TEHAMA COUNTY GROUNDWATER COMMISSION

Board Chambers
Tehama County Board of Supervisors Chambers
727 Oak Street, Red Bluff, CA 96080
https://tehamacounty.legistar.com/Calendar.aspx

AGENDA FOR WEDNESDAY, DECEMBER 10, 2025

8:30 AM

Commissioners: Martin Spannaus, City of Corning; Jeff Godwin, City of Red Bluff; Hal Crain, City of Tehama; Kris Lamkin, El Camino Irrigation District; Todd Hamer, Los Molinos Community Services District; Martha Slack, Rio Alto Water District; Liz Merry District 1; Adam Englehardt, District 2; Seth Lawrence, District 3; Michael Ward, District 4; David Lester, District 5;

Justin Jenson, Flood Control/Water Resources Manager; Lena Sequeira, Administration

This meeting conforms to the Brown Act Open Meeting Requirements, in that actions and deliberations of the Groundwater Commission, created to conduct the people's business are taken openly; and that the people remain fully informed about the conduct of its business. Any written materials related to an open session item on this agenda that are submitted to the Clerk less than 72 hours prior to this meeting, and that are not exempt from disclosure under the Public Records Act, will promptly be made available for public inspection at Tehama County Flood Control and Water Conservation District, 1509 Schwab Street, Red Bluff, CA 96080 during normal business hours.

Call to Order / Pledge of Allegiance / Introductions

Public Comment

This time is set aside for citizens to address this Board on any item of interest to the public that is within the subject matter jurisdiction of this Board provided the matter is not on the agenda or pending before this Board. Each agenda item will have an opportunity for public comment at the time the item is called. Persons wishing to provide public comment are asked to address the Board from the podium. The Chair reserves the right to limit each speaker to three (3) minutes. Disclosure of the speaker's identity is purely voluntary during the public comment period.

For audio and real-time commenting via phone:
(530) 212-8376, conference code 142001. Press 5* on your phone keypad to raise your hand

to comment.

For live audio of the meeting:
Go to: https://tehamacounty.legistar.com/Calendar.aspx

1. Well Mitigation Program **25-2107**

Recommendations on final Well Mitigation Program for the Board of Directors

2. Demand Management Program **25-2109**

Recommendations on final Demand Management Program for the Board of Directors.

3. Standing Agenda Items **25-2090**

1. Groundwater Recharge
2. Grant Status
3. Demand Management Plan Working Group Update
4. Well Mitigation Plan Working Group Update
5. Annual Report Status
6. Outreach

Commission Matters

Adjourn

The County of Tehama does not discriminate on the basis of disability in admission to, access to, or operation of its buildings, facilities, programs, services, or activities. Questions, complaints, or requests for additional information regarding the Americans with Disabilities Act (ADA) may be forwarded to the County's ADA Coordinator: Tom Provine, County of Tehama, 727 Oak St., Red Bluff, CA 96080, Phone: (530) 527-4655. Individuals with disabilities who need auxiliary aids and/or services or other accommodations for effective communication in the County's programs and services are invited to make their needs and preferences known to the affected department or the ADA Coordinator. For aids or services needed for effective communication during Groundwater Sustainability Agency Groundwater Commission meetings, please contact the ADA Coordinator prior to the day of the meeting. This notice is available in accessible alternate formats from the affected department or the ADA Coordinator.

Tehama County

Agenda Request Form

File #: 25-2107 **Agenda Date:** 12/10/2025 **Agenda #:** 1.

Well Mitigation Program

Requested Action(s)
Recommendations on final Well Mitigation Program for the Board of Directors

Financial Impact:
Unknown, however program costs are intended to be covered by groundwater user fees.

Background Information:
As part of our DWR approved groundwater sustainability plans the district has agreed to create a well mitigation program prior to January 1, 2026. The attached is the outcome and recommendations from the Well Mitigation Working Group.

Tehama County Well Mitigation Program

Straw Proposal

I. Program Overview

In response to Department of Water Resources (DWR) Incomplete Determination Letter, the Tehama County Flood Control and Water Conservation District (District) has committed to undertake mitigation actions for water well impacts resulting from declining groundwater levels that occur from Groundwater Sustainability Agency (GSA) management activities during the Groundwater Sustainability Plan (GSP) Implementation Period. The District will develop and implement a Well Mitigation Program (Program) Program to address these impacts aligned with the requirements under the Sustainable Groundwater Management Act (SGMA).

A. Key Terms Defined

1. District – Tehama County Flood Control and Water Conservation District
2. Dry well – a groundwater well that has gone dry due to GSA-management activities that have resulted in chronic declining groundwater levels.
3. DWR – California Department of Water Resources
4. GSA – Groundwater Sustainability Agency
5. GSP – Groundwater Sustainability Plan
6. NVCF - North Valley Community Foundation
7. Program – refers to the Tehama County Dry Well Mitigation Program
8. RMS – Representative Monitoring Sites (refers to wells in the monitoring network)
9. SGMA – Sustainable Groundwater Management Act
10. SMC – Sustainable Management Criteria (SMC specifics like undesirable results, minimum thresholds, and measurable objectives are defined in subbasin GSPs)

B. Program Structure and Guiding Principles

The Program will be a **single, unified program for all well types (domestic and non-domestic)** with clear, objective criteria that targets wells most likely impacted by GSA management-related chronic groundwater declines and stays financially and operationally viable for the District.

