP) for the Modesto Groundwater Subbasin (Subbasin), as revised in July 2024 (Project). This proposal includes an enhanced scope of services that reflects the commitments made by the STRGBA GSA in their response to the California Department of Water Resources (DWR) Incomplete Determination letter dated January 18, 2024. It is tailored to ensure that the needs and interests of the STRGBA GSA members are also met through the management action development process. As requested, we have also provided a level of effort matrix and overall schedule workplan for completing the program development by the January 31, 2026 deadline.

Woodard & Curran is an industry leader in groundwater studies and evaluations, integrated groundwater and surface water modeling, integrated regional water management, environmental assessment and remediation, data management, water recycling, and strategic planning nationwide. Over the last 45 years, our firm of 1,300 professionals has developed a proven record of completing projects on time and on budget while meeting our clients' goals and objectives. We offer specialized services in groundwater management, integrated regional planning, water supply and treatment, watershed management, water quality permitting, water recycling, flood protection and stormwater management, and wastewater collection and treatment, and have worked on 17 GSPs across California. The Woodard & Curran Team (including Todd Groundwater) offers the Modesto Irrigation District and the STRGBA GSA the perfect combination of focused development and implementation expertise with dedicated local project delivery.

As described in our proposal, the Woodard & Curran Team will work in a collaborative process with the STRGBA GSA members to take the management actions (Well Mitigation Plan and Groundwater Use Management Program, further described below) framed in the 2024 GSP to fully implementable programs, and to attain acceptance of these programs as they are implemented in the Subbasin. Our proposed Woodard & Curran Team will be led by

Leslie Dumas, who has experience working in the Modesto Subbasin and brings extensive experience in compliance with the Sustainable Groundwater Management Act (SGMA) and similar efforts in management action program development occurring elsewhere in the Central Valley. As Project Manager, Leslie will also lead development of the Groundwater Use Management Program with **Dominick Amador** as Deputy Project Manager, and **Ali Taghavi** as technical advisor and Principal-in-Charge. We have also included our strategic teaming partner, **Todd Groundwater**, who also have significant experience in SGMA and direct experience in developing the framework for the Well Mitigation Plan as contained in the Subbasin's 2024 GSP. Also included as part of our project team are **Katie Evans**, our public outreach and stakeholder engagement expert. While we know that the STRGBA GSA is planning to take lead on outreach and public engagement, Katie and the rest of our project team are available to support the GSA in these efforts upon request and as needed. In consultation with the STRGBA GSA, we will be contacting Self-Help Enterprises early in the project schedule to discuss a potential role in developing/implementing the well mitigation plan; however at this time, their role (if any) is to be determined and the scope of work to be further defined.

Groundwater Use Management Program

The GSP presents projects and management actions that have been shown to be feasible in achieving sustainability by 2042. However, it is also recognized that the GSP objectives in arresting groundwater level declines quickly could be threatened by significant drought cycles resulting in insufficient water supplies available for use. Accordingly, this proposal presents a Groundwater Use Management Program to expedite the implementation of the most practical and workable management actions. As envisioned in our proposal, the Groundwater Use Management Program will consist of a series of sub-programs consistent with the 2024 GSP's Pumping Management Framework and Demand Reduction Strategies management actions. Sub-programs existing under the umbrella of the Groundwater Use Management Program include:

1. Groundwater extraction accounting and reporting program
2. Groundwater allocation program
3. Groundwater extraction fee
4. Groundwater pumping credit/trading program
5. Voluntary conservation program

Each sub-program will be developed collaboratively with a proposed GSA Working Group following a similar process in which feasible concepts and options will be identified and screened. The most practical and workable option(s) will then be expanded to create a viable program for implementation. The draft program will be presented to the STRBGA GSA, and feedback received incorporated. The revised program will then be presented to Subbasin groundwater users and the public for consideration and comment, including education around the need for the program(s) and possible impacts. The final resulting programs will then be presented in a second public workshop during which the program implementation process will be explained, and materials provided for initial execution.

Well Mitigation Plan

Todd Groundwater will be leading the preparation of the Well Mitigation Plan. Plan development will include the institutional framework, terms, potential mitigation measures, funding plan, and claims process (including owner agreements) needed for implementation. Throughout this process, Todd Groundwater will provide technical input about the components and work with the GSA Working Group to prepare the Plan for Modesto Subbasin.

Project Outreach and Meetings

Project communication, outreach and meetings with the GSA Working Group to develop the well mitigation plan and management action programs, and with the STRGBA GSA and Subbasin groundwater users for input and feedback will be essential to developing justifiable, implementable, trackable, and meaningful programs. We recognize that the GSA member agencies are very busy with their primary roles for their districts, cities and county; as such, we have proposed the formation of the GSA Working Group, an ad hoc committee, to guide the development of management action programs and to act as a sounding board on behalf of their fellow member agencies. This will limit the time required by all entities, provide focused program development, resulting in the timely completion of the well mitigation plan and management actions while reflecting the interests and concerns of the Subbasin's groundwater users.

While the goals of the management actions contained in the 2024 Revised Modesto GSP are admirable, there is a significant amount of work to be completed within the timeframe committed in that document. As such, we feel it important that the programs and subprograms to be developed are prioritized, ensuring those that will have the greatest impact are completed first. We believe that the well mitigation plan, groundwater extraction and surface water delivery reporting program, and pumping allocations first and foremost must be developed as these sub-programs will provide much needed data on groundwater use and will form the basis for pumping reductions and demand management needed to achieve the Subbasin's interim milestones. The groundwater extraction fee should then follow as it will provide the funds for GSP implementation and to create the other programs that will further groundwater use reductions in the Subbasin. To the extent the schedule allows, the remaining programs can be expanded beyond what was presented in the GSP and further developed to complete the suite of management actions to be rolled out as part of GSP implementation. Our team will work with the GSA to expedite the development of these sub-programs to the best of our ability by not recreating the wheel. We will prepare strawman proposals that reflect our experiences from other basins in the State and present management ideas, along with relevant pros and cons, for consideration.

In regards to the Standard Agreement for Consultant Services included in the RFQ/RFP, Woodard & Curran has reviewed the draft form of agreement and generally accepts Modesto Irrigation District's form, provided, we would request an opportunity to revise certain risk-based allocation terms to be consistent with the provision of professional services, including but not limited to the standard of care, indemnity, limitations of liability and related insurance provisions, among others.

We thank you again for this opportunity to work with the STRGBA GSA and its member agencies in the development of these important programs that are essential in helping the Subbasin to achieve its groundwater sustainability goal by 2042. We are excited and ready to support you in the development and implementation of these important programs. Please feel free to contact either Leslie Dumas (ldumas@woodardcurran.com) or Ali Taghavi (ataghavi@woodardcurran.com) if you have any questions regarding this proposal or require any further information.

Sincerely,

WOODARD & CURRAN, INC.

Leslie Dumas, PE
Vice President/Project Manager

Ali Taghavi
Vice President/Principal-in-Charge

Section Two

Proposed Scope of Services

Woodard & Curran

2 | PROPOSED SCOPE OF SERVICES

BACKGROUND AND APPROACH

The California Department of Water Resources' (DWR's) January 2024 determination letter for the Modesto Subbasin's Groundwater Sustainability Plan (GSP) provided two Recommended Actions for the Stanislaus & Tuolumne Rivers' Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) to address. The first Recommended Action is to develop a well mitigation plan to mitigate water supply wells that failed due to declining groundwater levels caused by overdraft. The second Recommended Action is to revise the GSP to present reasonable means to stop groundwater level declines and address overdraft conditions in the Subbasin. Specifically, DWR requested that the GSP include a feasible collection of projects and management actions to raise groundwater levels to avoid undesirable results.

The GSA has responded to DWR's Recommended Actions with proactive research and the development of a framework for a well mitigation program tailored to the conditions and management objectives of Modesto Subbasin. The GSA has also identified a viable portfolio of management actions to arrest groundwater level declines by 2027 and to raise groundwater levels after 2027 to manage the Subbasin sustainably. In both cases, this process (part of the 2024 GSP revision) resulted in a Resolution that commits to developing and implementing the Well Mitigation Program and a suite of programs that will manage pumping and reduce demands by January 31, 2026. This is a challenging schedule but can be accomplished with a cohesive, experienced and knowledgeable team who will work closely with the GSAs and stakeholders, and who bring a proven record in achieving and demonstrating results quickly.

Our approach is to build on the previous GSP work. The well mitigation planning developed a preliminary framework for a Well Mitigation Plan that included discussion of topics such as plan components, funding options, public outreach, and a claims process. At the time, the Well Mitigation work was organized as a draft memorandum of understanding (Draft MOU) for TAC Planning Group review and commentary, but can now serve as an outline for a Well Mitigation Plan document. Todd Groundwater will lead the development of the Well Mitigation Plan, combining our local knowledge with experience in other basins. Similarly, our previous work efforts developed and assessed management actions, including demand reduction actions, a pumping management framework, a groundwater allocation program, water use accounting and/or monitoring program, groundwater extraction fee, and potential groundwater allocation exchange program. These management actions have been documented in the GSP and found feasible; we will combine our Modesto-specific knowledge with experience from other basins to implement the actions as described below.

Our approach is collaborative. To develop the Well Mitigation Plan, we will work with the GSA, the outreach team at Modesto Irrigation District, and potentially with other organizations. To develop

the management actions efficiently, we recommend the formation of a GSA Working Group—an ad hoc committee comprised of a subset of GSA member representatives who will act as the sounding board for the overall STRGBA GSA. Our goal would be to have representatives of both urban, agricultural and white areas of the Subbasin represented in the Working Group, considering representation of both the eastern, western and central portions of the Subbasin. The primary purpose of the GSA Working Group will be to guide the development of management actions and facilitate decision making, while acting nimbly to provide timely and relevant feedback.

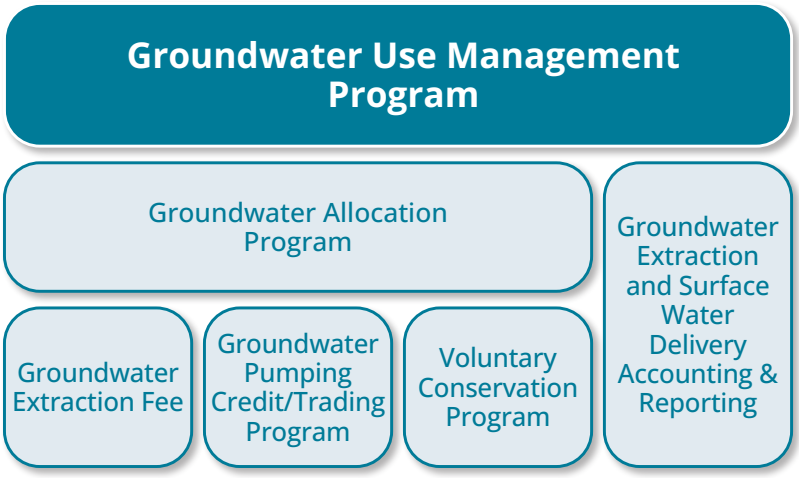
Our approach is practical and results oriented. Within the GSP timeframe, a significant amount of work needs to be completed and management actions need to be implemented without delay to augment groundwater and/or conserve it. As a first step, the Groundwater Use Management Program and subprograms will be prioritized to secure the 'low hanging fruit', those projects that have the greatest and quickest benefits and/or are relatively easy to implement. We believe that the well mitigation plan, groundwater extraction and surface water delivery reporting program, and pumping allocations first and foremost must be developed. The groundwater extraction fee should then follow as it will provide the funds for GSP implementation and to create the other programs that will enhance groundwater use reductions in the Subbasin. To the extent the schedule allows, the groundwater accounting/market/trading program and voluntary conservation programming can be outlined in greater detail than was presented in the GSP and further developed to complete the suite of management actions to be rolled out as part of GSP implementation. Our team will work with the GSA to expedite the development of these sub-programs to the best of our ability by not recreating the wheel. We will prepare strawman proposals that reflect our experiences from other basins in the State and present management ideas, along with relevant pros and cons, for consideration.

SCOPE OF SERVICES

Task 1: Groundwater Use Management Program

The Groundwater Use Management Program, a management action contained in the 2024 Modesto GSP, is intended to expedite the implementation of the most practical and workable management actions. As envisioned herein, the Groundwater Use Management Program will consist of a series of sub-programs consistent with the 2024 GSP's Pumping Management Framework and Demand Reduction Strategies management actions. Sub-programs existing under the umbrella of the Groundwater Use Management Program include:

1. Groundwater extraction and surface water delivery accounting and reporting program
2. Groundwater allocation program
3. Groundwater extraction fee
4. Groundwater pumping credit/trading program
5. Voluntary conservation program



Development of the five sub-programs will generally follow the same steps and will be developed concurrently. In general, the overall program development process will occur in seven steps.

In Step 1, the Woodard & Curran team will work together to expand the frameworks contained in the GSP and develop program details for consideration by the GSA Working Group. These program details will be based on similar programs that the project team has successfully developed and implemented to date or are similar to programs currently being developed in other groundwater basins. These concepts will consider the interconnections and intersections of the sub-programs, both through consistency of thought and development, and in terms of how the programs build off and support each other. The overview concepts and options will be presented to the GSA Working Group in a face-to-face workshop as Step 2 for discussion, revision, elimination and/or for adding additional elements. Using input from the GSA Working Group, the Woodard & Curran team will then utilize the concepts and selected options in Step 3 to develop the draft sub-programs. In Step 4, a second in-person workshop will be held with the GSA Working Group to review and refine the sub-programs and identify and resolve any remaining issues. Woodard & Curran will take the results from the second workshop and develop revised sub-programs for presentation at a public workshop. As needed, additional virtual meetings may occur during this period to resolve any remaining issues or questions and to prepare for the public workshop.

STEP 1 Develop Overview Concepts & Options

STEP 2 GSA/Working Group Review Concepts/ Options and Shortlist

STEP 3 Develop Draft Program Components

STEP 4 GSA/Working Group Review Draft Program Components

STEP 5 Public Workshop to Present Revised Draft Program

STEP 6 Develop Final Program

STEP 7 Present Groundwater Use Management Program

The first public workshop will be the initial presentation of the proposed Groundwater Use Management Program to groundwater users and the public. The goals of this workshop are to educate the Subbasin users of groundwater as to why the programs are needed, to present the draft program elements for public consideration and feedback, to discuss and address concerns, and to start the process toward public acceptance of the program's need. Using public input from the first workshop, the Woodard & Curran team will develop the final sub-programs under the Groundwater Use Management Program. The STRGBA GSA will be provided a screencheck version of the Final Groundwater Use Management Program for review prior to

finalizing the documents. Woodard & Curran will then work with the STRGBA GSA to prepare for and hold a second public workshop to present the finalized program to the Subbasin public and growers, and to show upcoming dates for implementation. Services provided to the STRGBA GSA for both workshops will include preparing workshop materials (workshop agenda, presentation and program FAQ handout). Woodard & Curran can provide Modesto Irrigation District and the STRGBA GSA with additional outreach and communications services upon request.

As noted, the five sub-programs under the Groundwater Use Management Program umbrella are intended to be separate individual programs integrated together, with each sub-program intended to support a specific action, but with the sub-programs complementing and supporting each other. The five sub-programs can initially be envisioned as follows.

Subtask 1.1: Groundwater Extraction and Surface Water Delivery Accounting and Reporting Program

California Water Code (CWC) Section 10725.6 of SGMA allows GSAs to require the registration of a groundwater extraction facility (e.g., well), while Section 10725.8 allows GSAs to require the use of water-measuring devices, or though other reasonable identified methods, to measure extractions and annual reporting of extractions during the previous water year. Many groundwater basins in the State (including those under probation by the SWRCB) have implemented well registration programs, and many have paired those registration programs with extraction measurement and reporting requirements. In the Cuyama Subbasin, Woodard & Curran developed a Well Metering Program, including guidance on well meter data reporting, meter installation, and data collection. In the Merced Subbasin, we have worked with the Subbasin GSAs to incorporate use of the California Water Data Consortium's Groundwater Accounting Platform into their basin management operations.

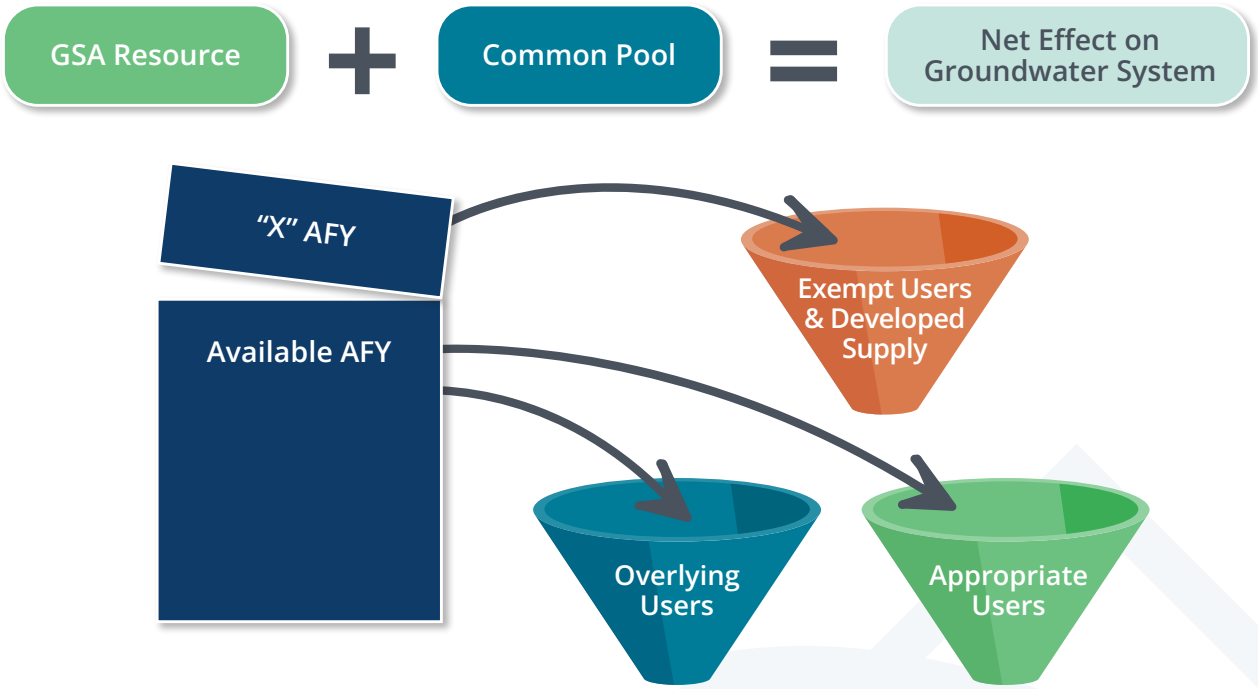
In Subtask 1.1, we will work with the GSA Working Group to first develop the rules and programming for well owners to register their wells with the GSA. Once that program has been defined, the programming for groundwater use metering must then be developed. Specific details of this part of the program includes identifying who must have a meter on their well, the types of meters that are acceptable, requirements for meter calibration, and methodologies for estimating groundwater extractions using accepted alternative methods other than metering. The two program parts will then be brought together in a framework for implementation that includes when and how water use/deliveries are reported, who is responsible for collecting and maintaining those data, and the rules for enforcement, among other items.