Guiding Principles

1. Mitigate dry-well impacts caused by GSA management-related chronic declines in groundwater levels.
2. Ensure timely access to water via temporary supply, then a replacement well with clear steps and timelines
3. Advance balanced fairness with a single program with a single monetary cap to avoid inequities between domestic and non-domestic wells, while also prioritizing protecting basic household water needs.

4. Balance near-term mitigation with the long-term groundwater sustainability goals established in the GSPs' Sustainable Management Criteria (SMCs).
5. Ensure fiscal responsibility and accountability through objective criteria and processes, requiring competitive bids and appropriate documentation, etc.
6. Be data-driven and adaptive by using nearby monitoring wells, improve monitoring where needed, and adjust as conditions change.

C. Program Services

Key services that the Program will provide include:

- **Educational information** to well owners before applying and paying an application fee.
- **Initial assessment** and **eligibility determination**
- Coordination support for **temporary drinking water**
- **Monetary-capped reimbursement** to the owner for required well abandonment/sealing and construction of a replacement well (including equipment)

II. Program Eligibility and Application

A. Who Can Apply

- Applications can only be submitted by Property Owners; lessees may be considered on a case-by-case basis (consult legal counsel).
- No income threshold to be eligible for the Program.
- Applicants must be in good standing with District and Environmental Health Department at the time of application.
- Limited to one reimbursement per parcel. The designated monetary value shall be used once per specified parcel and will be recorded with title.

B. Well Documentation and Requirements

- Applicants must submit documentations pertaining to the well, such as initial installation or maintenance paperwork.
- Applicant will not be eligible if well permit application recommendations were not followed for wells installed on or after October 2021 (e.g., screens or seal depths).

C. Age of Well Pro-ration

- Eligibility will not be limited by age but there will be a pro-rated rate by age of well. The District will apply a 40-year framework with a pro-rated reimbursement value of 2.5% annually up to 40 years.
  Note: the 40-year cap aligns with CA Department of Water Resources (DWR) typical well/equipment lifespan standard.

- If age-of-well records are missing, the District may consider proxy evidence (e.g., home age for domestic wells) or initial assessment documentation. This would likely be handled in an administrative appeal.

III. Mitigation Measures and Well Owner Obligations

A. Eligible Mitigation Measures

Mitigation measures that are eligible for reimbursement within a single-monetary cap include:

- Abandonment/sealing of the existing well to protect public health and groundwater quality.
- Temporary access to drinking water (if applicable). Well owners may be eligible for receiving drinking water through other programs such as the North Valley Community Foundation (NVCF) DWR-funded emergency water delivery program.
- Construction of replacement well, including necessary equipment.

B. Temporary Drinking Water Support

- The District will be taking actions to mitigate, prior to installation of new well by giving applicant access to drinking water (consult legal).
- The District will cover up to three (3) months with the potential for an extension (up to three additional months) per documentation rationalizing the delay.

C. Initial Assessment and Eligibility Determination

Eligibility determination for mitigation will be based on evaluations of impact being induced by groundwater overdraft conditions such as chronic lowering of groundwater levels.

The appropriate Program mitigation measures for each mitigated well will be informed by and determined following a structured, programmatic initial well evaluation process involving (but not limited to):

- District response and scheduling the in-field initial assessment within ten (10) business days of submitted application. (Note: the eligibility determination may take additional time)
- Inspection of the conditions of the well, including assessment of the current or anticipated operational issue(s) associated with the well and underlying causes of those impacts. Assessment will be conducted by the District or District Contractor.
- Determination that the well impacts are related to groundwater management during the GSP Implementation Period (e.g., not related to effects of normal wear and tear on drinking water wells).

- Determinations should be based on the nearest Representative Monitoring Sites (RMS) and the subbasin's SMCs.

D. Well Owner Obligations

After application is deemed eligible, the well owner will be required to do the following obligations:

1. Complete a course on well education if admitted to the program
2. Ensure the property owner (or the owner's assigned representative at the time of application) is on site at the scheduled appointment for the in-field initial assessment and provide site access.
3. Obtain and provide the District with documentation of at least three (3) competitive bids from contractors to confirm reasonable cost.
4. Seal and abandon the old well once the replacement becomes operational.
5. Post-mitigation responsibilities (ex. operations, maintenance and repair of well)

IV. Funding and Financing

- **No Income Threshold.** As previously mentioned, there will be no income threshold to be eligible for the Program.
- **Application Fee.** There will be a non-refundable application fee. The application fee will include an initial assessment of the well, which will offset the cost if approved for the mitigation program.
    - Note: To date, the exact monetary value for the application fee has not been determined. Cost considerations include offsetting the initial assessment costs, deterring frivolous applications, while still remaining affordable.
- **$40,000 Reimbursement Cap**. Total monetary value will be capped at **$40,000**. The amount is subject to change (e.g., available funds for the Program). A single monetary cap across all well types supports fair treatment across different well uses.
- Note: To date, the exact reimbursement method and process has not yet been determined. Process considerations include timeliness and efficiency (e.g., possible contingency options if reimbursement takes long than 30 days).

V. Program Implementation

- **January 1, 2026:** Program adopted upon adoption the District Board of supervisors will, within 180 days, approve the ordinances necessary to implement the program
  Note: Additional time will likely be needed after January 1, 2026 before the District is able to complete its first application.
- The GSA will continue to improve the monitoring network. New RMS wells in data-sparse areas will help ensure better accuracy informing eligibility determinations.

- District staff will keep the Groundwater Commission and the Board of Directors apprised of Program activities (e.g., number of applications, approved eligible candidates, well installations, etc.).

Tehama County

Dry Well Mitigation Ad Hoc and Working Group Overview

Prepared for the 11.12.2025 Groundwater Commission Meeting

Who's Involved

Working Group & Ad Hoc Members

- Martin Spannaus (Tehama County Farm Bureau)
- Tia Branton (Tehama County Environmental Health)
- Commission Ad Hoc Members
  - Martha Slack (Rio Alto WD)
  - Seth Lawrence (District 3)
  - Todd Hamer (Los Molinos CSD)

Staff and Support

- Justin Jenson and Adriana Langarica (District)
- Stephanie Horii, Facilitator for Working Group (CBI)

Well Mitigation Program Development Process & Current Status

Purpose

- DWR approved revised GSPs, included commitments to management actions (2025)
  - Board Resolution No. 3-2024 to develop Well Mitigation Program
- Address water well impacts from declining groundwater levels from GSA management activities during GSP implementation

Progress and Status:

- The initial straw proposal developed by the Ad Hoc during the summer
- Working Group met Sept 23 and Oct 16 to review the straw proposal and address remaining issues
  - *(Note: WG meeting information, including slides and audio recordings, are on website)*
- Staff conducting outreach and potential coordination with related programs and potential partners

Objectives and Discussion Topics/Issues

Objectives &

Guiding Principles

Fair and simple program

Focus help where it's needed

Fiscal responsibility

Timely, realistic service

Data-driven & Adaptive

Key Issues Discussed Included:

- Eligibility criteria and causation determination
- Application process and fee
- Age-of-well pro-rated
- Single reimbursement cap
- Reimbursement process
- Abandoning/sealing old well
- Well owner education
- Funding and financing
- Monitoring and adaptive management

Major tradeoff Considerations

Objective decision-making vs. case-by-case evaluation

- data-driven aligned with the GSP
- Use representative monitoring sites (RMS) wells and the GSPs' Sustainable Management Criteria

Fairness across well ages vs. unrelated wear & tear

- 40-yr framework same as DWR estimates; 2.5%/yr pro-rated;
- potential for proxy evidence

Single program/cap vs. Separate customized

- Single program and cap across well types
- Fair, clear steps, doesn't "reward" major overpumping

Affordability vs. cost recovery; deter misuse

- Application fee should be high enough to cover initial assessment costs and deter frivolous claims yet stay affordable

(not a comprehensive list of topics discussed)

Major tradeoff Considerations (Continued)

Immediate water needs vs. Program costs

- District covering drinking water costs up 3-6 months
- Leverage NVCF drinking water program

Other cost-saving and fiscal responsibility strategies:

- Objective criteria to streamline determinations
- Aim to leverage internal resources and District staff as much as possible
- Leverage partnerships and existing programs like NVCF for emergency drinking water
- Require competitive contractor bids

(not a comprehensive list of topics discussed)

Next Steps and Topics Still to be Addressed

Next Steps

- No additional Working Group meetings planned at this time
- Legal review
- Board review and potential approval in December
- Program effective January 1, 2026
  (may be a few months before District is ready to process first application)

Ongoing Issues for Program Development and Implementation

- Costs validation and long-term budgeting
- Legal considerations
- Implementation timing and staff/resource capacities
- Improving monitoring network in key data-sparse areas
- Well owner education and outreach

Tehama County

Agenda Request Form

File #: 25-2109 **Agenda Date:** 12/10/2025 **Agenda #:** 2.

Demand Management Program

Requested Action(s)
Recommendations on final Demand Management Program for the Board of Directors.

Financial Impact:
Unknown, however program costs are intended to be covered by groundwater user fees.

Background Information:
As part of our DWR approved groundwater sustainability plans the district has agreed to create a demand management program prior to January 1, 2026. The attached is he outcome from the Demand Management Working Group discussions. Also attached is legal review, technical information and input from Tehama County Farm Bureau.

Definitions

Calculated Sustainable Yield: The average Safe Yield of the Polygons in a Combined Safe Yield Area (calculated as acre-feet (af)) divided by the total irrigated acres within a Combined Safe Yield Area (af/acre). This represents, over the long term, the average quantity of water that can be withdrawn annually without causing undesirable results under the Sustainable Groundwater Management Act (SGMA). For the purpose of groundwater Demand Management, Calculated Sustainable Yield will be updated at least every 5 years.