Subtask 1.2: Groundwater Allocation Program

CWC Section 10726.4 allows GSAs to control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations. While most of the 2020 and 2022 GSPs submitted to the State did not include groundwater allocation programs, many are now developing those as part of GSP amendments and/or resubmittals. Woodard & Curran has supported development and implementation of a groundwater allocation program in the Cuyama groundwater basin and is currently supporting the development

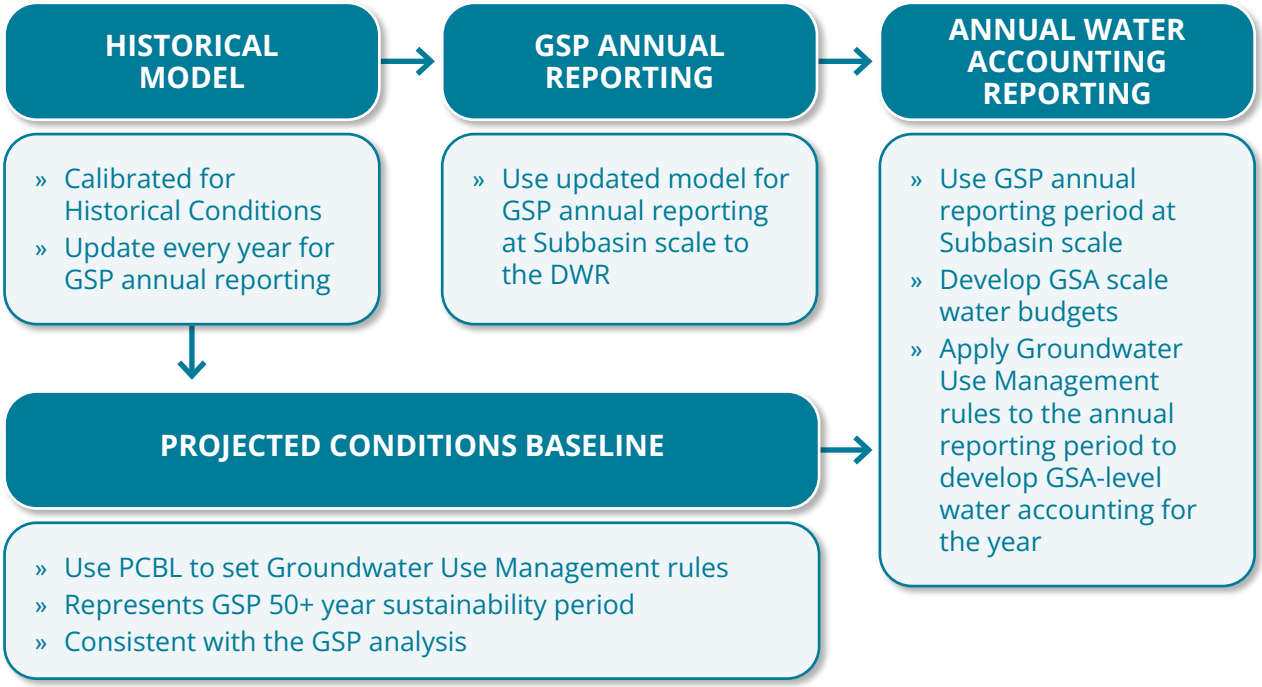
of similar programs in the Delta-Mendota, Eastern San Joaquin, and Merced Subbasins. We will bring these 'lessons learned' from these nearby basins to inform development of a similar program in the Modesto Subbasin.

Groundwater allocation programs vary considerably based on groundwater basin conditions and local preferences. The Cuyama groundwater basin, as a non-contiguous coastal groundwater basin, focused heavily on restricting groundwater pumping to address overdraft conditions. Programs being developed in the Delta-Mendota, Eastern San Joaquin and Merced Subbasins are overdraft mitigation/groundwater allocation programs to both reduce groundwater pumping and encourage increased surface water use. Several basins or regions are agreeing to simple percent reductions across the board or allocations on an acre-foot per acre basis, while others are developing more targeted reductions that consider access to surface water, hydrostratigraphy (such as aquifer thickness), user class (e.g., agricultural versus urban use) and socioeconomic factors. There have also been circumstances where allocation programs have specific conditions and criteria that are enforced. For example, one allocation program, developed with the assistance of Woodard & Curran, assigns distinct management zones to address spatial variability in hydrogeologic conditions. Parcels that are eligible to be part of the allocation program are then assigned a portion of a predetermined yield. Additionally, certain parcels are granted additional allowances to their allocation, which is gradually reduced over time. This program allows the GSAs to better target areas that have experienced significant overdraft conditions while allowing them time to prepare to secure alternative water supplies in the future.



Once the groundwater allocation process has been established, it is recommended that this process, and the resultant numbers, be revisited on an annual basis in coordination with preparation of the required annual reports. This will allow for annual modifications to the allocations based on recent hydrology and groundwater basin conditions, such as increasing reductions if necessary to

prevent a worsening of conditions. However, the annual review of may also allow the GSA to cease or reduce pumping reductions once the goals of the program have been achieved. It is also recommended that, as part of the annual evaluation process, growers in the Subbasin are informed early in the year (e.g., February) as to their expected annual pumping allocations so that they can plan accordingly for planting, similar as to what is currently done by the State for surface water deliveries South-of-the-Delta.



Subtask 1.3: Groundwater Extraction Fee

CWC Sections 10730 and 10730.2 allows GSAs, in addition to other powers authorized by the California Constitution and other applicable laws, to levy taxes and fees including, but not limited to, permit fees and fees on groundwater extraction or other regulated activities. These taxes and fees may be used to fund the costs of preparing, adopting, and amending a groundwater sustainability plan, as well as investigations, inspections, compliance assistance, enforcement, and program administration, including a prudent reserve. While these fees may be a direct regulatory fee, the use of both baseline and tiered fees can provide incentives to use available surface water in-lieu of groundwater pumping and/or to reduce/conserve groundwater use. Regardless of the type of fee or tax used, specific processes and requirements (such as those set forth under Proposition 218) must be followed to comply with California law.

To date, there have been several successful fee structures successfully implemented in California. Woodard & Curran has been working in the Cuyama Groundwater Basin since the passing of SGMA and supported the basin in the development of their fee basis and program structure. In this basin, the fees are set annually based on the projected GSP implementation budget and estimated pumping. There is a uniform fee per acre-foot of water pumped by all groundwater users except de minimis users and well users on State and federal lands. Other basins, such as the Salinas Valley groundwater basin, apply a uniform fee that allocates the costs differently to different users. In the

case of Salinas Valley, 90% of the costs are allocated to agricultural users and 10% are allocated to all other groundwater users. In the Santa Rosa Plain groundwater basin (Sonoma County), multiple user classes were considered, including municipalities/large water service providers, small water service providers, agriculture and irrigation use, rural residential and urban residential with a well. And in many cases, such as in the Salina Valley and portions of the Delta-Mendota Subbasin, tiered fee structures similar to those used by water and other utilities are currently under consideration.

One of the goals of using a groundwater extraction fee in the Modesto Subbasin is to reduce groundwater use and incentivize the use of available surface water. This is exemplified by the current status of the MID Long-term Groundwater Replenishment Program, which has encountered resistance to using surface water in lieu of groundwater because of the cost. We recommend a fee structure combining a minimum uniform fee with a tiered rate structures for larger water users. This will provide a base-level income to implement the GSP, incentivize groundwater use reductions, and provide a funding stream for land purchases for fallowing or non-irrigated reuse, as needed.

Subtask 1.4: Groundwater Pumping Credit/Trading Program

CWC Section 10726.4 allows GSAs to establish accounting rules to allow unused groundwater extraction allocations issued by the agency to be carried over from one year to another and voluntarily transferred, if the total quantity of groundwater extracted in any five-year period is consistent with the provisions of the groundwater sustainability plan. To date, only a few groundwater pumping/banking/trading programs have been established (most notably, the Fox Canyon groundwater market and the Tule Subbasin groundwater trading program), while many are in the works. Similar to groundwater allocations, consideration of basin hydrogeology is needed for a successful groundwater pumping credit/trading program. A basin-wide trading program and market is feasible in certain basins, however, specials considerations, such as aquifer thickness or proximity to features such as the Corcoran Clay, may make basin-wide programs unreasonable or infeasible. Under these circumstances, however, programs can be tailored to manage groundwater on a smaller scale.

For example, the San Joaquin River Exchange Contractors (SJREC) have subdivided their GSA area into non-SGMA management areas for the purpose of groundwater management. Their annual groundwater assessment program requires an annual review of groundwater conditions and preparation of a supplemental assessment report that includes recommendations on how each management area within the SJREC area should be managed for the current year. These recommendations include limitations on the export of groundwater in impacted areas if groundwater elevations are below established trigger levels. Given the disparity in net groundwater use in the Modesto Subbasin and significant difference in land use and hydrogeology within the Subbasin, regional groundwater management, including the trading and banking of groundwater 'credits' may be something the STRGBA GSAs should consider.

It should be noted that, per commitments made in the Subbasin's 2024 GSP, there is limited time and funding for developing the sub-programs under the Groundwater Use Management Program umbrella. This sub-program is considered less imperative than the other components and as such, would only be developed to the extent allowed by the project schedule and budget.

Subtask 1.5: Voluntary Conservation Program

While the groundwater allocation program and groundwater extraction fee programs provide the "stick" towards correcting Subbasin overdraft conditions, a voluntary conservation program could provide a "carrot". As envisioned herein, potential voluntary urban and agricultural conservation programming would be identified and preliminarily outlined. At a minimum, the urban water purveyors in the Subbasin, such as the City of Modesto, will be required to comply with the new Conservation as a Way of Life legislation, which will mandate further reductions in urban water use. Conservation programming to support this initiative will result in reduced groundwater use by the urban water purveyors. Similarly, as part of the 2025 Agricultural Water Management Plans that will be prepared, new agricultural conservation programming may be identified. These new conservation initiatives can be considered and subsidized at the Subbasin level, potentially utilizing funding raised under the groundwater extraction fee program, to incentivize their implementation and resulting in further permanent groundwater use reductions and water savings.

Task 1 - Assumptions

- → Two (2) In-person presentations/workshops with GSA Working Group
- → Four (4) virtual meetings with GSA Working Group for program completion and workshop preparation
- → In-person presentation of Public Draft Groundwater Use Management Program to STRGBA GSA/ Technical Advisory Board (TAC)
- → The STRBGA GSA will provide access to the Subbasin DMS and provide information and data for program development including, but not limited to, the types and numbers of meters in the Subbasin, surface water delivery locations, groundwater use, existing fee structures at local program levels and existing urban and agricultural conservation programming

Task 1 - Deliverables

- → Groundwater Use Management Program - Administrative Draft (electronic and 8 hard copies)
- → Groundwater Use Management Program - ADA-compliant Public Draft (electronic and 8 hard copies)
- → Groundwater Use Management Program - Screencheck Final (electronic)
- → Groundwater Use Management Program - ADA-compliant Final (electronic on external drive and 8 hard copies)

Task 2: Well Mitigation Plan

As described in the following subtasks, this task provides a working outline of a Well Mitigation Plan and then develops the plan components, including the institutional framework, terms, potential mitigation measures, funding plan, and claims process including owner agreements. The deliverable will be a Well Mitigation Plan document. Throughout this task, Todd Groundwater will provide technical input about the components and then work with the GSA Working Group to tailor the components for Modesto Subbasin.

Subtask 2.1: Develop Framework for Well Mitigation Plan/Program

Todd Groundwater will help develop a framework for the Well Mitigation Plan (and for the subsequent Well Mitigation implementation program). As previously noted, this process begins with the establishment of a GSA Working Group to oversee Program development and to report to the

GSA Technical Advisory Committee (TAC); we anticipate that the GSA Working Group will lead this effort. This task also includes definition/confirmation of the purpose, potential program mitigation measures, and term and applicability limits of the plan (e.g., applies to impacts after January 31, 2022, GSP adoption). These components will be presented systematically by Todd Groundwater and following discussion, the decisions will be documented as preliminary draft sections of the Well Mitigation Plan.

Subtask 2.2: Provide Recommendations for a Well Mitigation Fund

Todd Groundwater will work with the GSA Working Group to develop recommendations for a Well Mitigation fund, including funding sources and structure for funding responsibility and disbursement. In the Resolution included in the 2024 Revised GSP, the GSA committed to a baseline funding amount of $300,000. Upon implementation, the well mitigation program will continue. It is anticipated that the GSA will fund the Well Mitigation Program on an annual basis based on recommendations from the GSA Working Group. It is anticipated that the annual funding may come from GSA fees and assessments, funds generated through implementation of other projects and management actions (e.g., fines and/or penalties), county/state/federal funding, as available, and other sources as identified. These sources will be discussed along with items such as accounting, budget cycle, budget review, and in-kind services. Following discussion, Todd Groundwater will document the decisions as preliminary draft sections of the Well Mitigation Plan.

Subtask 2.3: Develop Well Owners Claims Process

Todd Groundwater will work with the GSA Working Group to develop a claims process for well owners. This process will include stakeholder outreach and definition of claim eligibility and claim application requirements. We can provide examples of claim application requirements for review by the GSA Working Group. Todd Groundwater will coordinate with the GSA Working Group to develop a systematic process for reviewing and responding to claim applications. This will include methods for review, reporting, and recommendations that address for example, eligibility, portion of responsibility for the well failure, and recommendations for mitigation. We will also present a draft appeals process. A draft framework for well owner agreements will also be presented. As discussed during preparation of the Draft MOU earlier this year, we recommend formation of a Technical Review Committee as part of the Well Mitigation Plan implementation. We anticipate that the GSA Working Group and GSA will decide on the composition and terms of this committee. Following discussion of all the above, Todd Groundwater will document the decisions as preliminary draft sections of the Well Mitigation Plan.

Subtask 2.4: Prepare Well Mitigation Plan Documentation

Todd Groundwater will prepare the Well Mitigation Plan documentation. As indicated above, we will document throughout the process and then compile an Administrative Draft Well Mitigation Plan for review by the GSA Working Group. Comments received will be incorporated into a Public Draft, which will be distributed to the STRBGA GSA and public for review. We will incorporate comments from the GSA and the public into a Final Well Mitigation Plan.

Task 2 - Assumptions:

- → Public workshop and outreach effort will be led by STRGBA GSA and Modesto Irrigation District, with support from both Todd Groundwater and Woodard & Curran.
- → Self-Help Enterprises will be contacted early to discuss a potential role in developing/implementing the well mitigation plan. Their role (if any) is currently uncertain.

Task 2 - Deliverables:

- → Administrative Draft Well Mitigation Plan (electronic and 8 hard copies)
- → ADA-compliant Public Draft Well Mitigation Plan (electronic and 8 hard copies)
- → ADA-compliant Final Well Mitigation Plan (electronic on external drive and 8 hard copies)

Task 3: Project Meetings and Public Outreach

Task 3 will be conducted concurrently with Tasks 1 and 2 to enable the preparation of management actions (Well Mitigation Plan and Groundwater Use Management Program) through meetings with the GSA Working Group and to support public understanding through outreach efforts. We expect Modesto Irrigation District to lead public outreach, with additional support from Woodard & Curran upon request. Early engagement with Self-Help Enterprises is recommended to discuss a potential role in developing or implementing the Well Mitigation Plan.

Subtask 3.1: Facilitate and Participate in a Program Development Working Group

The Woodard & Curran team will meet with the STRGBA GSA for a project kickoff and to form the GSA Working Group, an ad hoc committee which will guide the development of management action programs. This kickoff meeting will cover the project scope, schedule, responsibilities, and proposed methods for developing the programs in parallel. Regular meetings with the GSA Working Group are expected, with frequency to be determined in coordination with that group.

The budget assumes monthly, 90-minute virtual meetings with the GSA Working Group unless otherwise requested. The Woodard & Curran team will facilitate the meetings, prepare agendas and materials, and document key decisions. When the administrative draft of the programs is ready, Woodard & Curran will present the programs at an in-person STRGBA GSA meeting to discuss the outcomes.

Subtask 3.2: Assist With and Participate in Public Workshops and Outreach Efforts

This task involves communication, outreach, and engagement with interested parties and groundwater users within the Subbasin. We assume that the STRGBA GSA and Modesto Irrigation District will lead the public workshop and outreach, with Woodard & Curran and Todd Groundwater assisting with presentation topics and participation. Woodard & Curran can provide additional outreach, communication support, and facilitation upon request as an optional task.

The Woodard & Curran team will attend one STRGBA GSA meeting and two public workshops. The administrative draft programs will be presented at the STRGBA GSA meeting for discussion and approval. The public draft programs will be presented at a public workshop to educate groundwater users on the need for the programs, how the programs will be implemented, to solicit feedback, and address any concerns. This input will be considered for the final version of the management action programs, which will then be presented at a second public workshop along with key implementation schedule milestones.

For budgeting purposes, attendance at the STRBGA GSA meetings can be covered under the existing contract between the City of Modesto and Todd Groundwater/Woodard & Curran to conduct the Annual Reports and Update the Groundwater Sustainability Plan, which already includes these meetings.

Task 3 - Assumptions:

- One (1) in-person kickoff meeting
- Up to twelve (12) virtual ad hoc committee (GSA Working Group) meetings to present/discuss the management action programs.
- One (1) in-person STRGBA GSA meeting to present the Public Draft of the management action programs. This meeting will be covered under the existing GSP contract with the City of Modesto.
- Two (2) in-person public workshops to (a) solicit public feedback on the draft programs and (b) to present the final programs.
- Public workshop and outreach efforts will be led by STRGBA GSA and Modesto Irrigation District with support from the Woodard & Curran team upon request and as needed

Task 3 - Deliverables:

- Workshop materials, including an agenda, presentation, handouts, and meeting notes.

Task 4: Project Management and Communications

Project management and communications will include both day-to-day contract management (including regular communications with the STRGBA GSA project manager, monthly invoice and progress reporting), regular coordination with the STRGBA GSA member agencies (on an as-needed basis), plus communications with groundwater users in the Subbasin and the public.

Woodard & Curran will also implement its quality control program as part of the project management task. This includes the internal review of deliverables, technical editing for compliance with mandated Website ADA Guidelines (WCAG 2.0) for visually impaired persons, and regular tracking of project schedule, budget and earned value (EVA) to ensure that the project is completed on time and within the allocated budget.

Task 4 - Deliverables:

- Monthly invoices and progress reports

Section Three

Firm Experience

FIRM & TEAM EXPERIENCE

Woodard & Curran has been in business since 1979 (45 years in business) and has grown to over 1,300 professionals in that time. Having served hundreds of clients over the past four decades years, we have a proven record of completing projects on time and on budget while meeting our clients' goals and objectives. Woodard & Curran is a privately held company and is steadily growing; serving public and private clients locally and nationwide. We offer specialized services in groundwater management, integrated regional planning, water supply and treatment, watershed management, water quality permitting, water recycling, flood protection and stormwater management, and wastewater collection and treatment. The Woodard & Curran Team (including Todd Groundwater) offers the Modesto Irrigation District and the Stanislaus & Tuolumne Rivers' Groundwater Basin Association (STRGBA) GSA, the perfect combination of focused development and implementation expertise with dedicated local project delivery.

Our proposed Project Manager is an expert in the groundwater field, and presented at the 2022 AEP Conference and spoke on "What is SGMA?"

Woodard & Curran has become an industry leader in groundwater studies and evaluations, integrated groundwater and surface water modeling, integrated regional water management, environmental assessment and remediation, data management, water recycling, and strategic planning. Our team of professionals have been actively involved in the development of Groundwater Management Plans since the passage of the Groundwater Management Act in 1992, and we are currently working with agencies around the State to comply with regulations created by the passage of the Sustainable Groundwater Management Act (SGMA). We have worked with many local and regional agencies throughout California—as well as the Department of Water Resources (DWR) and State Water Resources Control Board (SWRCB)—on groundwater-related projects. Through this work and our industry involvement, Woodard & Curran has helped agencies in California with the development of tools, such as integrated hydrologic models, decision support system models, and data management systems, moving toward long-term sustainable groundwater management. Woodard & Curran brings sound technical expertise and big-picture thinking to a broad range of local and regional water-related projects.

Woodard & Curran has emerged as a leader in providing support and technical studies related to Groundwater Sustainability Plans (GSPs) and their implementation. **Woodard & Curran has worked on 17 GSPs across California**; ranging from complex multi-GSA coordinated plans in critically over-drafted basins, to streamlined existing Groundwater Management Plan transforming into a GSP in very low priority basins. Our specific areas of expertise related to GSPs and hydrogeologic studies includes:

- GSP development & implementation
- Facilitation of Board, Policy Advisory, Technical Advisory and Stakeholder groups related to GSP development
- Hydrologic conceptual model development
- Basin-scale technical studies
- Water budget development
- Allocation frameworks
- Integrated surface water-groundwater modeling
- Data Management Systems and Applications
- Water accounting/pumping allocation frameworks
- Data gap assessment and monitoring network design
- Sustainable management criteria development and evaluation
- Groundwater monitoring network development
- Streamflow depletion evaluation and assessment
- Groundwater Dependent Ecosystem mapping
- Decision Support Tool Development and Consensus Building
- Climate and Related Water Supply Studies
- Conservation programming
- Finance/fiscal planning

Key issues for the 17 GSPs we've worked on range from developing cost-effective plans that reflect local needs and conditions, to prioritizing and preserving local control over water resources now and into the future while meeting the SGMA regulatory requirements for DWR. We are now implementing a range of projects and management actions in various basins statewide, such as developing groundwater recharge strategies and programs, furthering initial well inventories, metering program implementation, FloodMAR program development, and ASR program development.