Combined Safe Yield Area: The grouping of polygons in relation to their estimated quantity of Safe Yield that can be extracted. In each managed subbasin, polygons within the same range (af) of Safe Yield will be grouped together for the purpose of Demand Management. The ranges are: -5000 af or less, -5,000 af to -1,000 af, -1,000 af to -500 af, -500 af to 500 af, 500 af to 1,000 af, 1,000 af to 5,000 af, 5,000 af to 50,000 af, 50,000 af to 100,000 af, 100,000 af to 500,000 af and greater than 500,000 af.

Demand Management: GSA actions, rules or programs that are intended to avoid Minimum Thresholds, prevent undesirable results under SGMA, and incentivize long-term sustainability by reducing the pumping of groundwater.

GSA: Groundwater Sustainability Agency. Tehama County Flood Control and Water Conservation District is the GSA for the subbasins in Tehama County.

GSP: Groundwater Sustainability Plan. Each managed subbasin in Tehama County has an associated GSP.

Management Action: A specific action taken by the GSA to reduce the use of groundwater.

Measurable Objective: (MO) As defined in each subbasin GSP in compliance with SGMA.

Minimum Threshold: (MT) As defined in each subbasin GSP in compliance with SGMA.

Polygon: Flat, two-dimensional shape bounded by straight lines. For the purpose of groundwater Demand Management, Polygons are the specific areas by which the resource is managed and which are created using the Thiessen method surrounding (a single point) RMP/RMS.

RMP/RMS: Used interchangeably within the various GSPs, Representative Monitoring Points or Representative Monitoring Sites are facilities the location of which are monitored for groundwater level at least twice per year (spring and fall). RMP/RMS are the single point used in the creation of Polygons utilizing the Thiessen method. Prior to December 30, 2030, and reviewed in five-year intervals thereafter, the Tehama County Flood Control and Water Conservation District Board of Directors, based on recommendations from the Groundwater Commission and District staff, will ratify by resolution a network of RMP/RMS, with appropriate MOs and MTs, for the purpose of groundwater Demand Management. An RMS/RMP should contain 10 years of somewhat consistent monitoring.

Safe Yield: The estimated quantity of groundwater (in af) that can be extracted in a polygon without causing an unreasonable lowering of groundwater levels or other undesirable results under SGMA. Safe Yield is calculated as average pumping +/- average change in storage. For the purpose of groundwater Demand Management, averages are calculated on a 10-year rolling basis, ending with the previous water year data.

Target Assumed Maximum Pump Rate: Each groundwater use type (e.g. agricultural based on crop variety, commercial, residential, etc.) will be assigned, as part of the GSA fee structure and prior to December 30, 2030, an assumed pump rate (af/acre). The use type assigned with the highest assumed

pump rate will be the Target Assumed Maximum Pump Rate. Any assumed pump rate can be replaced with actual reported volume via meter.

Trigger: A set point for each Sustainability Indicator, as that term is defined in the SGMA regulations (23 CCR § 351 (ah)), at which a Management Action is initiated.

Fees and Actions Associated With Trigger-Based Demand Management

In the interest of achieving sustainable groundwater extraction within all Subbasins partially or entirely within Tehama County, the Flood Control and Water Conservation District (District), acting as the GSA, is proposing a secondary level of Demand Management consisting of two Management Actions. The District will adopt these Management Actions immediately but intends to delay implementation until January 1, 2031 unless conditions change such that earlier implementation in a Subbasin must be considered. This delayed implementation will allow the primary method of Demand Management, incentive-based demand reduction, to be initiated and tested for effectiveness.

Management Action Number 1 is intended to reasonably and equitably distribute the costs of more intensive administrative actions by the District associated with persistent groundwater overdraft in defined areas within any of the Subbasins pursuant to Propositions 26 and 218. Examples of these costs are: automated monitoring systems for RMP/RMS sites; increased efficiency and voluntary reduction measures; study, design and implementation of other project and Management Actions and public education on next steps. It is assumed that an increase in the cost to manage groundwater along with additional actions by the District will result in less total extraction.

Management Action Number 2 is adoption of an ordinance restricting groundwater extraction that exceeds the Calculated Sustainable Yield. By recalculating the sustainable yield on a five-year basis it creates flexibility and allows for the application of new data as it is collected.

The ordinances for both Management Actions will include an administrative appeals process.

This program does not address water trading, except as between contiguous parcels as would be allowed in current Tehama County water use ordinances. A separate water trading ordinance will be adopted by the District Board of Directors prior to December 30, 2030.

Management Action Number 1: Reduce Use of Groundwater When Groundwater Levels Decline Below Measurable Objectives. The following Management Action will reduce the likelihood of undesirable results related to the chronic lowering of groundwater levels, reduction in groundwater storage, and land subsidence through increased administrative action by the GSA. This Management Action will take place in a series of steps according to how far groundwater levels deviate from the Measurable Objective.

Step 1: If greater than 20% of the annual range (which is calculated as the difference between the spring maximum measurement and the fall minimum measurement) of groundwater elevation declines below the Measurable Objective levels established at 50% or more of the RMPs for two consecutive years in a Combined Safe Yield Area, then the Target Assumed Maximum Pump Rate (acre-fee per acre) will be reduced by ten percent (10%). All measured or assumed pumping greater than the target assumed maximum yield will incur an increased groundwater extraction fee as detailed in the Tehama County Flood Control and Water Conservation District groundwater management fee structure.

Step 2: If greater than 40% of the annual range (spring maximum measurement to fall minimum measurement) of groundwater elevation declines below the Measurable Objective levels established at 50% or more of the RMPs for two consecutive years in a Combined Safe Yield Area, then the Target Assumed Maximum Pump Rate (acre-feet per acre) will be reduced by 20 percent (20%). All measured or

assumed pumping greater than the target assumed maximum yield will incur an increased groundwater extraction fee as detailed in the Tehama County Flood Control and Water Conservation District groundwater management fee structure.

Step 3: If greater than 80% of the annual range (spring maximum measurement to fall minimum measurement) of groundwater elevation declines below the Measurable Objective levels established at 50% or more of the RMPs for two consecutive years in a Combined Safe Yield Area, then the Target Assumed Maximum Pump Rate (acre-feet per acre) will be reduced by forty percent (40%). All measured or assumed pumping greater than the target assumed maximum yield will incur an increased groundwater extraction fee as detailed in the Tehama County Flood Control and Water Conservation District groundwater management fee structure.

Step 4: If greater than 100% of the annual range (spring maximum measurement to fall minimum measurement) of groundwater elevation declines below the Measurable Objective levels established at 50% or more of the RMPs for two consecutive years in a Combined Safe Yield Area, then the Target Assumed Maximum Pump Rate (acre-feet per acre) will be reduced by eighty percent (80%). All measured or assumed pumping greater than the target assumed maximum yield will incur an increased groundwater extraction fee as detailed in the Tehama County Flood Control and Water Conservation District groundwater management fee structure.

Mitigating activity under this Management Action is expected to decrease as groundwater levels increase. If groundwater levels recover to a higher step for two consecutive years, then the Target Assumed Maximum Pump Rate will be adjusted to that step. If groundwater levels rise above the Measurable Objective for two consecutive years, then the Target Assumed Maximum Pump rate will be removed entirely.

After adoption of this Demand Management Plan, the District's Board of Directors will, within 180 calendar days, adopt an implementing ordinance creating the steps outlined above and initiating the process to place fees required due to falling groundwater levels with a start date of January 1, 2031.

Management Action Number 2: Sustainable Yield Pumping. This action will occur in conjunction with Management Action Number 1 and is intended to prevent groundwater extraction above Calculated Sustainable Yield from causing undesirable results (as defined in the GSP) including sustained water levels below the Measurable Threshold.

If, over any two-year period, the groundwater at any RMP falls below the Measurable Threshold of that RMP; the entire Combined Safe Yield Area containing that RMP will be restricted to the average Safe Yield of all Polygons within the Combined Safe Yield Area. Independently of this Measurable Threshold Trigger , if undesirable results occur at any time within any Combined Safe Yield aArea, the entire Combined Safe Yield Area will be restricted to the average Safe Yield of all Polygons within the Combined Safe Yield Area.

The average Safe Yield of the Combined Safe Yield Area will be the Calculated Sustainable Yield for the entire Combined Safe Yield Area and will be calculated as follows:

1. Each Thiessen Polygon within a Combined Safe Yield Area will be assigned a Calculated Total Safe Yield (acre-feet).

2. The Calculated Total Safe Yield will be divided by the total irrigated acres within the Polygon.

3. The resulting acre-feet per acre will be the Safe Yield for that Polygon.

4. The Safe Yield for each Polygon within a Combined Safe Yield Area will be added together and divided by the total number of Polygons within the Combined Safe Yield Area.

5. The resulting number (acre-feet per acre) will be the Calculated Sustainable Yield for the entire Combined Safe Yield Area.

6. The sustainable yield will be recalculated every five years starting January 1, 2031 to account for changes in land use and projects within the Combined Safe Yield Area.

Under Sustainable yield pumping, all groundwater extractors will be limited to the Calculated Sustainable Yield, total acre-feet peracre for all acreage within contiguous Assessor Parcel Numbers, under one ownership, and serviced by one or more extraction facilities. Total extraction may be either reported or assumed. Contiguous Assessor Parcel Numbers, under one ownership, that fall within multiple Combined Safe Yield areas will fall under the most restrictive Combined Safe Yield aArea.

If Sustainable Yield Pumping is triggered, it will remain in effect until the following three conditions are met:

> Condition 1, no existing undesirable results (as defined in the GSP) within the Combined Safe Yield Area.
>
> Condition 2, a minimum of two years with groundwater levels in all RMPs within the Combined Safe Yield Area remaining above the Measurable Threshold.
>
> Condition 3, conditions for Step 1 of Management Action Number one are **not** met.