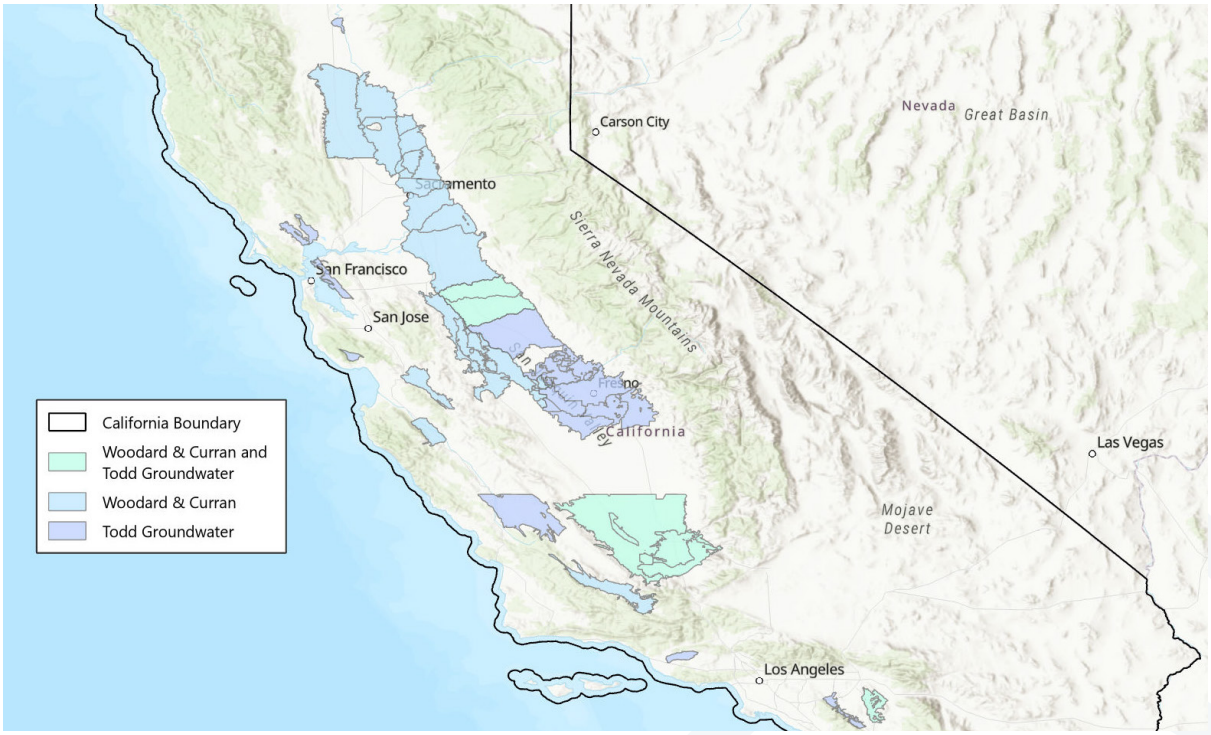
Leading our team are Senior Principals and Vice Presidents – **Leslie Dumas** (Project Manager) and **Ali Taghavi** (Principal-in-Charge). Their experience, academic training, and professional registrations and certifications are located in Section 4 – Project Team Experience and the Appendix – Resumes.

The table on the next page shows office addresses for the facilities where our work will be performed, which type of work or services will be performed in those offices, the percentage of work to be performed, and our manpower within those office.

Office Addresses	Available Manpower	% of Work	General Tasks
Sacramento 801 T Street Sacramento, CA 95811	22 Employees	Approximately 62%	• Project Management • Technical Guidance & QC Review • Groundwater Modeling • Water Resources Planning & Management • Project Administration
Los Angeles 515 S. Flower Street 18th Floor Los Angeles, CA 90071	15 Employees	Approximately 13%	• Infrastructure Design • Water Resources Planning & Management
Home Offices Various Locations	300+ Virtual Employees One Virtual Employee on the Team	Approximately 25%	• Technical Guidance and Analyses • Integrated Water Resources

Joining our team is **Todd Groundwater**, Woodard & Curran' strategic teaming partner for years. Todd Groundwater is joining the team for their expertise in Well Mitigation Planning and hydrogeology.

WOODARD & CURRAN AND TODD GROUNDWATER SGMA EXPERIENCE



Woodard & Curran and Todd Groundwater have been engaged in over 30 groundwater basins since the passing of the 2014 Sustainable Groundwater Management Act. Both Woodard & Curran and Todd Groundwater continue to jointly work together to assist basin agencies in meeting regulatory requirements in locations such as the Modesto, Turlock, Kern County, and San Jacinto groundwater basins.

Todd Groundwater specializes in the planning, development, management, and protection of groundwater and related surface water resources. For 46 years, Todd Groundwater has provided the full spectrum of hydrogeological and groundwater management services to clients. Their work—mostly for public agencies—includes basin characterization, water supply assessment, groundwater exploration, well siting, design, and installation, wellfield optimization, water quality characterization and geochemistry, water supply planning, groundwater flow and water quality modeling, managed aquifer recharge (MAR), environmental impact evaluations, engineering evaluations and annual reporting, and development of Groundwater Sustainability Plans (GSPs). They bring expertise with SGMA and have been deeply involved in SGMA implementation and compliance over the past ten years, providing technical support to more than 20 GSAs across California. These GSAs are in various stages of GSP implementation, including pumping management, demand reduction and dry well mitigation programs, as well as monitoring and reporting to demonstrate progress toward sustainability. Todd Groundwater is an employee-owned and California-registered Small Business Enterprise.

The table below shows office addresses for the facilities where Todd Groundwater's work will be performed, which type of work or services will be performed in those offices, the percentage of work to be performed, and our manpower within those office.

Office Addresses	Available Manpower	% of Work	General Tasks
Alameda 1301 Marina Village Parkway, Suite 320 Alameda, CA 94501	20 Employees	100% of Todd Groundwater's Work	• Well Mitigation Plan & Technical Guidance

Leading the Todd Groundwater team are two of their Principals. **Iris Priestaf** (President of Todd Groundwater) and **Liz Elliott** (Principal Hydrogeologist of Todd Groundwater). Their experience, academic training, and professional registrations and certifications are located in Section 4 – Project Team Experience and the Appendix – Resumes.

PROJECT EXPERIENCE

Merced GSP, Merced Water Resources Model and Merced County Groundwater Ordinance | Merced Irrigation District, City of Merced, and Merced County

Consultant Fee: $5,966,173
Completion Date: Ongoing (Woodard & Curran recently completed the GSP amendment and it was resubmitted July 2024)
Client Representative: Hicham Eltal, Deputy General Manager, Merced Irrigation District, 744 West 20th Street, Merced, CA 95340; 209.354.2854
Subconsultants Involved: Lotus Water; Brownstein, Hyatt, Farber, Schreck; The Catalyst Group; Lingustica Interpreting & Translation; Quad Knopf

Woodard & Curran has been engaged in the Merced Subbasin since 2005 with the development of various plans and projects for the Merced Area Groundwater Pool Interest (MAGPI), including construction of the state-of-the-art Merced Water Resources Model (MercedWRM), which became the primary analytical tool for developing the Subbasin's GSP and implementing the Merced County Groundwater Ordinance. The MercedWRM was initially developed in support of the Integrated Regional Water Management (IRWM) Plan, previously prepared by Woodard & Curran, and was refined and updated to support development of the Merced basin Groundwater Sustainability Plan (GSP) and the Merced County Groundwater Ordinance. MercedWRM provides a comprehensive understanding of the dynamics of the surface water and groundwater systems in the Merced area and evaluates environmental and hydrologic benefits and impacts of the water supply system and conjunctive use projects. As part of the model development, Woodard & Curran conducted extensive geologic and hydrogeologic investigation of the Merced groundwater basin, including evaluation of the USGS texture model for the area to prepare a detailed stratigraphic information to support the development of the model.

Woodard & Curran has provided guidance to the Merced Subbasin in addressing the water supply needs in the critically-overdrafted subbasin through the development and implementation of the GSP itself. This effort included identifying the level of overdraft in the Subbasin in a way that could be accepted by the stakeholders and public and that could drive an allocation process to ultimately reduce groundwater use and increase groundwater recharge. Since submission of the GSP to DWR, our team has been responsible for managing and coordinating ongoing implementation of the GSP, including developing grant applications, drafting annual reports, and leading meetings with stakeholders and decision makers. Woodard & Curran is currently preparing the Subbasin's 2025 Periodic Evaluation and GSP Amendment and has prepared all annual reports for the Subbasin to date. Development of these plans and reports included robust stakeholder engagement programs and evaluation of alternative demand management and supply side project alternatives.

Key Issues, Challenges & Unique Circumstances Addressed

- → **Planning for Sustainability:** Designated as significantly overdrafted by the Department of Water Resource, the Merced Subbasin GSAs needed to identify methods to increase groundwater recharge and/or reduce groundwater extraction. Woodard & Curran worked with the GSAs and stakeholders to identify potential projects and management actions, including recharge efforts and demand reduction programs and supported a successful grant application. For the GSP, Woodard & Curran modeled the proposed projects and management to assess against the minimum thresholds and definitions of undesirable results. This effort included developing an understanding of the sensitivity of groundwater conditions to the management of neighboring subbasins.
- → **Identifying Equitable Solutions:** Like many subbasins in the Central Valley, resources are not evenly distributed. Some portions of the basin have surface water resources, while others do not. Areas with surface water resources tend to have a higher degree of historical groundwater

management and more monitoring resources. Woodard & Curran worked with the GSAs and stakeholders to identify equitable methods to account for available groundwater resources, methods to establish representative monitoring wells, and methods to develop domestic well mitigation strategies.

- **Quantification of depletions of interconnected surface water:** With three major rivers and many smaller watercourses, surface water is important for a range of beneficial uses and users. Quantification of depletions of interconnected surface water was necessary not only to respond to a Recommended Corrective Action from DWR, but also to develop a scientific understanding of the quantity, location, and timing of depletions. Woodard & Curran developed a modeling-based approach to achieve this by isolating the impacts of groundwater pumping in a separate scenario and assessing where and when and to what quantity changes in surface water flows occurred in the Merced Subbasin and beyond.

Eastern San Joaquin Subbasin SGMA Support | Eastern San Joaquin County Groundwater Authority

Consultant Fee: $5,190,362
Completion Date: Ongoing (the GSP amendment will be available for public review in October 2024)
Client Representative: Brandon Nakagawa, Senior Civil Engineer (Water Resources/Stormwater), Eastern San Joaquin Groundwater Authority, 1810 E. Hazelton Avenue, Stockton, CA 95201; 209.953.7460
Subconsultants Involved: NV5; Kleinfelder; Lucy & Company; Costera Waste & Environment

After developing a successful Proposition 1 Counties with Stressed Basins grant application for San Joaquin County's SGMA planning activities in 2015, Woodard & Curran assisted San Joaquin County, on behalf of the Eastern San Joaquin Subbasin GSAs, in implementing its SGMA Readiness Program, including developing a defensible, stakeholder-supported integrated hydrologic model that met the County's SGMA planning and management needs. Woodard & Curran supported development of a single GSP with the Subbasin's 16 GSAs and coordinated GSP adoption and submittal to DWR. Woodard & Curran subsequently supported GSP implementation, including responding to DWR identified deficiencies in its 2022 incomplete determination of the GSP. Work efforts conducted in support of GSP implementation include preparation of Annual Reports as required by SGMA, siting and construction of monitoring wells to fill data gaps, preparation of grant applications for obtaining funding under DWR's Sustainable Groundwater Management grant program, and analyzing DWR's comments on the adopted GSP and drafting preliminary responses and approaches to address identified deficiencies.

In support of GSP implementation, Woodard & Curran has led technical studies, modeling analyses, and policy and management criteria evaluation, in addition to improving features of the Subbasin's Data Management System, and developing new tools such as a mobile and tablet interface for the DMS to facilitate the real-time upload of data collected in the field, and a financing planning tool to

improve GSP implementation-related budgeting and fee estimation. Recently, Woodard & Curran has been supporting the ESJ Groundwater Authority and the 16 Subbasin GSAs in preparing its first 5-Year Periodic Evaluation, responding to DWR's recommended corrective actions, and preparing the GSP amendment. This work includes facilitating work with the Project Management Committee tasked with representing the GSAs and providing technical direction, conducting technical work to address the recommended corrective actions contained in DWR's approval letter, completing a substantial update to the ESJWRM integrated flow model to include new data such as Airborne Electromagnetic (AEM) surveys, completing updated water budgets and sustainable yield estimates, and revising the sustainable management criteria and representative monitoring networks for the groundwater quality, subsidence and interconnected surface water sustainability indicators.

Key Issues, Challenges & Unique Circumstances Addressed

- → **Domestic Well Mitigation Program:** In response to requests from DWR, the Subbasin is developing a Domestic Well Mitigation Program. Few similar programs have been implemented to date, therefore we have reviewed the completed programs but also drawn on our ongoing work in other subbasins provide examples and recommendations to the Subbasin's GSAs.
- → **Demand Reduction Program:** The ESJ Subbasin is a critically-overdrafted subbasin, and therefore, long term demand reduction will be required to achieve sustainability. We developed the framework for this program by first updating the ESJWRM integrated flow model with the latest hydrostratigraphic and hydrologic data, and then running demand reduction scenarios to estimate the required extent of reduction. We then worked collaboratively with the GSAs to discuss and select the timing of reductions considering recharge project implementation. The demand reduction program framework was included in the Subbasin's 2024 Amended GSP as a management action, and we will continue to work with the GSAs going forward to formalize and implement the demand reduction program.
- → **Surface Water-Groundwater Interaction:** One of the Recommended Corrective Actions (RCAs) from DWR was to demonstrate that the groundwater levels were protective of groundwater dependent ecosystems (GDEs) and to develop sustainability criteria for interconnected surface waters (ISWs) based on rates and volumes of depletions. (The 2020 and 2022 GSPs for the Subbasin used groundwater levels as a proxy.) To address this RCA, we updated GDE mapping and conducted modeling evaluations to demonstrate that the groundwater level minimum thresholds were protective of the GDEs. We also updated the ESJWRM model to include a new layer simulating the shallowest part of the aquifer system (the part where the aquifer and surface waters are interacting) and used that to map reaches of ISW. Finally, after considering the request to use the rate and volumes of depletions as a metric for ISW SMC, we decided to use groundwater levels as a metric as those could be simulated in the model and as the rates (gradients) are dependent on groundwater levels. From that we established ISW-specific SMC, and developed a ISW-specific representative monitoring network.
- → **Stakeholder Involvement:** After reviewing new DWR guidance on 5-year periodic evaluations and GSP amendments and consider the regulatory deadline for submittal of those documents, it was agreed that an ad hoc committee, the Project Management Committee (PMC), would be formed to drive the work that needed to be done to meet the deadline. The PMC membership consists of 7 representatives from the Subbasin's 16 GSAs, and reflects the Subbasin as a whole (geographically and by water use sector). The PMC is charged with driving the work products and acting as decision-making body. While the PMC met regularly during the preparation of

the 5-year Periodic Evaluation and GSP Amendment process, the resultant work products were presented to the Steering Committee and the ESJGWA Board of Directors (standing committees) for final approval. This kept time commitments and the number of meetings significantly down, allows work to proceed quickly and the regulatory deadlines to be met.

GSP Revision for the Turlock Subbasin: Well Mitigation Program and Management Actions | West Turlock Subbasin Groundwater Sustainability Agency and East Turlock Subbasin Groundwater Sustainability Agency

Consultant Fee: GSP Revision: $387,560; Well Mitigation Plan: $50,000
Completion Date: GSP Revision: Completed in July 2024; Well Mitigation Plan: Ongoing (Estimated completion January 31, 2025)
Client Representative: Michael Cooke, Water Resources and Regulatory Affairs, 156 S. Broadway, Suite 270, Turlock, CA 95380; 209.883.8364

The team of Todd Groundwater and Woodard & Curran assisted the West Turlock Subbasin Groundwater Sustainability Agency and East Turlock Subbasin Groundwater Sustainability Agency (together the GSAs) with GSP preparation and submittal in 2022. In 2024, DWR released its Determination Letter, which designated the GSP as incomplete and provided two corrective actions. In brief these are 1) to analyze the effects on wells of additional lowering of groundwater levels, and 2) to provide details of feasible projects and management actions to mitigate overdraft and raise groundwater levels. Todd Groundwater and Woodard & Curran were retained by the GSAs to prepare a Revised GSP, to conduct the necessary analyses, and to revise the GSP in accordance with DWR's corrective actions. The revised GSP—developed with significant interaction among the consultant team, GSAs, stakeholders, and DWR—was completed within a challenging 180-day schedule.

To address the first corrective action, the team analyzed potential impacts on wells of declining groundwater levels. The Revised GSP, completed and submitted on time in July 2024, includes a Resolution that commits to developing and implementing the Well Mitigation Program by January 31, 2025. The GSAs subsequently retained Todd Groundwater in August 2024 to develop a Well Mitigation Plan, with a challenging schedule of five months until plan adoption by the GSAs. This schedule can be accomplished only with strong commitment, clear communication, and frequent coordination among parties. Todd Groundwater has committed two experienced principals (Iris Priestaf and Liz Elliott) to work closely with the TAC Planning Group and the Well Mitigation Committee (when formed) with reporting to the TACs. The technical effort will build on the planning outlined in the July 2024 Resolution and will involve a sequence of subtasks starting with establishment of the Well Mitigation Committee, including development of program details, and compilation of a plan. This Well Mitigation planning is underway.

The revised GSP also addressed several key issues in response to DWR's second corrective action regarding the GSP. A major challenge was ensuring the plan not only captured a clear understanding of groundwater conditions under various hydrologic scenarios, but also provided a robust detailing of Projects and Management Actions (PMAs) that would guarantee sustainability. A major enhancement was the focus on demand reduction, which included measures like improving recharge opportunities, multi-benefit land repurposing, more efficient water use practices, and enhanced irrigation technology. This approach was designed to reduce overall water demand while maintaining agricultural productivity, offering a practical path toward balancing groundwater extraction and recharge over the long term.

Beyond technical improvement, the GSAs effectively integrated feedback from diverse stakeholders - such as agricultural, municipal, and environmental groups - ensuring that the revised plan reflected the interests of all parties while complying with state mandates. Through improved stakeholder collaboration, the GSAs were able to align local priorities with DWR's sustainability requirements. Ultimately, these efforts not only addressed the state's corrective actions but also established a strong foundation for the long-term sustainability of the Turlock Subbasin.

Key Issues, Challenges & Unique Circumstances Addressed

- Few Well Mitigation Programs have been implemented at this time; this challenge is being met by research and inquiry into multiple (6+), quite variable examples from across California in order to be comprehensive and to capture potentially useful ideas for GSA consideration.
- For additional implementation assistance, we have researched the potential role of Self-Help Enterprises and are consulting with them.
- The uniquely challenging schedule is being met with commitment of a locally experienced team and by building on Well Mitigation Program planning conducted during the GSP Revision process.
- The challenges of a subbasin with different groundwater conditions in east and west are being addressed by independent and credible research and input from Todd Groundwater, which are used for discussion and collaborative decision-making by the GSAs.