Upon adoption of this Demand Management Plan, the District Board of Directors will, within 180 calendar days, adopt an ordinance creating a fine of up to$500 per acre for all groundwater (either assumed or measured) that is extracted beyond the sustainable yield for all extractors within any Combined Safe Yield Area under sustainable yield pumping restriction.

If 20% of the annual range of groundwater elevation (GWE) declines below the measurable objective (MO) at 50% or more of the RMPs for two consecutive years

(in other words, if the groundwater elevation *declines*
to or below 9.2 feet in 2023
to or below 8.2 feet in 2024
to or below 9 feet in 2025)

Then the target assumed max pump rate will be reduced by 10%.

In this scenario, the target assumed max pump rate would have to be reduced by 10%, as greater than 20% of the annual range of GWE has declined below the measurable objective for the years 2023 and 2024.

Time	GW Elevation (ft)
4/1/2023	12
10/1/2023	8
4/1/2024	15
10/1/2024	6
4/1/2025	15
10/1/2025	10

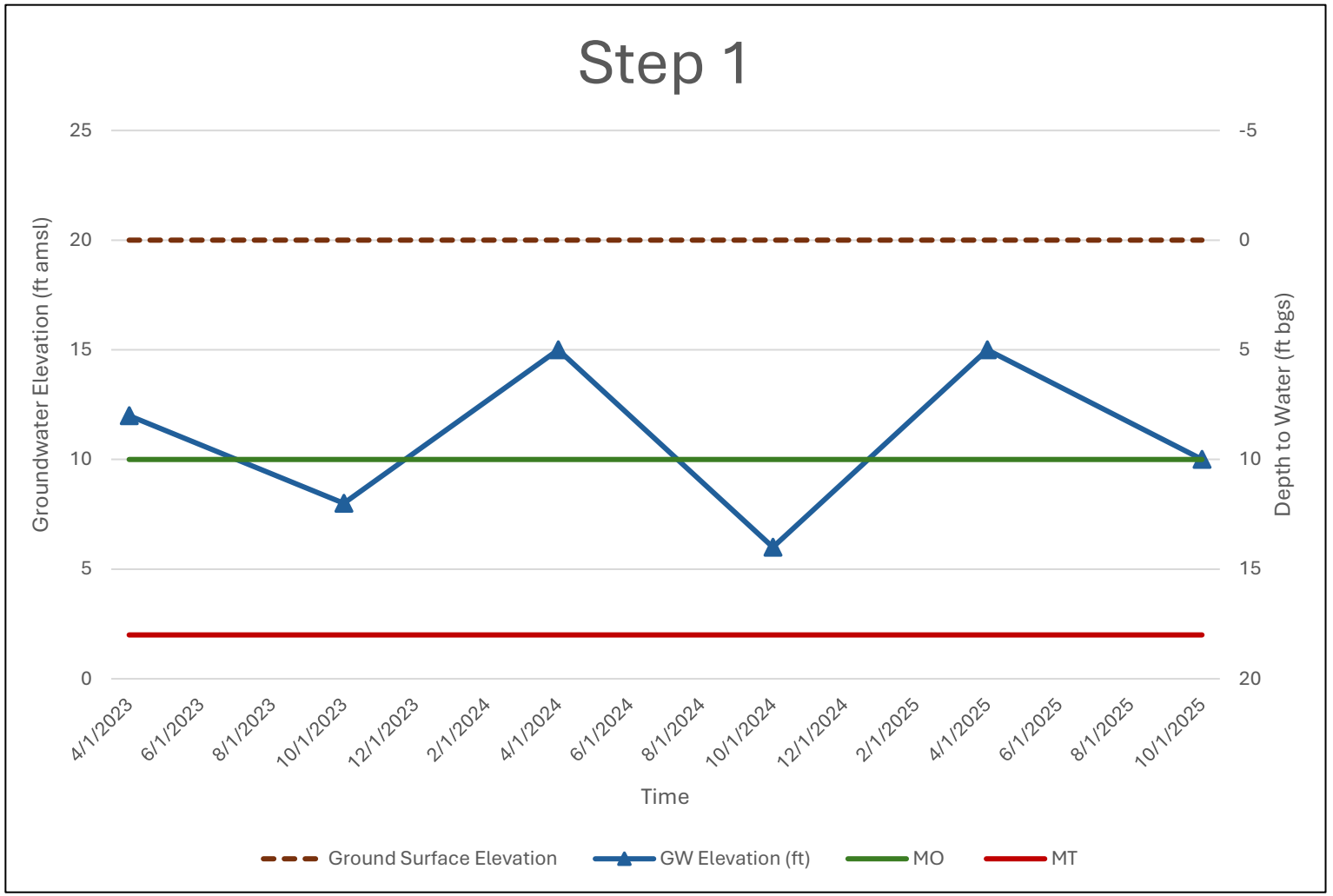
Annual Range = Spring - Fall

Year	20% of annual range (ft amsl)		
2023	0.8	MO - 0.8ft = 9.2ft	MO = 10
2024	1.8	MO - 1.8ft = 8.2ft	
2025	1	MO - 1ft = 9ft	