Section Four

Project Team Experience

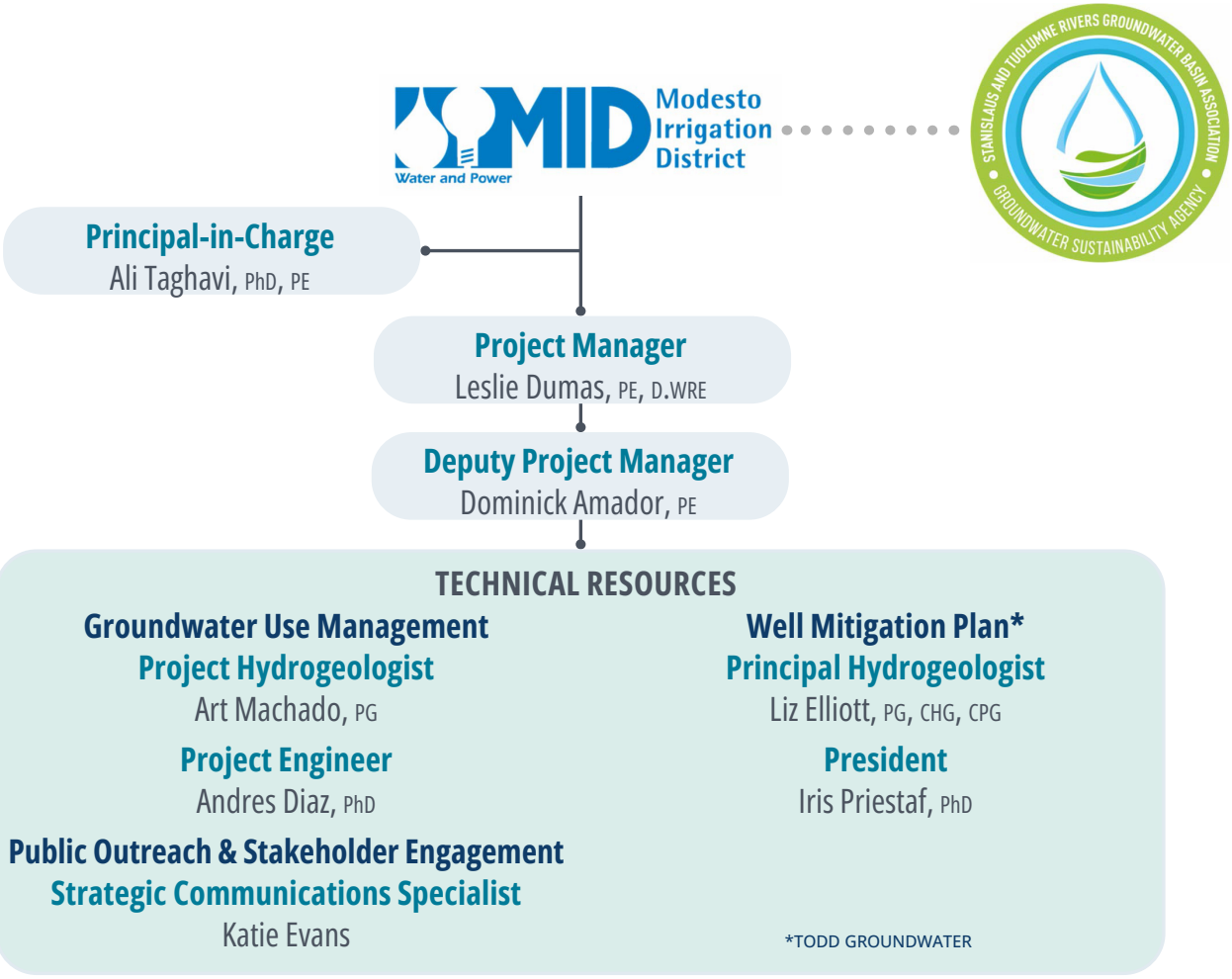
4 | PROJECT TEAM EXPERIENCE

With an experienced management team, you can be confident we will provide the necessary guidance to ensure project success. Our Project Manager, **Leslie Dumas**, has over 30 years of experience with groundwater management in California. Leslie will be responsible for the overall management of the contract and will be the primary point of contact for Modesto Irrigation District (MID). Supporting Leslie is Deputy Project Manager **Dominick Amador**. Dominick has 11 years of experience and will not only provide project management support, but will also act as the analytical lead focusing on modeling in support of program development. **Ali Taghavi** will serve as Principal-in-Charge, providing as needed support and guidance to the team. Ali will oversee this project and will ensure MID's overall satisfaction with Woodard & Curran's work. He will mobilize additional resources as needed to meet the project schedule or address project changes and will provide senior level technical feedback to the project team. **Art Machado** and **Andres Diaz** will support our team in evaluating the management actions, developing program details, conducting modeling and other analytical analyses to formalize the Groundwater Use Management Program, and engaging the GSA Working Group and public during the development process and program roll-out. **Katie Evans** is Woodard & Curran's Strategic Communication Specialist, who brings expertise in public outreach and stakeholder engagement. We have brought her onto the team as an optional service to support MID upon request/as-needed for the STRGBA GSA meetings and public workshops.

Joining our team is **Todd Groundwater**, with whom we have built a professional relationship with since 2005. Leading the Todd Groundwater team are two of their principals – **Iris Priestaf** (President of Todd Groundwater) and **Liz Elliott** (Principal Hydrogeologist). Todd Groundwater has been supporting California clients through a full spectrum of hydrogeological and groundwater management and program envisionment.

On the following pages we have included an organizational and summaries our of team's experience and qualifications, as well as their availability and commitment to this project. We have included resumes for our key personnel in the Appendix, where we go into more detail about their qualifications and representative experience within the last 5 years.

Organizational Chart



Meet Our Team

Leslie Dumas, PE, D.WRE | Project Manager

Education: Masters, Civil Engineering (Hydraulics/Hydrology), University of California-Berkeley; Bachelors, Civil Engineering (Hydraulics/Hydrology), Virgina Polytechnic Institute and State University; Multiple Subject, Clear Teaching Credentials, St. Mary's College of Education

Registrations: Professional Engineer – CA, 43897 (Civil); Certified Groundwater Professional (CGWP) – National Groundwater Association, 119931; Single Subject Teaching Credential (Both Mathematics and Geosciences) – CA Commission on Teaching Credentialing, 150031116

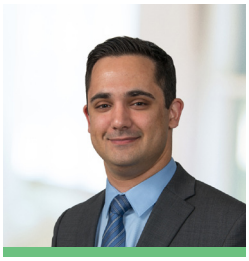
Years of Experience with Woodard & Curran: 19

Years of Experience Prior to Woodard & Curran: 18

Proposed Responsibilities: Project Management, Technical Guidance, Senior Technical Review, Direct Project Communications

Leslie has 37 years of experience and is a hydrologist, water resource engineer and project manager providing hydrogeologic, hydrologic, environmental and scientific consultation for projects throughout the United States. She has managed multi-disciplinary teams on a wide variety of projects, including groundwater investigation and management, modeling, resource planning, water resources planning, funding and financing, environmental permitting, stormwater runoff planning, and the investigation and clean-up of hazardous waste sites. Leslie has experience developing and implementing Management Actions, including reductions in groundwater pumping, and optimization of management within California basins. Leslie is adept at managing pumping management framework and water demand reduction. Her broad range of experience and expertise makes her a valuable project manager in that she's able to expertly lead teams of widely varying technical staff on a vast range of projects, and allows her to pull ideas and solutions from divergent project types to formulate multi-benefit solutions. As a Senior Principal at Woodard & Curran, Leslie has direct access to the firm's extensive professional resources to bring in technical experts to address whatever problem is at hand. Leslie has direct responsibility for leading the Management Actions and Well Mitigation Plan development, as well as coordinating the required services.

Dominick Amador, PE | Deputy Project Manager



Education: Masters, Bioresource and Agricultural Engineering, California Polytechnic State University; Bachelors, Biological & Environmental Engineering, Cornell University
Registrations: Professional Engineer – CA, 86145 (Civil)
Years of Experience with Woodard & Curran: 11
Years of Experience Prior to Woodard & Curran: n/a
Proposed Responsibilities: Project Management Support, Analytical and Technical Guidance and Oversight, Project Communications

Dominick has 11 years of experience in sustainable groundwater management, specializing in hydrologic modeling systems. He applies advanced knowledge in computational flow dynamics, agricultural operations, and regional groundwater management. His engineering experience extends to the development and application of several integrated surface water-groundwater modeling systems and maintains a strong background in water resources planning. Through Dominick's education and background, he maintains a robust foundation in agricultural systems and processes relating to the optimization of water resources, climate resiliency, and irrigation management. Notably, Dominick has served as project and technical manager for multiple Groundwater Sustainability Plans across California's Central Valley and the Department of Water Resources' San Joaquin Basin Watersheds Studies.

Ali Taghavi, PhD, PE | Principal-in-Charge

Education: Doctorate, Civil & Environmental Engineering, University of California-Davis; Masters, Civil Engineering, University of California-Davis; Bachelors, Civil & Environmental Engineering, University of California-Berkeley
Registrations: Professional Engineer – CA, 50494 (Civil)
Years of Experience with Woodard & Curran: 25
Years of Experience Prior to Woodard & Curran: 9

Proposed Responsibilities: Project Management Support, Senior Technical Review and Guidance, Quality Control Review

Dr. Ali Taghavi, a recipient of the prestigious Fischer Delta Award from the California Water and Environmental Modeling Forum, has 34 years of experience in water resources planning and management, groundwater planning and regulatory compliance, integrated water planning, sustainable groundwater management, integrated groundwater and surface water modeling, water budget analysis, water quality assessment, reservoirs operations, and conveyance and distribution systems operations. Ali is recognized as an expert in development and implementation of Groundwater Sustainability Plans (GSP) and has served as project director, project manager, or technical director for development of several important GSPs for critically overdrafted basins, as well as high priority basins throughout the state.

Ali has coordinated a wide range of water resources, hydrologic, hydrogeologic, and geologic investigations for integrated water management programs, as well as groundwater management, conjunctive use and other water supply plans. He has been involved in the planning and design of conjunctive use projects and other major basin planning efforts in the Sacramento Valley, San Joaquin Valley, Southern California, the high desert areas, as well as in the Central Coastal region of California. He has provided hydrologic and water quality analysis in support of environmental reviews and has managed and directed many water resource planning efforts through the complete project life cycle—data collection, basin characterization, model development, establishment of goals and objectives, feasibility studies, conceptualization and screening of alternatives, and support for environmental evaluations.

Art Machado, PG | Groundwater Use Management: Project Hydrogeologist

Education: Masters, Geology, Georgia State University; Bachelors, Geology, University of Georgia
Registrations: Professional Geologist – CA, 10244
Years of Experience with Woodard & Curran: 1
Years of Experience Prior to Woodard & Curran: 6
Proposed Responsibilities: Technical Support, Regulatory Guidance, Outreach & Engagement

Art is a registered professional geologist with over seven years of experience evaluating and managing groundwater resources and the remediation of sites in both public and private sectors. Through his experience in public service with both the California Department of Water Resources (DWR) and Department of Toxic Substances Control, Art has extensive knowledge of California's groundwater and environmental regulations. During his appointment within the DWR's Sustainable Groundwater Management Office, Art evaluated and provided recommendations on Groundwater Sustainability Plans and Annual Reports for several medium to high priority and critically overdrafted designated groundwater basins throughout California. In this position, Art also acted as a basin assessment lead which allowed him to evaluate all reviews completed by Department staff for each section of the Groundwater Sustainability Plans and presented these findings to executive staff with a proposed determination. Art has experience with scheduling, implementing and overseeing field work and programs.

Andres Diaz, PhD | Groundwater Use Management: Project Engineer

Education: Doctorate, Civil & Environmental Engineering, University of California-Davis; Masters, Civil & Environmental, University of California-Davis; Bachelors, Civil & Environmental Engineering, Universidad de los Andes
Years of Experience with Woodard & Curran: 4
Years of Experience Prior to Woodard & Curran: 3
Proposed Responsibilities: Modeling and Technical Support

Andres has seven years of experience in water resources engineering, including atmospheric and hydrologic modeling. He has worked in groundwater modeling, stochastic analysis of hydrologic processes and climate change impacts. His experience includes the development, calibration and use of water resources models, development of scripts in aid of model data processing and use of GIS and spatial analysis. Andres was responsible for calibration and application of the model to support the Turlock (West Turlock Subbasin and East Turlock Subbasin Groundwater GSAs) GSP development, including development of historical water budgets, establishment of sustainable management criteria, and assessment of projects and management actions. Andres has been supporting the GSAs in converting highly technical modeling results in easily understood graphical and tabular information for presentation to the Technical Advisory Committee and the GSA board of Directors.

Katie Evans | Public Outreach & Stakeholder Engagement: Strategic Communications Specialist

Education: Masters, Journalism, Arizona State University; Bachelors, Public Policy & Management, Northwestern University
Registrations: Water Treatment Operator Grade 2 – CA, 30322; Water Distribution D2 – CA, 35342; J. Lindsey Wolf Certification in Communication – CA; Grade 2 Water Practitioner – AWWA – CA & NV Section, 1902
Years of Experience with Woodard & Curran: 2
Years of Experience Prior to Woodard & Curran: 13
Proposed Responsibilities: Public Outreach and Stakeholder Engagement

Katie has 15 years of experience in strategic communications and community outreach for public agencies. Her approach to large-scale outreach efforts begins with a research-based assessment of the best localized outreach techniques and the most effective key messaging. This research helps determine the most efficient and effective ways to engage the community – from hotlines and websites to door-to-door contacts. Katie's previous work in disadvantaged communities has included collaborating with grassroots organizations that are trusted by community members to develop relationships on behalf of the project. Prior to Woodard & Curran, Katie worked for Coachella Valley Water District as their Director of Communications and Conservation. She managed strategic outreach and education including District branding, website management, social media, digital and print advertising, email campaigns, press campaigns, various internal and external newsletters, press releases and news conferences. Katie oversaw all tours, workshops, and events.

Liz Elliott, PG, CHG, CPG | Well Mitigation Plan: Principal Hydrogeologist *(Todd Groundwater)*

Education: Masters, Hydrologic Sciences, University of California-Davis; Bachelors, Earth & Environmental Sciences, Wesleyan University
Registrations: Professional Geologist – CA, 8446; Certified Hydrogeologist – CA, 973; Certified Professional Geologist – American Institute of Professional Geologists, 10931
Years of Experience with Todd Groundwater: 11
Years of Experience Prior to Todd Groundwater: 14
Proposed Responsibilities: Well Mitigation Planning, Technical Guidance

Liz Elliott is an accomplished hydrogeologist with over 25 years of consulting experience. She has extensive experience with hydrogeologic characterization of groundwater basins, MODFLOW groundwater flow models and groundwater management plans, including Groundwater Sustainability Plans (GSPs). All her GSP experience is with Todd Groundwater. She is currently serving as Project Manager on GSP implementation projects in the Modesto and Turlock subbasins including annual reporting, monitoring, and projects and management actions. Her major current commitments include GSP implementation work for the Turlock Subbasin GSAs. This includes a recent proposal to prepare the SGMA annual report, which will be completed by April 1, 2025 and the contracted Well Mitigation Report to be completed for adoption by January 31, 2025. Liz also is committed to the contract for the Modesto Subbasin Annual Reports and GSP Update, which extends to 2029; Liz regards the Modesto Well Mitigation Plan as complementary and even synergistic with that effort. She has the availability, interest, and resources for the Well Mitigation Report.

Iris Priestaf, PhD | Well Mitigation Plan: President *(Todd Groundwater)*

Education: Doctorate, Geography, University of California-Berkeley; Masters, Geography, University of California-Berkeley; Bachelors, Geography, University of California-Santa Barbara
Years of Experience with Todd Groundwater: 41
Years of Experience Prior to Todd Groundwater: n/a
Proposed Responsibilities: Well Mitigation Planning, Technical Guidance, Senior Technical Review

Iris Priestaf has 41 years' experience in groundwater basin management including SGMA planning for seven GSPs and three Alternative Plans. She has participated in all aspects of SGMA implementation, including the three projects below (all with Todd Groundwater) that are directed to mitigation of potential impacts on wells of groundwater level declines associated with basin management. She currently serves as Principal-in-Charge for four SGMA projects (Modesto, Turlock, Indio, and San Benito subbasins) with varying timelines and levels of effort but has availability to commit to preparation of the Modesto Well Mitigation Plan.

Team Member Commitments

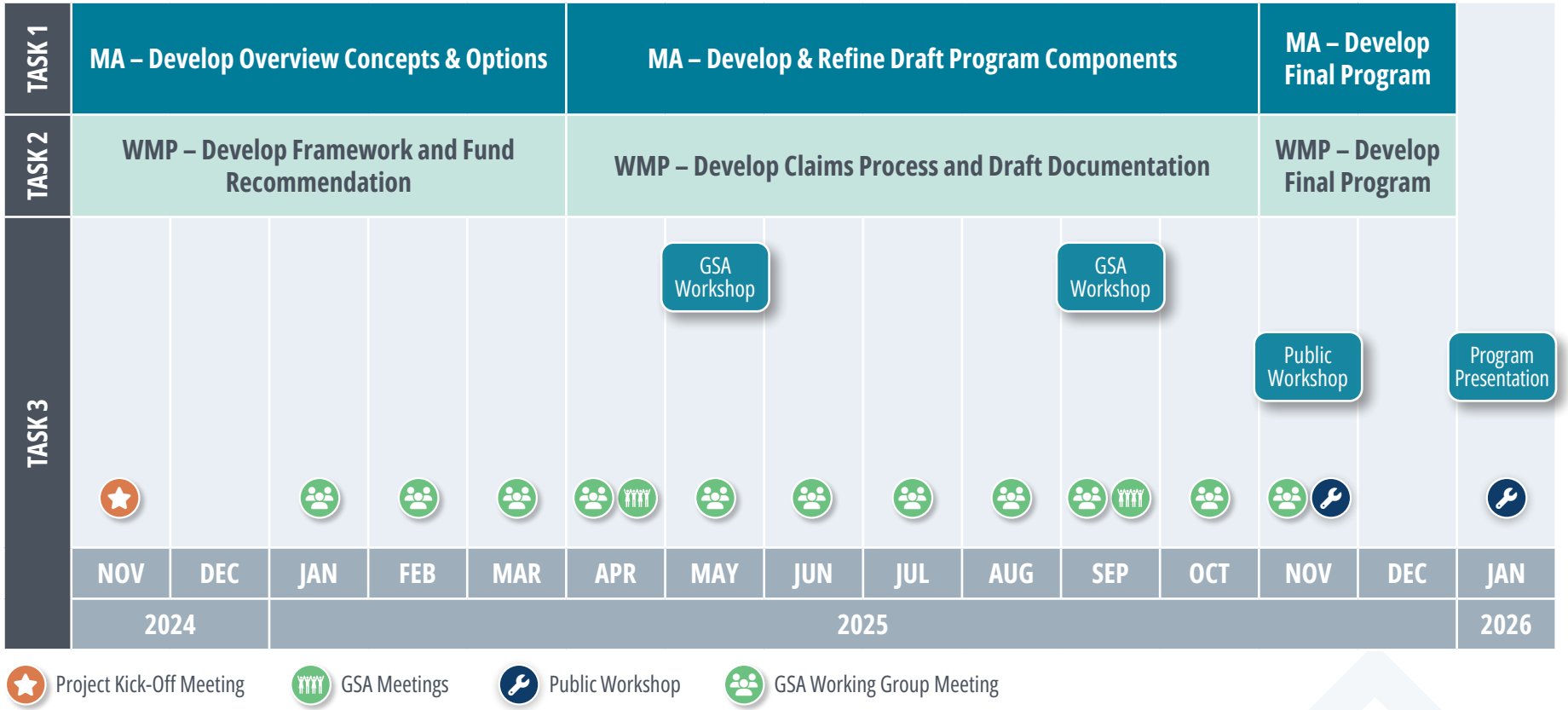
The table on the next page highlights information on all projects that are currently in progress to which the team member is committed, the level of commitment, and when that commitment is expected to end.

Team Member	Project Commitments	Level of Commitment	Expected End Date of Commitments
Leslie Dumas, PE, D.WRE Project Manager	• Sutter Subbasin • Eastern San Joaquin Subbasin • Calaveras River Watershed Study	• 30% • 15% • 15%	• March 31, 2026 • December 2025 • March 31, 2026
Dominick Amador, PE Deputy Project Manager	• Modesto Subbasin • Turlock Subbasin • Department of Water Resources	• 20% • 20% • 20%	• January 2027 • January 2027 • August 2027
Ali Taghavi, PhD, PE Principal-in-Charge	• Modesto Subbasin • Turlock Subbasin • DWR • EMWD • Cuyama • Eastern San Joaquin	• 10% • 10% • 20% • 10% • 5% • 10%	• January 2027 • January 2027 • August 2027 • April 2025 • Dec. 2025 • April 2025
Art Machado, PG Groundwater Use Management: Project Hydrogeologist	• Merced Subbasin • Bulletin 118 Support • North American Subbasin • Confidential Project/Client	• Approximately 80% across all commitments	• 40% through early 2025 • 40% through early 2027
Andres Diaz, PhD Groundwater Use Management: Project Engineer	• Modesto Subbasin • Turlock Subbasin • Department of Water Resources	• 25% • 25% • 10%	• January 2027 • January 2027 • August 2027
Katie Evans Public Outreach & Stakeholder Engagement: Strategic Communications Specialist	• Sonoma County GSAs Outreach and Dashboard • Coachella Valley Regional Water Management Group and associated funding programs • Eastern Municipal Water District Conservation Marketing and Outreach	• 20% • 15% • 10%	• March 1, 2025 • June 30, 2025 • June 30, 2025
Liz Elliott, PG, CHG, CPG Well Mitigation Plan: Principal Hydrogeologist	• Modesto Subbasin • Turlock Subbasin	• 15-40% • 40%	• Through April 2029 • Through April 2025
Iris Priestaf, PhD Well Mitigation Plan: President	• Modesto Subbasin Annual and 5-yr • Indio Subbasin • San Benito Subbasin • Turlock Subbasin	• 10% • 10% • 10% • 15%	• Through Dec 2026 • Through Oct 2025 • Through March 2025 • Through March 2025

Section Five

Proposed Project Schedule

Our Proposed Project Schedule is shown below.



Section Six

Estimated Level of Effort Matrix

Woodard & Curran

Client: Modesto Irrigation District & STRGBA GSA
Project: 2024 Well Mitigation Program and GSP Management Actions

Phases	Labor		
	Woodard & Curran	Todd Groundwater	Total Labor
Task 1: Groundwater Use Management Program			
1.1 Groundwater Extraction & Surface Water Delivery Accounting and Reporting Program	50	0	50
1.2 Groundwater Allocation Program	94	0	94
1.3 Groundwater Use Extraction Fee	50	0	50
1.4 Groundwater Pumping Credit/Trading Program	71	0	71
1.5 Voluntary Conservation Program	50	0	50
Subtotal Task 1:	315	0	315
Task 2: Well Mitigation Plan			
2.1 Develop Framework for Well Mitigation Plan/Program	0	6	6
2.2 Provide Recommendations for a Well Mitigation Fund	0	14	14
2.3 Develop Well Owners Claims Process	0	30	30
2.4 Prepare Mitigation Plan Documentation	8	43	51
Subtotal Task 2:	8	93	101
Task 3: Project Management and Public Outreach			
3.1 Facilitate and Participate in a Program Development Working Group	100	44	144
3.2 Assist with and Participate in Public Workshops and Outreach Efforts	86	28	114
3.3 As-Needed Outreach (optional)	0	0	0
Subtotal Task 3:	186	72	258
Task 4: Project Management and Communications			
4.1 Monthly Invoicing and Progress Reports	48	2	50
4.2 Project Communication/Coordination	60	16	76
Subtotal Task 4:	108	18	126
TOTAL	617	183	800

Woodard & Curran

Client: Modesto Irrigation District & STRGBA GSA

Project: 2024 Well Mitigation Program and GSP Management Actions

Phases	Ali Taghavi	Leslie Dumas	Dominick Amador	Andres Diaz	Art Machado	Staff Engineer/Planner	Katie Evans	Sr. Project Assistant	Total Hours
	PIC	PM	DPM	Modeling Support	PG	E2/P2	**OPTIONAL** Outreach	Project Administrator	
Task 1: Groundwater Use Management Program									
1.1 Groundwater Extraction & Surface Water Delivery Accounting and Reporting Program	2	16				32			50
1.2 Groundwater Allocation Program	2	8	16	60	8				94
1.3 Groundwater Use Extraction Fee	2	16	8		24				50
1.4 Groundwater Pumping Credit/Trading Program	3	12	12	20	24				71
1.5 Voluntary Conservation Program	2	8	8			32			50
Subtotal Task 1:	11	60	44	80	56	64	0	0	315
Task 2: Well Mitigation Plan									
2.1 Develop Framework for Well Mitigation Plan/Program									0
2.2 Provide Recommendations for a Well Mitigation Fund									0
2.3 Develop Well Owners Claims Process									0
2.4 Prepare Mitigation Plan Documentation	4	4							8
Subtotal Task 2:	4	4	0	0	0	0	0	0	8
Task 3: Project Management and Public Outreach									
3.1 Facilitate and Participate in a Program Development Working Group	8	30	30	16	16				100
3.2 Assist with and Participate in Public Workshops and Outreach Efforts	6	24	24	12	12			8	86
Subtotal Task 3:	14	54	54	28	28	0	0	8	186
Task 4: Project Management and Communications									
4.1 Monthly Invoicing and Progress Reports		14	20					14	48
4.2 Project Communication/Coordination	6	20	20					14	60
Subtotal Task 4:	6	34	40	0	0	0	0	28	108
TOTAL without Optional Support	35	152	138	108	84	64	0	36	617

TODD GROUNDWATER

Client: Modesto Irrigation District & STRGBA GSA

Project: 2024 Well Mitigation Program and GSP Management Actions

Phases						
	Iris Priestaf	Liz Elliott				Total Hours
	President	Principal Hydrogeologist	Senior Hydrogeologist	GIS/Graphics	Admin.	
Task 1: Groundwater Use Management Program						
1.1 Groundwater Extraction & Surface Water Delivery Accounting and Reporting Program						0
1.2 Groundwater Allocation Program						0
1.3 Groundwater Use Extraction Fee						0
1.4 Groundwater Pumping Credit/Trading Program						0
1.5 Voluntary Conservation Program						0
Subtotal Task 1:	0	0	0	0	0	0
Task 2: Well Mitigation Plan						
2.1 Develop Framework for Well Mitigation Plan/Program	2	4				6
2.2 Provide Recommendations for a Well Mitigation Fund	4	8	2			14
2.3 Develop Well Owners Claims Process	8	16	6			30
2.4 Prepare Mitigation Plan Documentation	10	20	4	7	2	43
Subtotal Task 2:	24	48	12	7	2	93
Task 3: Project Management and Public Outreach						
3.1 Facilitate and Participate in a Program Development Working Group	10	24	10			44
3.2 Assist with and Participate in Public Workshops and Outreach Efforts	8	14	6			28
Subtotal Task 3:	18	38	16	0	0	72
Task 4: Project Management and Communications						
4.1 Monthly Invoicing and Progress Reports					2	2
4.2 Project Communication/Coordination		16				16
Subtotal Task 4:	0	16	0	0	2	18
TOTAL	42	102	28	7	4	183

Appendix

Resumes

Leslie Dumas, PE

Project Manager

Education

- Masters, Civil Engineering - Hydraulics/ Hydrology, University of California-Berkeley
- Bachelors, Civil Engineering - Hydraulics/ Hydrology, Virginia Polytechnic Institute and State University
- Multiple Subject - Clear Teaching Credential, St. Mary's College of Education

Registration

- Professional Engineer - CA, C43897
- Certified Groundwater Professional (CGWP) - National Groundwater Assoc, 119931
- Single Subject Teaching Credential - Mathematics - CA Commission on Teacher Credentialing, 150031116
- Single Subject Teaching Credential – Science: Geosciences - CA Commission on Teacher Credentialing 150031116

Professional Associations

- American Society of Civil Engineers
- National Groundwater Association (NGWA)

Professional Profile

Leslie has 37 years of experience and is a hydrologist, water resource engineer and project manager providing hydrogeologic, hydrologic, environmental and scientific consultation for projects throughout the United States. She has managed multi-disciplinary teams on a wide variety of projects, including groundwater investigation and management, modeling, resource planning, water resources planning, funding and financing, environmental permitting, stormwater runoff planning, and the investigation and clean-up of hazardous waste sites. Leslie has experience developing and implementing Management Actions, including reductions in groundwater pumping, and optimization of management within California basins. Leslie is adept at managing pumping management framework and water demand reduction development. Her broad range of experience and expertise makes her a valuable project manager in that she's able to expertly lead teams of widely varying technical staff on a vast range of projects, and allows her to pull ideas and solutions from divergent project types to formulate multi-benefit solutions. As a Senior Principal at Woodard & Curran, Leslie has direct access to the firm's extensive professional resources to bring in technical experts to address whatever problem is at hand. Leslie has direct responsibility for leading the Management Actions and Well Mitigation Plan development, as well as coordinating the required services.

Related Experience

Eastern San Joaquin Groundwater Authority, CA – 2025 Groundwater Sustainability Plan Update and 5-Year Periodic Evaluation. Principal-in-Charge and Technical Lead for a 7-person technical team preparing the Eastern San Joaquin (ESJ) Subbasin's 5-Year Periodic Evaluation and Groundwater Sustainability Plan (GSP) amendment. As a high priority, critically overdrafted basin, the ESJ Subbasin's GSP was initially prepared and submitted in 2020. Deemed incomplete, the revised 2022 Plan was ultimately accepted by DWR along with a list of eight recommended corrective actions, including addressing interconnected surface waters (ISW). Woodard & Curran is supporting the ESJ Groundwater Authority and the 16 Subbasin groundwater sustainability agencies (GSAs) to prepare its first 5-Year Periodic Evaluation, respond to the recommended corrective actions, and amend the GSP. This work includes facilitating work with the Project Management Committee tasked with representing the GSAs and providing technical direction, conducting technical work to address the recommended corrective actions, and updating modeling runs to include new data such as Airborne Electromagnetic (AEM) surveys.

Key Issues: Compressed project schedule, integration of significant new data and significant integrated flow model update, development of new sustainable management criteria (SMC) and representative monitoring networks for interconnected surface waters and subsidence, development of first Periodic Evaluation report, coordination with third party firm (FSS) for outreach.

Contract Value: $5,190,362

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Brandon Nakagawa, Senior Civil Engineer (Water Resources/Stormwater), Eastern San Joaquin Groundwater Authority, 1810 E. Hazelton Avenue, Stockton, CA 95201; 209.953.7460

San Luis & Delta-Mendota Water Authority, CA – Delta-Mendota Single Groundwater Sustainability Plan Development and Implementation. Project Manager responsible for overseeing the Woodard & Curran team that prepared the 2020 and 2022 Groundwater Sustainability Plans (GSPs) for the Northern and Central Regions of the Delta-Mendota Subbasin (one of five GSPs developed for the Subbasin). Duties included overseeing water budget development, creation of sustainable management criteria, and development of the Regions' monitoring program, in addition to facilitating meetings at both the Region and Subbasin level, coordinating and presenting at public workshops, and leading the Subbasin Technical Working Group meetings in joint decision-making in support of coordinated GSP development. Acting on behalf of the Groundwater Sustainability Agencies (GSAs) of the Northern and Central Delta-Mendota Regions, supported development of a single Groundwater Sustainability Plan (GSP) for the Subbasin in response to California Department of Water Resources' (DWR's) inadequate determination of the five Subbasin 2020 and 2022 GSPs. Work activities included providing input on revisions and additions to the GSP to address the DWR deficiencies identified in their Inadequate Determination letter and comments from the State Water Resources Control Board (SWRCB), development of a demand management framework and well mitigation policy, ongoing monitoring support, and review of the draft single Delta-Mendota Subbasin GSP. Additionally, supported the Northern and Central Delta-Mendota Region GSAs in implementing their GSP, and led coordination of monitoring work efforts Subbasin-wide. Work activities included developing training modules for groundwater monitoring, coordinating implementation of requisite monitoring program and compiling, analyzing and submitting resultant data, preparing annual reports for the entire Subbasin as required under SGMA, and general coordination of work activities and products as required to meet grant funding and SGMA requirements.

Key Issues: Coordination of six Delta-Mendota Subbasin regions in the development of five 2020 GSPs and a Common Chapter; coordination with and between 23 GSAs and four consulting firms in 2024 GSP development and implementation; identifying best practices and data for use in GSP and sustainability criteria development; coordinating with Subbasin GSAs for SGM grant administration.

Contract Value: $4,907,454

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: John Brodie, Water Resources Program Manager, 842 6th Street, Los Banos, CA 93635; 209.826.1872

Sutter County, CA – Sutter Subbasin Groundwater Sustainability Plan Development and Implementation. Project Manager and Lead Engineer responsible for the preparation of the Sutter Subbasin Groundwater Sustainability Plan (GSP). Led the nine groundwater sustainability agencies (GSAs) overlying the Subbasin in preparing this fast-tracked GSP to meet the legislative deadline set for under the Sustainable Groundwater Management Act (SGMA). Directed a project team, including subconsultants, in the developing the requisite water budgets, identifying and selecting the appropriate methodologies for establishing sustainable management criteria, and establishing the representative monitoring networks. Facilitated meetings of the Sutter Subbasin Groundwater Management Coordination Committee and led multiple public workshops and inter-basin meetings with the adjoining subbasins. Currently supporting the Subbasin in implementing its GSP, including preparing annual reports, developing a basin-wide process for the review of new well permit applications, numerical flow model updates, well instrumentation, field studies in identified data gap areas, and preparation of a GSP financing plan.

Key Issues: Development of 2022 GSP in coordination with lessons learned from 2020 GSP preparation; identification and development of method to assess new well impacts to support permitting; unknown hydrogeological stratification and understanding around the Sutter Buttes; lack of State direction on interconnected surface waters.

Contract Value: $3,910,478

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Guadalupe Rivera, Senior Civil Engineer, Sutter County Development Services, 1130 Civic Center Blvd., Yuba City, CA 95993; 530.822.7400, ext. 305

Ali Taghavi, PHD, PE

Principal-in-Charge

Education

- Doctorate, Civil Engineering, University of California, Davis
- Masters, Civil Engineering, University of California, Davis
- Bachelors, Civil Engineering, University of California, Berkeley

Registration

- Professional Engineer - CA, 50494
- Professional Engineer - AZ, 50602

Professional Associations

- American Society of Civil Engineers, Member
- ASCE, Environmental & Water Resources Institute, Committee Member
- National Groundwater Association (NGWA), Member

Technical Expertise

- Water Resources Planning and Management
- Groundwater Management
- Drought Hydrology
- Climate Change

Specialized Training

- Integrated groundwater and surface water modeling
- Systems Operations

Professional Profile

Dr. Ali Taghavi, a recipient of the prestigious Fischer Delta Award from the California Water and Environmental Modeling Forum, has over 30 years of experience in water resources planning and management, groundwater planning and regulatory compliance, integrated water planning, sustainable groundwater management, integrated groundwater and surface water modeling, water budget analysis, water quality assessment, reservoirs operations, and conveyance and distribution systems operations.

Ali has coordinated a wide range of water resources, hydrologic, hydrogeologic, and geologic investigations for integrated water management programs, as well as groundwater management, conjunctive use and other water supply plans. He has been involved in the planning and design of conjunctive use projects and other major basin planning efforts in the Sacramento Valley, San Joaquin Valley, Southern California, the high desert areas, as well as in the Central Coastal region of California. He has provided hydrologic and water quality analysis in support of environmental reviews, and has managed and directed many water resource planning efforts through the complete project life cycle—data collection, basin characterization, model development, establishment of goals and objectives, feasibility studies, conceptualization and screening of alternatives, and support for environmental evaluations.

Ali is recognized as an expert in development and implementation of Groundwater Sustainability Plans (GSP) and has served as project director, project manager, or technical director for development of several important GSPs for critically overdrafted basins, as well as high priority basins throughout the state. As a recognized expert in integrated hydrologic and water resources modeling and data management, Ali was a key member of the U.S. Bureau of Reclamation's development team for the Integrated Groundwater and Surface Water Model (IGSM), and a key contributor to the development and enhancement of the DWR's Integrated Water Flow Model (IWFM). He co-authored the model code and has since applied the model to number of river basins in the U.S. He has developed an optimization model for waste treatment technology assessment, and a multi-reservoir simulation model for the San Joaquin River Basin in California.

Related Experience

Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, CA – Modesto Groundwater Sustainability Plan. As Principal-in-Charge, Ali was a involved with the Stanislaus & Tuolumne Rivers Groundwater Basin Association GSA with revising their 2022 GSP through addressing recommended corrective actions related to the Department's incomplete determination. The Department recommended the GSA provide a suite of suitable and effective projects and management actions be included in the GSP. The Department also recommended the GSA show commitment to

developing and implementing these projects and management actions in their revised GSP. Ali provided his evaluation on and revisions to the GSP to demonstrate the GSA's commitment to developing and implementing these activities. Specifically, the GSA will now develop and implement, as needed, management actions in areas where significant depletions of groundwater supply exist. The GSA was able to demonstrate commitment to the Department through a resolution passed by their board and are now able to develop these management actions in a timely manner.

Key Issues: Development of technical and modeling analysis for the original GSP; Development of C2VSim-TM; and Revision of GSP to address DWR corrective actions

Contract Value: 1,799,801

Completion Date: Ongoing

Employed Firm: Woodard & Curran as subconsultant to Todd GW

Client Reference: Eric Thorburn, Oakdale Irrigation District, 1205 East F Street, Oakdale CA 95361; 209.840.5525

Turlock Subbasin Groundwater Sustainability Agencies, CA – Groundwater Sustainability Plan. As the Principal-in-Charge, Ali worked and guided the Turlock GSAs with revising their 2022 GSP through addressing recommended corrective actions related to the Department's incomplete determination. Ali oversaw the refinement of existing and development of new projects and management actions needed for the Subbasin to achieve its sustainability goal. The team was responsible for tracking all new and existing projects and management actions proposed by the GSAs and revising the text to align with this new information. To assist the GSAs, Woodard & Curran developed a database to better organize the 28 projects and management now planned for implementation. Through this database the team was able to track all regulatory requirements needed for these activities under SGMA and effectively pinpoint the information and data required from the GSAs. The Woodard & Curran modeling group was responsible for completing several modeling scenarios to support the projects and management actions' goal of helping the Subbasin achieve sustainability. The team able to demonstrate through analysis and text revisions the significant progress the GSAs made following the incomplete determination and their commitment to achieving sustainability.

Key Issues: Development of technical and modeling analysis for the original GSP; Development of C2VSim-TM; Revision of GSP to address DWR corrective actions

Contract Value: $1,085,690

Completion Date: Ongoing

Employed Firm: Woodard & Curran, as subconsultant to Todd GW

Client Reference: Michael Cooke, Water Resources and Regulatory Affairs, 156 S. Broadway, Suite 270, Turlock, CA 95380; 209.883.8364

Merced Subbasin Groundwater Sustainability Agencies, CA – Groundwater Sustainability Plan. As Principal-in-Charge, Ali has been involved with the Merced Irrigation District and Other GSAs within the Merced subbasin with development of the Merced Water Resources Model, Merced 2020 GSP, revising their 2022 GSP through addressing recommended corrective actions related to the DWR's incomplete determination, and currently working with the GSAs to support them in development of the 5-year evaluation of the GSP for Merced subbasin. The DWR recommended the GSA provide a suite of suitable and effective projects and management actions be included in the GSP. The DWR also recommended the GSA show commitment to developing and implementing these projects and management actions in their revised GSP. Ali provided his evaluation on and revisions to the GSP to demonstrate the GSA's commitment to developing and implementing these activities. Specifically, the GSA will now develop and implement, as needed, management actions in areas where significant depletions of groundwater supply exist. The GSA was able to demonstrate commitment to the DWR through a resolution passed by their board and are now able to develop these management actions in a timely manner. The subbasin GSAs are currently going through the 5-year evaluation of the GSP and development of an amendment to the GSP, to be submitted to the DWR by January 2025.

Key Issues: Development of technical and modeling analysis for the original GSP; Development of C2VSim-TM; Revision of GSP to address DWR corrective actions

Consultant Fee: $5,966,173

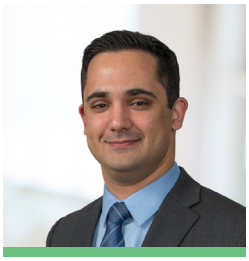
Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Hicham Eltal, Deputy General Manager, Merced Irrigation District, 744 West 20th Street, Merced, CA 95340; 209.354.2854

Dominick Amador, PE

Deputy Project Manager



Education

- Masters, Bioresource & Agricultural Engineering, California Polytechnic State University, San Luis Obispo
- Bachelors, Biological & Environmental Engineering, Cornell University

Registration

- Professional Engineer - CA, 86145

Professional Profile

Dominick has 11 years of experience in sustainable groundwater management, specializing in hydrologic modeling systems. He applies advanced knowledge in computational flow dynamics, agricultural operations, and regional groundwater management. His engineering experience extends to the development and application of several integrated surface water-groundwater modeling systems and maintains a strong background in water resources planning. Through Dominick's education and background, he maintains a robust foundation in agricultural systems and processes relating to the optimization of water resources, climate resiliency, and irrigation management. Notably, Dominick has served as project and technical manager for multiple Groundwater Sustainability Plans across California's Central Valley and the Department of Water Resources' San Joaquin Basin Watersheds Studies.