2023: the groundwater elevation shows a decline of 2 feet below the measurable objective to 8 feet (20% below the MO would be a 0.8 feet decline to 9.2 feet)

2024: the groundwater elevation shows a decline of 4 feet below the measurable objective to 6 feet (20% below the MO would be 1.8 feet)

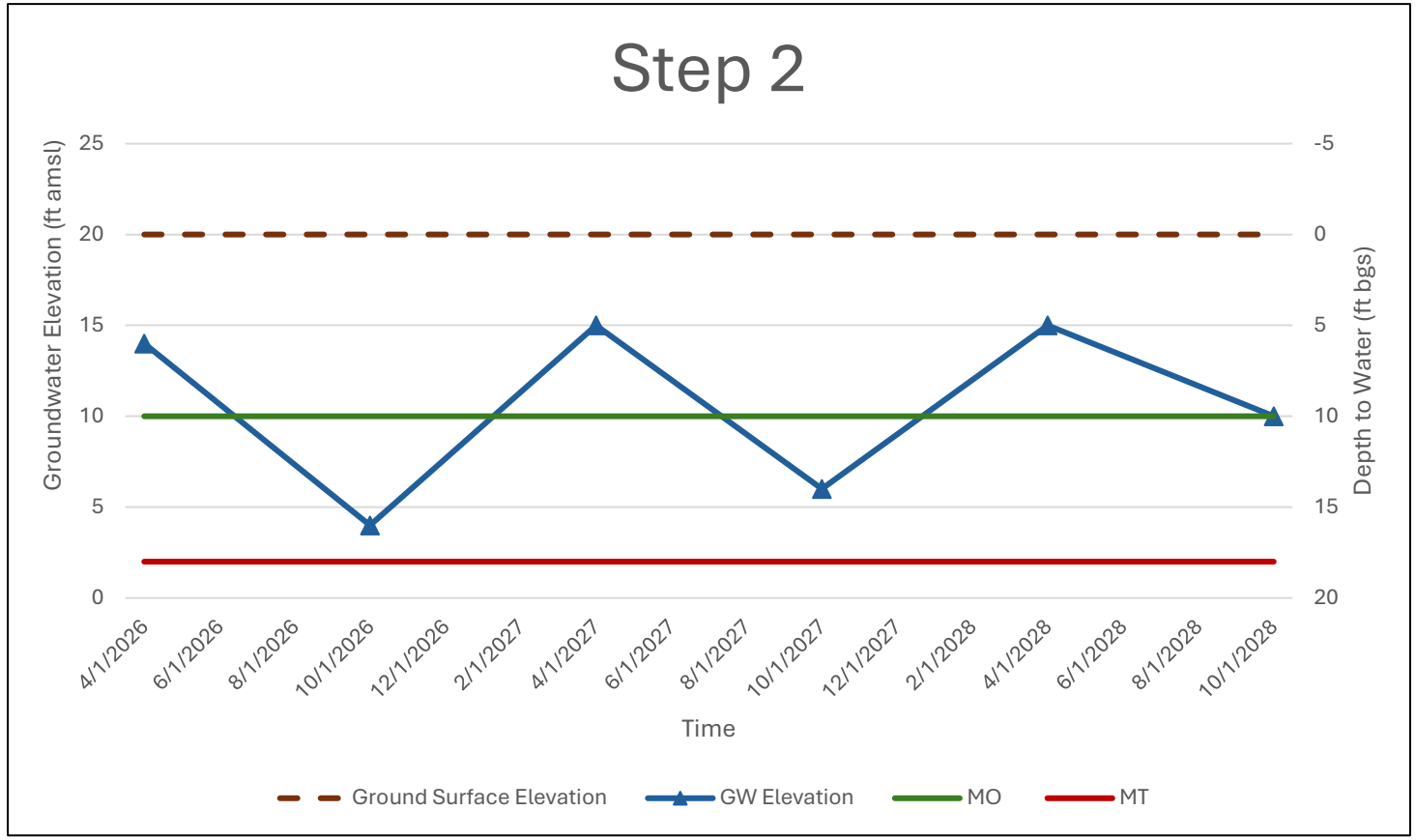
The assumed maximum pump rate would be reduced if this were part of a larger issue affecting more than 50% of the RMP network, as this marks two consecutive years.