Related Experience

West Turlock Subbasin and East Turlock Subbasin Groundwater GSAs, CA - Turlock Subbasin Groundwater Sustainability Plan. As the technical manager and modeling lead for the Turlock Subbasin Groundwater Sustainability Plan, Dominick oversaw the development and application of the California Central Valley Simulation Model for the Turlock and Modesto Subbasins (C2VSimTM), an integrated water resources model that combines operational, hydrologic, and geologic data to assess aquifer conditions across various scenarios. Using the Integrated Water Flow Model (IWFM), he led analyses of historical trends, projected conditions, climate vulnerability, and the subbasin's sustainable yield, while evaluating the effects of various projects and management actions. In addition to his technical role, Dominick spearheaded inter-agency coordination and stakeholder outreach, ensuring collaborative input from regional agencies and local stakeholders. Dominick's work in simulating future groundwater demand and aquifer conditions provided the technical foundation for informed decision-making and ensured compliance with California's Sustainable Groundwater Management Act (SGMA).

Key Issues:

→ Development, calibration, and application of C2VSimTM.

→ Development of modeling scenarios within the Turlock Subbasin.

→ Inter-agency coordination and stakeholder engagement.

→ Revision of the GSP to address DWR corrective actions

Contract Value: $1,085,690

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Michael I. Cooke, Turlock Irrigation District, 333 East Canal Drive, Turlock, CA 95381; 209.883.8222

Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, CA – Modesto Groundwater Sustainability Plan. As the Modeling Lead for the Modesto Subbasin Groundwater Sustainability Plan (GSP), Dominick was instrumental in the development of the GSP, overseeing the analytical modeling and integration of key hydrologic, geologic, and operational data. Utilizing the California Central Valley Simulation Model (C2VSimTM), he led the analysis of historical trends, future projections, climate change impacts, and development of the subbasin's sustainable yield. Dominick played a key role in identifying and developing a suite of effective projects and management actions aimed at addressing groundwater sustainability challenges, such as reducing depletions in critically overdrawn areas. Dominick played a key role in identifying and developing a suite of effective projects and management actions aimed at addressing groundwater sustainability challenges, such as reducing overdraft in critically overdrawn areas. During the revision of the GSP, he led coordination efforts between the local GSA and the Department of Water Resources (DWR), ensuring the plan addressed recommended corrective actions and demonstrated commitment to achieving long-term sustainability under the Sustainable Groundwater Management Act (SGMA).

Key Issues:

→ Development, calibration, and application of C2VSimTM.

→ Development of modeling scenarios within the Modesto Subbasin.

→ Inter-agency coordination and stakeholder engagement.

→ Revision of the GSP to address DWR corrective actions

Contract Value: $1,799,801

Completion Date: Ongoing

Employed Firm: Woodard & Curran as subconsultant to Todd GW

Client Reference: Eric Thorburn, Oakdale Irrigation District, 1205 East F Street, Oakdale CA 95361; 209.840.5525

Merced Irrigation District, CA - Merced Water Resources Model (MercedWRM). As Project Engineer and primary developer of model input data and post-processing, Dominick's tasks included compilation of all spatial and temporal data, model calibration, analysis of simulation results, and developing output graphics and documentation. The Merced Water Resources Model (MercedWRM) was developed in support of the Integrated Regional Water Management Plan (IRWM) Plan, as well as the Groundwater Management Plan (GWMP). The main objective of the development of MercedWRM was to develop a comprehensive understanding of the dynamics of the surface water and groundwater system in the Merced area, as well as assisting in the evaluation of environmental and hydrologic benefits and impacts of the water supply system and conjunctive use projects. The MercedWRM was refined and upgraded to support the development of Groundwater Sustainability Plan (GSP) for the Merced Subbasin.

Key Issues:

→ Development, calibration, and application of MercedWRM.

→ Development of modeling scenarios within the Merced Subbasin.

→ Inter-agency coordination and stakeholder engagement.

Contract Value: $1,967,547

Completion Date: 5/2020

Employed Firm: Woodard & Curran

Client Reference: Hicham Eltal, Deputy General Manager, Merced Irrigation District, 744 West 20th Street, Merced, CA 95340; 209.354.2854

Art Machado, PG

Groundwater Use Management: Project Hydrogeologist

Education

- Masters, Geology, Georgia State University
- Bachelors, Geology, University of Georgia

Registration

- Professional Geologist - CA, 10244

Professional Profile

Art is a registered professional geologist with over seven years of experience evaluating and managing groundwater resources and the remediation of sites in both public and private sectors. Through his experience in public service with both the California Department of Water Resources (DWR) and Department of Toxic Substances Control, Art has extensive knowledge of California's groundwater and environmental regulations. During his appointment within the Department of Water Resource's Sustainable Groundwater Management Office, Art evaluated and provided recommendations on Groundwater Sustainability Plans and Annual Reports for several medium to critically overdrafted designated groundwater basins throughout California. In this position, Art also acted as a basin assessment lead which allowed him to evaluate all reviews completed by Department staff for each section of the Groundwater Sustainability Plans and presented these findings to executive staff with a proposed determination. Art has experience with scheduling, implementing and overseeing field work and programs.

Related Experience

Merced Subbasin Groundwater Sustainability Agencies, CA – Groundwater Sustainability Plan. Art, through his experience with SGMA, prepared the Periodic Evaluation and Amended Groundwater Sustainability Plan (GSP) for the Merced Subbasin. His experience with the Department enabled him to navigate uncertainties surrounding the development of the Periodic Evaluation. Moreover, Art used this experience to make informed judgments on regulatory requirements, which proved instrumental in amending the GSP. His guidance ensured that the Groundwater Sustainability Agencies (GSAs) were well-equipped to meet regulatory standards and effectively manage groundwater resources in the Subbasin through the GSP implementation horizon. Art also provided assistance with preparing the Subbasin's 2023 Annual Report, including updates to groundwater storage conditions and analyses related to water quality.

Key Issues:

→ Inter-agency coordination and stakeholder engagement

→ Revision of the GSP to address DWR corrective actions

→ Development of the Periodic Evaluation.

Consultant Fee: $5,966,173

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Hicham Eltal, Deputy General Manager, Merced Irrigation District, 744 West 20th Street, Merced, CA 95340; 209.354.2854

Turlock Subbasin Groundwater Sustainability Agencies, CA – Groundwater Sustainability Plan. Art assisted the Turlock GSAs with revising their 2022 GSP through addressing recommended corrective actions related to the Department's incomplete determination. Art led the refinement of existing and development

of new projects and management actions needed for the Subbasin to achieve its sustainability goal. Specifically, he was responsible for tracking all new and existing projects and management actions proposed by the GSAs and revising the text to align with this new information. To assist the GSAs, Art developed a database to better organize the 28 projects and management now planned for implementation. Through this database Art was able to track all regulatory requirements needed for these activities under SGMA and effectively pinpoint the information and data required from the GSAs. During the GSP revision, Art worked closely with the Woodard & Curran modeling group. The modeling group was responsible for completing several modeling scenarios to support the projects and management actions' goal of helping the Subbasin achieve sustainability. In tandem, Art and the modeling group were able to demonstrate through analysis and text revisions the significant progress the GSAs made following the incomplete determination and their commitment to achieving sustainability.

Key Issues:

→ Inter-agency coordination and stakeholder engagement

→ Revision of the GSP to address DWR corrective actions

→ Development of technical and modeling analysis for the original GSP

→ Development of C2VSim-TM

Contract Value: $1,085,690

Completion Date: Ongoing

Employed Firm: Woodard & Curran, as subconsultant to Todd GW

Client Reference: Michael Cooke, Water Resources and Regulatory Affairs, 156 S. Broadway, Suite 270, Turlock, CA 95380; 209.883.8364

Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, CA – Modesto Groundwater Sustainability Plan. Art assisted the Stanislaus & Tuolumne Rivers Groundwater Basin Association GSA with revising their 2022 GSP through addressing recommended corrective actions related to the Department's incomplete determination. The Department recommended the GSA provide a suite of suitable and effective projects and management actions be included in the GSP. The Department also recommended the GSA show commitment to developing and implementing these projects and management actions in their revised GSP. Art provided his evaluation on and revisions to the GSP to demonstrate the GSA's commitment to developing and implementing these activities. Specifically, the GSA will now develop and implement, as needed, management actions in areas where significant depletions of groundwater supply exist. The GSA was able to demonstrate commitment to the Department through a resolution passed by their board and are now able to develop these management actions in a timely manner.

Key Issues:

→ Inter-agency coordination and stakeholder engagement.

→ Revision of the GSP to address DWR corrective actions.

Contract Value: $1,799,801

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Eric Thorburn, Oakdale Irrigation District, 1205 East F Street, Oakdale CA 95361; 209.840.5525

Andres Diaz, PhD

Groundwater Use Management: Project Engineer

Education

- Doctorate, Civil & Environmental Engineering, University of California, Davis
- Masters, Civil & Environmental Engineering, University of California, Davis
- Bachelors, Civil / Environmental Engineering, Universidad de los Andes

Professional Profile

Andres has seven years of experience in water resources engineering, including atmospheric and hydrologic modeling. He has worked in groundwater modeling, stochastic analysis of hydrologic processes and climate change impacts. His experience includes the development, calibration and use of water resources models, development of scripts in aid of model data processing and use of GIS and spatial analysis. Andres was responsible for calibration and application of the model to support the Turlock (West Turlock Subbasin and East Turlock Subbasin Groundwater GSAs) GSP development, including development of historical water budgets, establishment of sustainable management criteria, and assessment of projects and management actions. Andres has been supporting the GSAs in converting highly technical modeling results in easily understood graphical and tabular information for presentation to the Technical Advisory Committee and the GSA board of Directors.

Related Experience

Merced Irrigation District, CA - Merced Water Resources Model (MercedWRM). Andres was responsible for calibration and application of the model to support the GSP development, including development of historical water budgets, establishment of sustainable management criteria, and assessment of projects and management actions. The MercedWRM was developed in support of the Integrated Regional Water Management Plan (IRWM) Plan, as well as the Groundwater Management Plan (GWMP). The main objective of the development of MercedWRM was to develop a comprehensive understanding of the dynamics of the surface water and groundwater system in the Merced area, as well as assisting in the evaluation of environmental and hydrologic benefits and impacts of the water supply system and conjunctive use projects.

Key Issues:

→ Update of MercedWRM land surface inputs to include remote sensing data

→ Calibration of updated MercedWRM

→ Analysis of different scenarios, including water allocation for Merced Subbasin GSA

Contract Value: $1,967,547

Completion Date: 5/2020

Employed Firm: Woodard & Curran

Client Reference: Hicham Eltal, Deputy General Manager, Merced Irrigation District, 744 West 20th Street, Merced, CA 95340; 209.354.2854

West Turlock Subbasin and East Turlock Subbasin Groundwater GSAs, CA - Turlock Subbasin Groundwater Sustainability Plan. The West Turlock Subbasin and East Turlock Subbasin Groundwater GSAs collaborated for development of Groundwater Sustainability Plan (GSP). This project involved development of the C2VSim-TM, which is a refinement of the DWR's Central Valley wide model, specific to the Turlock and Modesto subbasins, with detail including land use and cropping patterns, irrigation practices and operations, water supply data. Andres was responsible for calibration and application of the model to support the GSP development, including development of historical water budgets, establishment of sustainable management criteria, and assessment of projects and management actions. Andres has been supporting the GSAs in converting highly technical modeling results in easily understood graphical and tabular information for presentation to the Technical Advisory Committee and the GSA board of Directors.

Key Issues:

→ Development and calibration of C2VSimTM

→ Development of detailed water budgets including relationships between land surface, surface water and groundwater components

→ Development of model scenarios to address DWR corrective actions

Contract Value: $1,085,690

Completion Date: Ongoing

Employed Firm: Woodard & Curran, as subconsultant to Todd GW

Client Reference: Michael Cooke, Water Resources and Regulatory Affairs, 156 S. Broadway, Suite 270, Turlock, CA 95380; 209.883.8364

Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, CA – Modesto Groundwater Sustainability Plan. As Project Engineer, Andres assisted the Stanislaus & Tuolumne Rivers Groundwater Basin Association GSA through the development of the California Central Valley Simulation Model – Turlock Modesto (C2VSimTM), which is the integrated surface water – groundwater model that oversees the Modesto subbasin. Andres helped in the development and calibration of the model, and analyzed the results of the C2VSimTM model that established the subbasin's water budget for historical conditions, future projections, climate change impacts and the subbasin's sustainable yield. He also helped identify the impacts of the projects and management actions in the subbasin aimed at addressing groundwater sustainability in the subbasin, incorporating them into the C2VSimTM model and analyzing the results and its impacts on groundwater storage and groundwater levels.

Key Issues:

→ Development and calibration of C2VSimTM

→ Development of detailed water budgets including relationships between land surface, surface water and groundwater components

→ Development of model scenarios to address DWR corrective actions

Contract Value: $1,799,801

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Eric Thorburn, Oakdale Irrigation District, 1205 East F Street, Oakdale CA 95361; 209.840.5525

Katie Evans

Public Outreach & Stakeholder Engagement

Education

- Masters, Public Policy and Management, Northwestern University
- Bachelors, Journalism, Arizona State University

Registrations

- Command and General Staff-Complex Incidents, ICS-400 - FEMA
- Expanding Incidents, ICS-300 - FEMA
- Facilitation Fundamentals for Public Service Leaders - American Water
- J. Lindsey Wolf Certification in Communication - CA Assoc. of Public I
- Grade 2 Water Practitioner - AWWA - CA & NV Section, 1902
- Intro to Incident Command System, ICS 100 - FEMA
- Single Resources and Initial Action Incident, ICS 200 - FEMA
- Water Distribution D2 - CA, 35342
- Water Treatment Operator Grade 2 - CA, 30322

Professional Associations

- American Society for Public Administrators
- American Water Works Association, Member
- California Association of Public Information Officers
- Leadership California, Committee Member
- Leadership Coachella Valley

Professional Profile

Katie has 15 years of experience in strategic communications and community outreach for public agencies. Her approach to large-scale outreach efforts begins with a research-based assessment of the best localized outreach techniques and the most effective key messaging. This research will determine the most efficient ways to engage the community – from hotlines and websites to door-to-door contacts. Katie's previous work in disadvantaged communities has included collaborating with grassroots organizations that are trusted by community members to develop relationships on behalf of the project.

Prior to Woodard & Curran, Katie worked for Coachella Valley Water District as their Director of Communications and Conservation. She managed strategic outreach and education including District branding, website management, social media, digital and print advertising, email campaigns, press campaigns, various internal and external newsletters, press releases and news conferences. Oversaw tours, workshops, and events. Managed the Public Relations functions, including communications between organizational representatives and the public to build, manage and sustain a positive image. Responsible for analyzing and developing District positions on legislation. Maintained cooperative relationships with stakeholders. Oversaw conservation rebate and incentive programs. Presented informational and action items to the Board of Directors. Secured and managed professional services contracts. Managed the Water Management and Outreach and Education divisions of the District including budget development/management, personnel management, and operations.

While at CVWD, Katie led a team that conducted outreach for multiple phases of a 44-mile pipeline replacement project in Sun City Palm Desert which caused significant neighborhood disruption including loss of service, road closures, installation of new facilities, and disruption of mail delivery. Through an extensive outreach campaign which included neighborhood workshops, website and social media updates, regular mailings, on-site communications assistance, coordination with emergency services and a dedicated troubleshooting hotline, the community had access to key information and disruption was minimized.

Related Experience

Los Angeles County Public Works, CA – Los Angeles County Water Plan. Worked closely with Los Angeles County Public Works (LACPW) to ensure that the public and stakeholders have clear, concise, and attractive access to the County Water Plan efforts. In addition to drafting the plan itself and coordinating all graphics and plan design, Katie developed educational content for the plan website and facilitated focus groups to gain insight from stakeholders.

Los Angeles County is the most populous county in the United States with more than 10 million residents. So, it's no surprise there are more than 200 agencies managing a complex network of water systems within the county. While these agencies share a common goal of providing safe drinking water, each also shares regional challenges that threaten water supply sustainability. To create a shared cross-sector, holistic approach that leverages natural and engineered systems for resilience and sustainability, Los Angeles County Public Works hired Woodard & Curran to collaborate with the myriad of stakeholders and develop a first-ever regional plan for sustainable water resource management in Los Angeles County.

The Los Angeles County Water Plan establishes a consistent vision for collaborative water management and includes specific targets, strategies, and actions to achieve the common goal of resiliency and sustainability. Woodard & Curran's expert water planners is facilitated workgroup sessions with more than 30 water management entities within the county to inform the plan document. Workgroup participants included representatives from regional entities such as Metropolitan Water District of Southern California (MWD), Los Angeles County Sanitation Districts, West Basin Municipal Water District, and watermasters across the county's groundwater basins. Each session was designed to discuss leveraging large-scale regional programs, such as recycled water, to drive regional collaboration further and support implementation.

Key Issues: This project included a vast number of stakeholders across a large geography, so we needed tools to make participating easy. Additionally, stakeholders had varying levels of understanding on topics and issues. We developed workgroups around specific parts of water resources and assigned people to the workgroup that fit their expertise.

Contract Value: $2,643,345

Completion Date: The County Water Plan was completed 3/2024. Ongoing support services.

Employed Firm: Woodard & Curran

Client Reference: Matt Frary, Assistant Deputy Director, 900 S. Freemont Avenue, Alhambra, CA, 91803; 626.458.4300

Town of Scituate, MA – Water Treatment Plant. Worked closely with the Town of Scituate in implementing a public outreach campaign related to the construction of a new water treatment plant. This effort has included facilitating neighborhood listening sessions, preparing materials for public meetings, developing website content, and planning a social media content calendar. The strategic communications approach to this project has significantly increased the public's education on the new plant.

Key Issues: The opposition to this project was strong and vocal, so we had to do a great deal of education work to unravel some of the rumors that were surrounding the project before we could really start to address stakeholder issues. We held a listening session with interested parties, where we didn't provide information or answer questions, we just gave them time to tell us what they were worried about so we could address those issues for them in the next meeting.

Contract Value: $75,000 for just Outreach services.

Completion Date: 1/2024

Employed Firm: Woodard & Curran

Client Reference: James Boudreau, Town Administrator, 600 Chief Justice Cushing Highway, Scituate, MA, 02066; 781.545.8716

Camrosa Water District, CA – Camrosa Water District Strategic Plan and Facilities Master Plan. Led the development of an Outreach & Advocacy Plan to align with Camrosa Water District's Strategic and Facilities Master plans. The intent is to effectively communicate the results of these planning efforts with the public, key stakeholders, and elected officials. The plan provided long-term outreach strategies for the District to implement well into the future to gain public support for a variety of projects and programs. This project is an example of successfully working with staff and Board members on implementing a progressive scoping, multi-phase planning process and facilitation of Board workshops to provide an appropriate level of meaningful input.

Key Issues: This District didn't have much experience in stakeholder engagement or outreach but was excited to get involved. We conducted a deep dive workshop to really understand what we wanted out of outreach efforts to ensure that the next steps were effective in achieving their goals.

Contract Value: $932,700

Completion Date: Ongoing

Employed Firm: Woodard & Curran

Client Reference: Tony Stafford, General Manager, 7385 Santa Rosa Road, Camarillo, CA 93012; 805.482.8342

Liz M. Elliott, PG, CHG

Principal Hydrogeologist

EDUCATION

MS, Hydrologic Sciences, University of California, Davis, 2002
BA, Honors, Earth and Environmental Sciences, Wesleyan University, 1995

REGISTRATIONS

Professional Geologist California, No. 8446 and Pennsylvania, No. PG004706
Certified Hydrogeologist California, No. 973
Certified Professional Geologist, American Institute of Professional Geologists, No. 10931

Years with Todd Groundwater: 11

PROFESSIONAL SUMMARY

Liz Elliott is an accomplished hydrogeologist with over 25 years of consulting experience. She has extensive experience with hydrogeologic characterization of groundwater basins, MODFLOW groundwater flow models and groundwater management plans, including Groundwater Sustainability Plans (GSPs). All her GSP experience is with Todd Groundwater. She is currently serving as Project Manager on GSP implementation projects in the Modesto and Turlock subbasins including annual reporting, monitoring, and projects and management actions. Her major current commitments include GSP implementation work for the Turlock Subbasin GSAs. This includes a recent proposal to prepare the SGMA annual report, which will be completed by April 1, 2025 and the contracted Well Mitigation Report to be completed for adoption by January 31, 2025. Liz also is committed to the contract for the Modesto Subbasin Annual Reports and GSP Update, which extends to 2029; Liz regards the Modesto Well Mitigation Plan as complementary and even synergistic with that effort. She has the availability, interest, and resources for the Well Mitigation Report.

Sustainable Groundwater Management, Modesto Subbasin
Since submittal of the Modesto Subbasin GSP in January 2022, Ms. Elliott has been the Project Manager for GSP implementation projects, which have included development of GSP Annual Reports, which address groundwater and surface water conditions and report on GSP implementation. Ms. Elliott attends and presents technical information at monthly public STRGBA GSA meetings and has been involved with a series of public workshops for landowners in the eastern Modesto Subbasin. In 2024 DWR released its Determination Letter, which designated the GSP as incomplete and provided two corrective actions. These are: 1) to analyze the effects on wells of additional lowering of groundwater levels, and 2) to provide

details of feasible projects and management actions to mitigate overdraft and raise groundwater levels. Ms. Elliott led this intensive GSP revision as Project Manager, working closely with the consultant teams, GSAs, stakeholders and DWR. Key issues were fully understanding DWR perspectives and then identifying and making reasonable revisions to the GSP that should achieve DWR approval. While expediting the entire effort through a tight 180-day schedule, Liz also contributed to analyzing effects on wells of lowering of groundwater levels, including consideration of potential subsidence, changes in groundwater quality, and effects on interconnected surface water. She also contributed to preparation of a draft Well Mitigation Program that outlined the organizational structure, funding, claim evaluation procedures, and types of mitigation to respond to dry well claims. The Draft Program document was submitted to GSA review in May 2024. On July 10, 2024, STRGBA passed a resolution that adopted the Revised GSP and documented the commitment to develop management actions and implement a Well Mitigation Program no later than January 31, 2026.

Owner: Eric Thorburn, STRGBA GSA Chair c/o Oakdale Irrigation District 1205 East F Street Oakdale, CA 95361 (209) 840-5525	Contract amount for GSP revision: $286, 045 Completion date: July 10, 2024

GSP Revisions in Response to DWR Determination, Turlock Subbasin

Todd Groundwater assisted the Turlock Subbasin GSAs with GSP preparation and submittal in 2022. In 2024 DWR released its Determination Letter, which deemed the GSP incomplete and provided two corrective actions: 1) to analyze the effects on wells of additional lowering of groundwater levels, and 2) to provide details of feasible projects and management actions to mitigate overdraft and raise groundwater levels. Ms. Elliott served as Project Manager for this intensive effort, which involved working closely with the consultant teams, GSAs, and stakeholders, and organizing multiple strategy sessions with the GSAs and with DWR. During this process, she not only led the effort through a tight schedule but also contributed specifically to analyzing effects on wells of lowering of groundwater levels and planning for a Well Mitigation Program (similar to that in Modesto Subbasin). The Revised GSP for Turlock, submitted to DWR in July 2024, includes a Resolution that commits to developing and implementing the Well Mitigation Program by January 31, 2025. With this challenging schedule, the GSAs has retained Todd Groundwater to develop a Well Mitigation Plan. This effort, underway now and led by Ms. Elliott, involves a sequence of subtasks starting with establishment of the Well Mitigation Committee, including development of program details, and providing compilation of a plan. It is being developed in coordination with TAC Planning Group, the Well Mitigation Committee (when formed) and the Joint TACs.

Owner: Michael Cooke, GSP Coordinator c/o Turlock Irrigation District 333 East Canal Drive Turlock, CA 95381 (209) 648-6819	Contract amount for Well Mitigation Plan: $50,000 Completion date: Ongoing, to be adopted no later than January 31, 2025

Iris Priestaf, PhD

President

EDUCATION

PhD, Geography, University of California Berkeley, 1983
MA, Geography, University of California Berkeley, 1976
BA, Honors, Geography, University of California Santa Barbara, 1974

Years with Todd Groundwater: 41

PROFESSIONAL SUMMARY

Iris Priestaf, PhD, has 41 years' experience in groundwater basin management including SGMA planning for seven GSPs and three Alternative Plans. She has participated in all aspects of SGMA implementation, including the three projects below (all with Todd Groundwater) that are directed to mitigation of potential impacts on wells of groundwater level declines associated with basin management. She currently serves as Principal-in-Charge for four SGMA projects (Modesto, Turlock, Indio, and San Benito subbasins) with varying timelines and levels of effort but has availability to commit to preparation of the Modesto Well Mitigation Plan.

GSP Revisions and Well Mitigation Planning, Modesto Subbasin

Todd Groundwater assisted the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) GSA with GSP preparation and submittal in 2022. In 2024 DWR released its Determination Letter, which deemed the GSP incomplete and provided two corrective actions, in brief: 1) to analyze the effects on wells of additional lowering of groundwater levels, and 2) to provide details of feasible projects and management actions to mitigate overdraft and raise groundwater levels. Dr. Priestaf served as Principal-in-Charge for the revisions. This was an intensive 180-day effort that included not only technical work but also multiple strategy sessions with STRGBA and DWR to find a pathway to GSP approval and to sustainability. Dr. Priestaf had a primary role in Well Mitigation planning, which provided a draft Well Mitigation Program outlining the organizational structure, funding, claim evaluation procedures, and types of mitigation to respond to dry well claims. The Draft Program document was submitted to GSA review in May 2024. The overall effort resulted in the July 10, 2024 STRGBA Resolution that adopted the Revised GSP and documented the commitment to develop and implement a Well Mitigation Program and management actions.

Owner: Eric Thorburn, STRGBA GSA Chair c/o Oakdale Irrigation District 1205 East F Street Oakdale, CA 95361 (209) 840-5525	Contract amount for GSP revision: $286, 045 Completion date: July 10, 2024

GSP Revisions and Well Mitigation Plan, Turlock Subbasin

Todd Groundwater assisted the Turlock Subbasin GSAs with GSP preparation and submittal in 2022. In 2024 DWR released its Determination Letter, which designated the GSP as incomplete and provided two corrective actions. In brief these are 1) to analyze the effects on wells of additional lowering of groundwater levels, and 2) to provide details of feasible projects and management actions to mitigate overdraft and raise groundwater levels. Dr. Priestaf served as Principal-in-Charge for the GSP revisions. She served a primary role in Well Mitigation planning, which outlined a draft Well Mitigation Program that addressed the organizational structure, funding, claim evaluation procedures, and types of mitigation to respond to dry well claims. The Revised GSP, completed and submitted on time in July 2024, includes a Resolution that commits to developing and implementing the Well Mitigation Program by January 31, 2025. The GSAs subsequently retained Todd Groundwater to develop a Well Mitigation Plan. This effort involves a sequence of subtasks starting with establishment of the Well Mitigation Committee, including development of program details, and compilation of a plan. It is being developed in coordination with TAC Planning Group, the Well Mitigation Committee (when formed) and the Joint TACs.

Owner: Michael Cooke, GSP Coordinator c/o Turlock Irrigation District 333 East Canal Drive Turlock, CA 95381 (209) 648-6819	Contract amount for Well Mitigation Plan: $50,000 Completion date: Ongoing, to be adopted no later than January 31, 2025

Alternative Plan Implementation-Well and Small Water System Survey, Indio Subbasin GSAs

The Indio Subbasin GSAs retained Todd Groundwater to prepare the Alternative Plan Update in compliance with SGMA and DWR regulations. Dr. Priestaf served as project manager for the update and now serves as Principal-in-Charge for an on-call contract for implementation. A relevant implementation project involves technical support for the Coachella Valley Regional Water Resilience Plan (CVRWRP) that outlines feasible water resilience actions, and for the Climate Vulnerability Assessment with a Domestic Groundwater Well and Small Water System Study. Dr. Priestaf has been actively involved in planning for the CVRWRP and implementation of this study, which includes a desktop inventory of domestic and small water system wells to identify groundwater wells of rural and vulnerable communities, extensive outreach to gather more information on vulnerable wells, field surveys to find probable but unknown wells, development of criteria to assess the vulnerability of domestic and small water system wells to climate change (with a focus on groundwater levels), and development of a Vulnerability Assessment Report.

Owner: Zoe Rodriguez del Rey Water Resources Manager Coachella Valley Water District PO Box 1058 Coachella, California 92236 (760) 398-2661 x 2389	Contract amount for Domestic Groundwater Well and Small Water System Study: $127,890 Completion date: ongoing to be completed by November 2025

Woodard & Curran

801 T Street ▪ Sacramento, CA 95811 ▪ 916.999.8700
woodardcurran.com

Corporate Office
2001 Junipero Serra Boulevard, Suite 300
Daly City, CA 94104
(650) 292-9100
ekiconsult.com

28 July 2025

To: David Cameron, Atkinson, Andelson, Loya, Ruud & Romo
Julia D. Berry, Stanislaus East Mutual Water Company

From: Anona Dutton, PG, CHg, EKI Environment & Water, Inc. (EKI)
Amir Mani, PhD, PE (EKI)
Wesley Henson, PhD (EKI)

Subject: Technical Evaluation of Proposed Groundwater Allocation and Demand Management Framework by the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency

Dear Mr. Cameron and Ms. Berry,

EKI Environment & Water, Inc. (EKI) is pleased to provide this letter summarizing the groundwater allocation framework (Allocation or Framework) presented by the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency (GSA) and its technical consultant in a 16 July 2025 workshop (workshop). This letter outlines the anticipated impacts of the Allocation on the Non-District East (NDE) area, identifies key technical and legal concerns, and highlights considerations that the Stanislaus East Mutual Water Company (SEMWC) may wish to raise during upcoming discussions.

While EKI does not offer legal assessments or advice in this letter, we note that allocation frameworks must be consistent with California water rights law, and therefore, questions of legal adequacy are relevant and appropriate to consider.[1] The following findings reflect concerns that, in our view, warrant further discussion, clarification, or adjustment before the Allocation is finalized. While we raise these concerns, we recognize the significant technical effort that has gone into the development of the Framework and appreciate the work of the GSA and its consultants in advancing a comprehensive approach to basin sustainability.

1) Summary of Findings

We recognize and support the GSA's revised management approach to base allocations on total overlying acreage and reallocate surplus water to areas with greater historical reductions. These changes represent meaningful steps toward equitable basin-wide management. At the same time, the following findings reflect issues that, in our view, warrant further discussion, clarification, or adjustment before the allocation framework is finalized:

[1] Specific sections of the letter have been legally reviewed by counsel for SEMWC for accuracy. However, this letter does not constitute legal advice.

- The Sustainable Yield (SY) scenario used as the basis for the Allocation is methodologically flawed and inconsistent with the rest of the framework. It assigns nearly all reductions to NDE, despite overdraft contributions from other areas, and relies on a projected future period while all other allocation components are based on the 2015 to 2024 historical period. This approach introduces unnecessary uncertainty and likely incorporates disproportionate reductions that exceed the basin's actual overdraft.
- The Framework misapplies California water rights principles by allocating an "appropriative" pool to Modesto Irrigation District (MID) and Oakdale Irrigation District (OID) without legal or factual basis. In an overdrafted basin, groundwater use on non-overlying lands equates to a claim of a prescriptive right, which has not been asserted. Furthermore, the factual basis for allocating this amount, and for giving it priority over other rights, is not clear.
- Municipal pumping is deducted from the allocation pool, but municipal acreage remains in the base used to distribute the remaining overlying allocation. This results in a duplicate allocation to municipal areas and gives them a greater share of the sustainable yield. Removing municipal acreage from the overlying allocation calculation would resolve this inconsistency without affecting sufficient municipal access to groundwater.
- The developed water credits for MID and OID reservoir and canal seepage lack transparency and may overstate actual contributions. These credits are a significant portion of the groundwater budget but have not been adequately documented or explained. The method and data used to estimate these credits should be disclosed and independently reviewed.

2) Summary of Proposed Allocation

The Allocation presented by STRGBA on 16 July 2025 is intended to address the Corrective Action outlined by the Department of Water Resources (DWR) for the Modesto Subbasin (Basin) Groundwater Sustainability Plan (GSP). As presented, the framework includes a proposed sustainable yield (SY), a set of deductions based on assumed exemptions, and an allocation approach that assigns the remaining pumping allowances to different areas and categories of use.

The Framework builds upon the estimated SY developed as part of the GSP, which is projected at 267,000 acre-feet per year (AFY). From this total, STRGBA deducts approximately 92,900 AFY as "non-allocatable," including 44,100 AFY classified as developed supplies (primarily seepage from Modesto and Oakdale Irrigation District infrastructure), 13,800 AFY attributed to de minimis use, and 35,000 AFY allocated to municipal pumping. These categories are treated as exempt from the allocation pool. The remaining 174,100 AFY is then distributed between overlying users (155,200 AFY) and appropriative users (18,900 AFY), based on historical use and land-based estimates.

Allocations are distributed to four management areas: MID, OID, Non-District West (NDW), and Non-District East (NDE). Each area's allocation is calculated based on total overlying acreage, and "stewards" for each area are expected to manage and enforce the allocations. Under this method, NDE is assigned 44,200 AFY, compared to historical use of approximately 89,700 AFY, resulting in a proposed 50 percent reduction. This reduction is to be implemented in stages: 25 percent by 2032, 40 percent by 2037, and 50 percent by 2042. The presentation also included a comparison to a developed-area approach, which would have further reduced NDE's allocation to 28,700 AFY, but that method has not been adopted. Depending on how the County of Stanislaus (as NDE steward) chooses to allocate the 44,200 AFY within

the area, it is possible that the allocation could be applied only to developed acreage, effectively increasing the per-acre allocation in NDE from 1.19 AF/acre to 1.83 AF/acre.

3) Key Technical Highlights and Concerns

Proposed Paradigm Shift in Management Approach and Modified Allocation Based on All Overlying Land

As described on page 4 of the presentation, the GSA has adopted a revised management philosophy in response to the DWR's Corrective Action. Under this revised approach, demand management is positioned as the primary tool for ensuring basin sustainability, while projects are treated as a supporting mechanism. We recognize the rationale for this shift and the commitment expressed by both the GSA and Stanislaus County to meet the expectations outlined by DWR.

While we acknowledge the importance of having enforceable demand-management measures in place, particularly in the face of hydrologic uncertainty and implementation delays, we emphasize that, as described in the GSP, effective and timely implementation of projects has the potential to resolve the basin's overdraft and avoid undesirable results (See Scenario 2 Simulation in GSP Section 8.5). Furthermore, recent groundwater level data presented in the Basin's Annual Report indicate that most wells across the basin remain above their interim milestones, and do not show degradation beyond what was projected in the GSP. In light of this, we agree with what was expressed by the GSA and its technical team at the workshop, that regardless of the emphasis on demand management, implementation of projects should remain a priority and serve to offset the need for demand reductions. Doing so will reduce the need for extensive cutbacks under the allocation program and minimize the economic burden of compliance, especially for agricultural users.

We also appreciate the GSA's decision to base allocations on total overlying acreage rather than solely on developed agricultural land. This adjustment results in a more balanced distribution of allocatable pumping. In particular, we support the GSA's reallocation of surplus groundwater from OID and NDW areas to the MID and NDE, where reductions relative to historical use would otherwise be more severe. This adjustment enhances the feasibility of the Framework and supports more equitable progress toward basin-wide sustainability. We further encourage the Framework to allow transfer and trading of allocations between all users and management areas, similar to the surplus redistribution, through a verifiable market mechanism that ensures the Basin's estimated sustainable yield is used as efficiently as possible.

Concerns Regarding Use of the Sustainable Yield Scenario as Allocation Basis

The Framework relies on the estimated SY developed as part of the GSP's SY scenario. This scenario, however, includes a number of methodological flaws that undermine its reliability as a neutral foundation for groundwater allocation. While we understand that the actual SY may not be substantially higher or lower than the estimate used, the way it was derived embeds biases and assumptions that disproportionately affect the NDE area and raise broader questions about basin-wide equity and technical soundness.

First, as defined in the GSP, the SY scenario assumes that all overdraft and associated undesirable results (URs) in the Basin originate from operations within the NDE area, as the only net extractor in the Basin. The modeled scenario addresses these assumed undesirable results entirely through targeted pumping

reductions in NDE, primarily via selective land fallowing. As a result, the scenario imposes a modeled pumping reduction of approximately 47,000 AFY in NDE alone, despite Basin-wide overdraft being closer to 11,000 AFY (calculated as the net annual storage change of the projected baseline scenario). The larger reduction in pumping (47,000 AFY vs. 11,000 AFY) primarily benefits streams that border the Basin (e.g., Stanislaus and Tuolumne) to resolve asserted exceedances of depletion of interconnected surface water (ISW) minimum thresholds (MT). Notably, most of these exceedances occur outside NDE, and at locations geographically closer to the Tuolumne and Stanislaus rivers than where pumping reductions are required in NDE. While NDE's overdraft contributes to ISW exceedances, it is not the sole cause. More efficient ways of addressing ISW exceedances could be made, for example by targeting pumping in areas near the stream reaches of concern. The SY scenario thus operates less as a balanced management approach and more as a model that achieves balance by eliminating NDE's pumping, without evaluating more equitable or optimized reductions across the Basin.

The model's mismatch between where pumping reductions are required and the desired results is reflected in the Allocation's results. The Modesto area is also required to reduce pumping to meet sustainability targets under the Allocation, which would not be necessary if the assumption that NDE is the only cause of overdraft were valid. Instead, the Allocations confirm that multiple areas in the Basin contribute to the problem and that responsibility should be shared proportionately.

Second, every other component of the allocation framework (developed supply, de minimis use, municipal use, and historical groundwater pumping) is based on the 2015–2024 historical period. While this period is relatively short, it is a known dataset that captures actual water use and climate variability, and its use is consistent with approaches taken in other subbasins such as Tule and Kaweah. Using a consistent historical period to define overdraft and then allocating groundwater to reduce that overdraft over time provides a logical and measurable pathway to sustainability.

The use of a projected simulation period to define SY, as was done here, adds complexity and uncertainty. When asked during the workshop, the GSA's consultants stated that the simulation was intended to better account for uncertainty that is missed if historical and current data are used. However, it remains unclear how using a fixed, assumed future period based on exactly repeating the climate of an older historical period, produced by an imperfect model, captures uncertainty more effectively than historical data itself.

In our view, the SY scenario, as currently defined, does not provide a neutral or technically robust foundation for groundwater allocation. We recommend that the Framework be revisited to either (1) use a more realistic and proportionate SY scenario that distributes reductions across contributing areas or (2) base allocations directly on the 2015–2024 historical period, or preferably a longer period such as 2010-2024, consistent with other elements of the framework and common SGMA practice.

<u>Concerns Regarding Application of Water Rights Principles for Appropriative Allocations</u>

The current Framework assigns 18,900 AFY to an "appropriative" use category to MID and OID and which is deducted from the overlying allocation pool. During the workshop, the GSA's technical team explained that this category reflects historical pumping by MID and OID that was used in parts of their districts other than where it was extracted for irrigation. Based on that reasoning, the use was classified by the GSA as appropriative. However, this explanation is not consistent with California water rights law and raises concerns.

California groundwater rights are generally defined by the type of use, not the identity of the user. Groundwater extracted and applied to land overlying the Basin for irrigation is considered an overlying right, regardless of whether the user is a private landowner or an irrigation district. Use of groundwater on land not overlying the Basin may be considered appropriative, but only if the basin is not in overdraft. Because the Modesto Subbasin is in overdraft, classifying any right as appropriative is highly suspect. Nor has a prescriptive right been asserted, and no legal showing has been provided to justify the classification of any portion of MID or OID pumping as a prescriptive right. One nuance to the above is that municipal use of groundwater is, by case law, deemed an appropriative right if there is a surplus, and a prescriptive right if the basin is overdrafted. There is no claim by OID or MID that the 18,900 AF is for municipal use, rather it was confirmed in the workshop that the use is for irrigation on land overlying the Basin.

Even if prescriptive rights were successfully established, they would not automatically take priority over all overlying rights. A prescriptive right could only apply to the portion of an overlying right that was not protected through continued pumping by the overlier during the period of adverse use. Overlying users who continued to exercise their rights during that period would retain their priority. Therefore, any valid prescriptive right would remain junior or on par with protected overlying rights.

This concern is amplified by the fact that both MID and OID receive allocations under the overlying category in addition to the 18,900 AFY appropriative right amount. By also receiving an appropriative allocation, they benefit from two categories of rights. There does not appear to be a factual or legal basis for this double allocation.

Finally, Section 10726.8 subdivision (b) of the Water Code states that GSAs do not have the authority to make legal determinations regarding water rights. By labeling a portion of groundwater as appropriative and giving it seniority above overlying rights, the Framework risks overstepping that statutory limitation and effectuates a quasi-adjudication role that SGMA does not authorize. We recommend that all groundwater use occurring on overlying land be treated as overlying use. We recommend that the 18,900 AFY be added back to the overlying allocation bucket that is accessible by all overlying users in the Basin.

Duplicate Allocation to Municipal Areas

Under the current framework, municipal pumping, estimated at 35,000 AFY, is deducted from the allocatable groundwater pool before the remaining allocation is distributed to overlying users. This approach treats municipal users as a separate category, exempting them from the demand reductions applied to other groundwater users. While this treatment may reflect the need to support municipal supply obligations, the way this exemption is implemented results in a duplication issue that should be addressed.

Although municipal pumping is excluded from the allocation pool, the urban areas served by that pumping are still included in the land base used to apportion the overlying allocation. As a result, the acreage associated with municipal use receives a second allocation, even though it has already been fully accounted for. This provides municipal areas with a greater share of the Basin's estimated sustainable yield than any other group.

When we raised this issue during the workshop, the response was that Section 10726.8 subdivision (b) of the Water Code prohibits GSAs from denying overlying rights, and that municipal lands must therefore be included in the base used to calculate overlying allocations. However, this interpretation does not apply

to the concern raised. Excluding municipal acreage from the calculation would not deny those lands their overlying rights. Rather, it would prevent a double allocation by recognizing that municipal use, including use on the land served by that use, has already been fully accounted for through a separate quantity.

We recommend that the acreage associated with municipal providers be removed from the land base used to distribute the remaining overlying allocation. This adjustment would not affect municipal access to groundwater, but it would ensure that the remaining allocation is distributed fairly among those overlying users who have not already received a separate allocation.

Need for Transparency and Verification of Developed Water Credits

We recognize that both MID and OID hold long-standing rights to surface water developed through their infrastructure, including reservoirs and canal systems (salvaged water according to California Law). Their historical investments in water conveyance and storage facilities justify appropriate credit for water that is actively transported, controlled, and beneficially used. We do not object to the principle of recognizing these supplies as developed water that may be excluded from the common-pool groundwater allocation.

However, the current framework assigns 44,100 AFY as developed supply attributed to seepage from MID and OID facilities. During the workshop, questions were raised regarding the basis for these values, particularly for reservoir and canal seepage. It became apparent that neither the GSA representatives nor their consultants were able to clearly explain how these estimates were derived or whether the values reflect current operating conditions. The GSA confirmed there were no reductions or "leave behind" amounts, and no diminution in quantities even though OID and MID "recovery" facilities are geographically distant from facilities such as Modesto Reservoir. Furthermore, while this data was requested through a Public Records Act request by SEMWC, dated 3 April 2025, no documentation has yet been provided to support the calculations or for EKI to evaluate and assess their fitness.

This is not a minor detail. These quantities represent a significant portion of the total groundwater budget and are being excluded from reduction requirements under the allocation framework. They also reflect surface water rights that fall outside the GSA's regulatory control and may or may not remain within the Basin depending on operational decisions. Given their importance, it is imperative that the values used for developed water credits are accurate, well-documented, and based on a clear and replicable method. Without that transparency, there is a risk that these estimates may overstate the actual water remaining in the Basin and affect the equity and technical integrity of the allocation.

We recommend that the GSA and its consultants provide documentation for the methods and assumptions used to calculate developed water quantities, and that they consider an independent review of these values. Confirming the accuracy of these estimates will strengthen the credibility of the framework and build trust among all stakeholders.

Illustrative Impact of Potential Adjustments on NDE Allocation

The table below presents a high-level comparison of NDE's groundwater allocation, expressed in AFY/acre, under three alternative implementation approaches. It also illustrates the potential effects of reallocating the current appropriative pool, correcting for double-counting of municipal acreage, and redistributing developed water credits under a hypothetical maximum scenario. These values are not proposed targets

but are provided to help illustrate how specific changes to the framework could influence per-acre allocations within NDE.

Table 1. High-level comparison of NDE's allocation under different scenarios and the impact of redistributing allocation based on outlined concerns.

Allocation Approach	Land Base Area (Acres)	Allocated Area (Acres)	Current Pumping (AFY/Acre)	Proposed Allocation (AFY/Acre)	Redistribution of Appropriative Allocation (AFY/Acre)[1]	Redistribution of Municipal Duplicate Overlying Allocation (AFY/Acre)[1,2]	Maximum Redistribution of Developed Water Credits (AFY/Acre)[1,3]
Based on Overlying Area, Allocated to Overlying Area	70,100	70,100	1.27	0.63	0.08	0.11	0.18
Based on Overlying Areas, Allocated to Developed Area	70,100	24,000	3.72	1.84	0.22	0.33	0.52
Based on Developed Area, Allocated to Developed Area	24,000	24,000	3.72	1.20	0.15	0.47	0.34

[1] Redistribution scenarios indicate additional allocation that could be expected on top of the proposed allocation.

[2] Redistribution of municipal duplicate overlying allocation may affect other redistribution values due to changes in the land base and allocated area used in the calculation.

[3] The maximum redistribution shown is hypothetical and not proposed as policy. It is expected that some portion of developed water credits will remain with MID and OID due to legitimate seepage from their infrastructure.

Modesto Subbasin Well Mitigation Plan and Management Actions

January 27, 2026

Presented By Christy McKinnon, Water Resources Manager
Groundwater Resources Division
Stanislaus County Department of Environmental Resources

Purpose

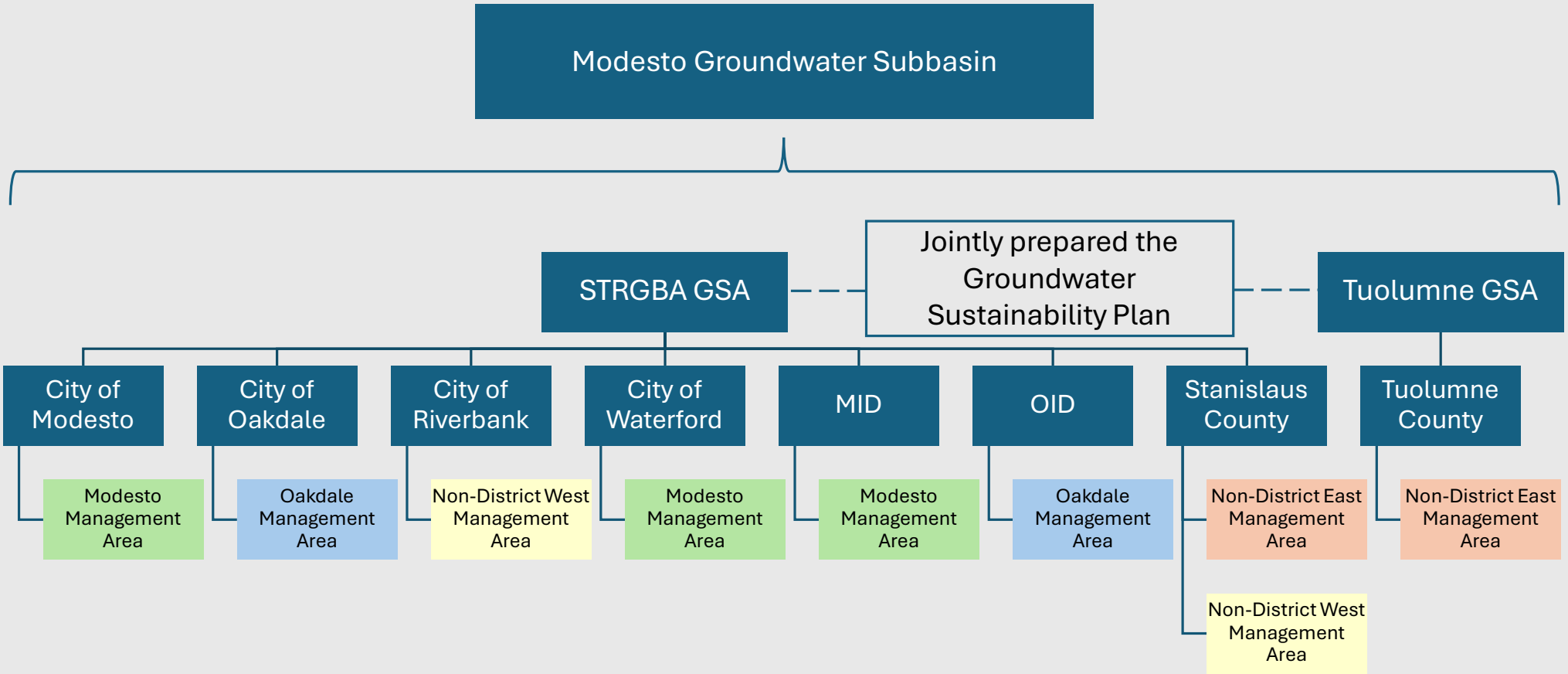
Approval and Adoption of a Well Mitigation Plan and Management Actions including a Groundwater Use and Management Program for the Modesto Subbasin Groundwater Sustainability Plan

Background

- The Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, (STRGBA GSA), in partnership with the County of Tuolumne GSA adopted the 2022 Modesto Subbasin Groundwater Sustainability Plan, (GSP) as required by the Sustainable Groundwater Management Act (SGMA) of 2014

- STRGBA GSA includes 7 member agencies by MOU
  - City of Modesto, Oakdale, Riverbank, Waterford, Modesto and Oakdale Irrigation Districts and Stanislaus County
  - STRGBA GSA covers 99.5% of the Subbasin

Background


Modesto Groundwater Subbasin
STRGBA GSA
Jointly prepared the Groundwater Sustainability Plan
Tuolumne GSA
City of Modesto
City of Oakdale
City of Riverbank
City of Waterford
MID
OID
Stanislaus County
Tuolumne County
Modesto Management Area
Oakdale Management Area
Non-District West Management Area
Modesto Management Area
Modesto Management Area
Oakdale Management Area
Non-District East Management Area
Non-District West Management Area
Non-District East Management Area

Background

- In 2024 the 2022 Modesto Subbasin GSP was determined to be incomplete by the Department of Water Resources (DWR)
- The Groundwater Sustainability Plan (GSP) was approved by the State on February 27, 2025
- Included a commitment to build a well mitigation plan to go into effect by January 31, 2027
- Included a commitment to develop the GWUMP as a backstop to stop overdraft and raise groundwater levels
  - Develop by January 31, 2026
  - Implement by January 31, 2027

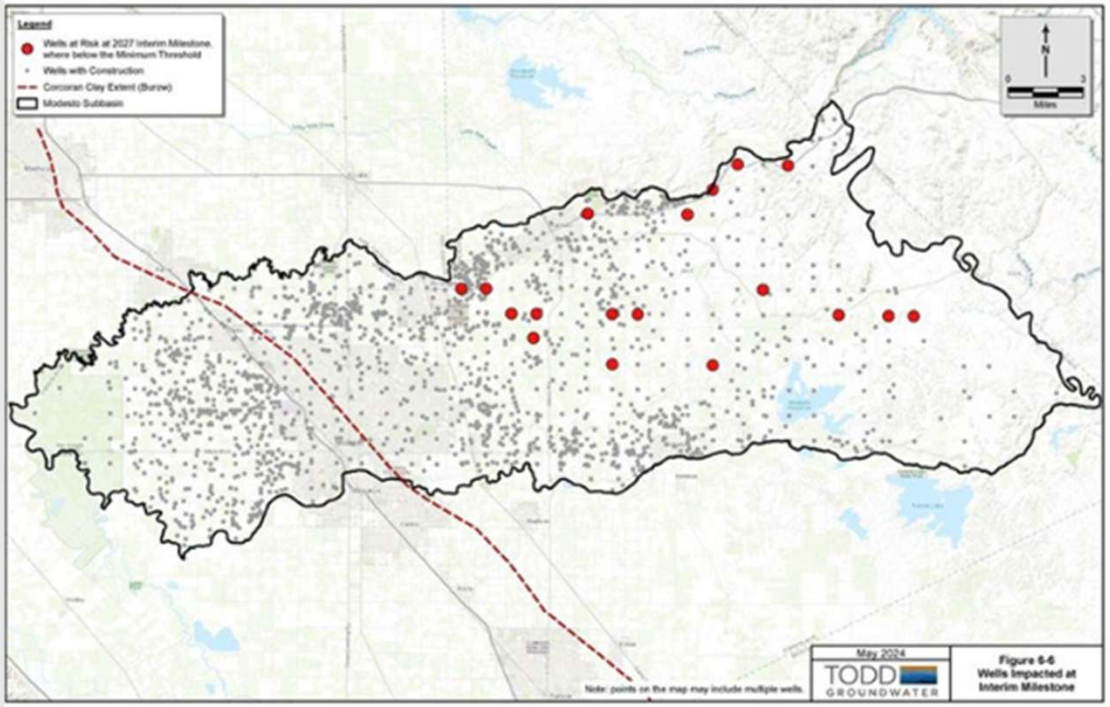
Background

- These programs are necessary to prevent state intervention, protect drinking water wells and ensure long-term groundwater sustainability.

- Compliance is mandatory to keep local control and avoid expensive state fees and oversight ($300 per well and up to $55 per pumped acre-foot)

Well Mitigation Plan

Wells Impacts Analysis
At Risk at Interim Milestone



- 29 wells indicated to go dry when levels go below MT to the IM
  - 27 domestic wells
  - 2 agricultural wells
- All dry wells in the Eastern Principal Aquifer
- Impacted wells are older and shallower than average age and depth of wells in the Subbasin

Source: Woodard and Curran, Todd Groundwater 10/15/2025 STRGBA Public Workshop

Well Mitigation Plan

- The GSA is responsible for development, funding and implementation of a domestic well mitigation program for wells that go dry due to GSA management activities
- Only wells that went dry after January 31, 2022
- Clear application, eligibility process and technical review committee
- SELF HELP Enterprises to provide emergency relief and long-term solutions

Groundwater Use Management Program (GWUMP)

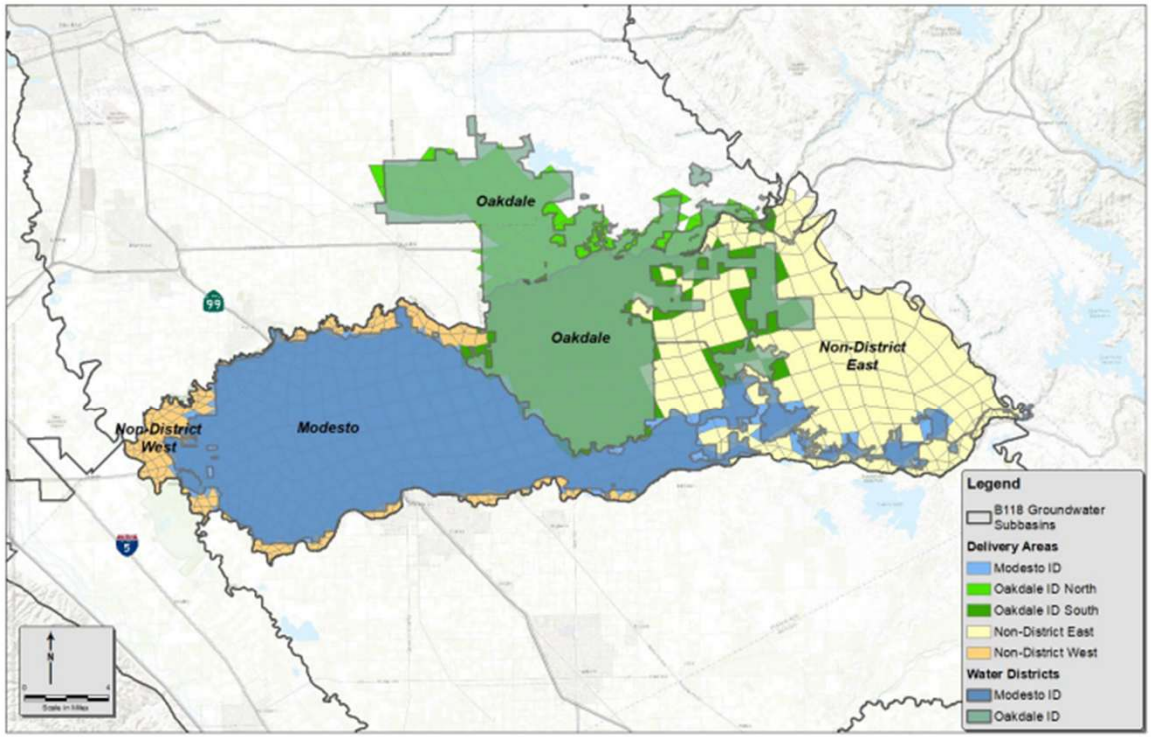
- In October 2024, the STRGBA GSA selected a proposal from Woodard and Curran and Todd Groundwater for *Development of a Well Mitigation Plan & Management Actions for the Modesto Subbasin GSP*
- Ad hoc workgroup identified options and recommendations for approval
- 3 public workshops held between February and November 2025
- Stakeholder feedback received and included in final GWUMP
  - Included NDE *Technical Evaluation of Proposed Groundwater Allocation and Demand Management Framework by the STRGBA GSA*

GWUMP

- Framework to allocate the sustainable yield to management areas
- Equitable subbasin wide approach
- Allocation is proportional based on the total land area = “overlying area”
  - Simple
  - Gives more water to areas that need it the most
  - Accounts for de minimis, municipal users and recovery of developed supply
  - Respectful of water rights
  - Collaborative resources sharing

Groundwater Allocation Overview

Allocations at the Subbasin-Scale



Modesto Subbasin Stewards (GSA Board)

Modesto Area

- Modesto Irrigation District
- City of Modesto
- City of Waterford

Oakdale Area

- Oakdale Irrigation District
- City of Oakdale

Non-District West

- Stanislaus County
- City of Riverbank

Non-District East

- Stanislaus County

Source: Woodard and Curran, Todd Groundwater 7/16/2025 STRGBA Public Workshop.

	Subbasin TOTAL	Modesto Management Area	Oakdale Management Area	NDW Management Area	NDE Management Area
Base Allocation[1]	267,000	162,900	62,500	11,500	30,100
Historical Pumping[1]	317,600	173,000	39,800	15,100	89,700
Developed Water[1]	-	0	-22,700	0	0
Redistribution of Developed Water[1]	0	10,100	-22,700	1,900	10,700
Allocation with Redistribution of Developed Water[1]	267,000	173,000	39,800	13,400	40,800
Reduction Required[1,2]	50,600	0	0	1,700	48,900
Allocation with Redistribution[2] (Percent of Historical)	84%	100%	100%	89%	45%

[1] Volumes are present in acre-feet
[2] Assumes long-term use of Redistributed Developed Water
NDW - Non- District West
NDE - Non- District East

Source: *Modesto Subbasin Groundwater Use Management Program Final Draft* (1/6/2026), Woodard & Curran

GWUMP Next Steps

- Members agencies and STRGBA GSA to adopt final programs

- County “steward” to develop an Action Plan for the Non-District East for STRGBA GSA approval by November 1, 2026
  - Include technical evaluation of available information
  - Collaborate with Board representatives, stakeholders and STRGBA GSA
  - How to initiate reductions, achieve targets and meet timelines
  - Provide recommendations for future GWUMP refinements

- Obtain Board direction for future policy decisions, and Action Plan Approval

Key Considerations

- STRGBA GSA Goal is to first implement supply projects with GWUMP as a backstop to achieve sustainability goals by 2042
- GWUMP is an enforceable approach
- GWUMP and Well Mitigation Program allow for adaptive local control while maintaining basin wide accountability and promoting Subbasin wide collaboration and resource sharing
- Board direction will influence the County's vote as a management area steward responsible for groundwater use and management actions oversight

Staff Recommendation

1. Approve and adopt the Well Mitigation Plan by Resolution
2. Approve and adopt the Groundwater Use Management Program (GWUMP) by Resolution.
3. Authorize the Department of Environmental Resources (Department) to take such actions as may be reasonably necessary to approve and implement the Well Mitigation Plan in collaboration with the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, (STRGBA GSA), its member agencies, consultants, stakeholders and the County of Tuolumne GSA.
4. Authorize the Department to take such actions as may be necessary to approve and implement the Groundwater Use Management Program (GWUMP), in collaboration with the STRGBA GSA, its member agencies, consultants, stakeholders, and the County of Tuolumne GSA.

Staff Recommendation (cont.)

5. Direct the Department to return to the Board for direction on policy questions related to GWUMP implementation.
6. Direct the Department to develop Action Plans for Board approval with the goal of implementation of demand management actions identified in the GWUMP by January 31, 2027.
7. Identify and support up to two Board members to participate in discussions on GWUMP Action Plans.

Questions?