Time	GW Elevation (ft)
4/1/2023	12
10/1/2023	8
4/1/2024	15
10/1/2024	6
4/1/2025	15
10/1/2025	10

Annual Range = Spring - Fall

Year	20% of annual range (ft amsl)		
2023	0.8	MO - 0.8ft = 9.2ft	MO = 10
2024	1.8	MO - 1.8ft = 8.2ft	
2025	1	MO - 1ft = 9ft	



Time	GW Elevation (ft)
4/1/2026	14
10/1/2026	4
4/1/2027	15
10/1/2027	6
4/1/2028	15
10/1/2028	10

Annual Range = Spring - Fall

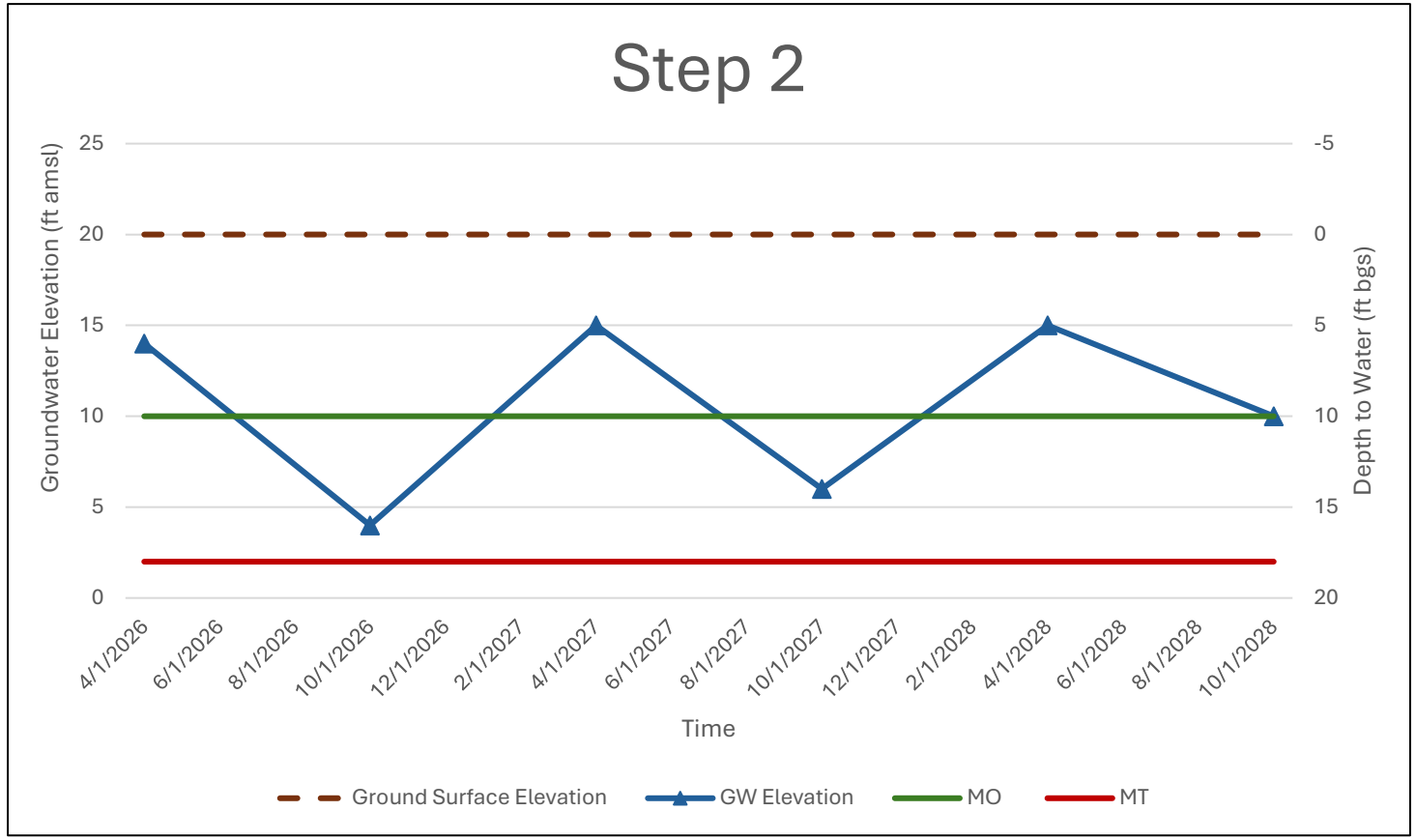
Year	40% of annual range (ft amsl)		
2026	4	MO - 4ft = 6ft	MO = 10
2027	3.6	MO - 3.6ft = 6.4ft	
2028	2	MO - 2ft = 8ft	

If 40% of the annual range of groundwater elevation declines below the measurable objective at 50% or more of the RMPs for two consecutive years

(in other words, if the GWE declines to/below 6 feet in 2026 to/below 6.4 feet in 2027 or to/below 8 feet in 2028)

Then the target assumed max pump rate will be reduced by 20%.

In this scenario, the target assumed max pump rate would have to be reduced by 20%, as greater than 40% of the annual range of groundwater elevation has declined below the measurable objective for years 2026 and 2027 after Step 1 was already implemented in previous years.



Time	GW Elevation (ft)
4/1/2026	14
10/1/2026	4
4/1/2027	15
10/1/2027	6
4/1/2028	15
10/1/2028	10

Annual Range = Spring - Fall

Year	40% of annual range (ft amsl)		
2026	4	MO - 4ft = 6ft	MO = 10
2027	3.6	MO - 3.6ft = 6.4ft	
2028	2	MO - 2ft = 8ft	

2026: the groundwater elevation shows a decline of 6 feet below the measurable objective to 4 feet (40% below the MO would be a 4 feet decline to 6 feet)

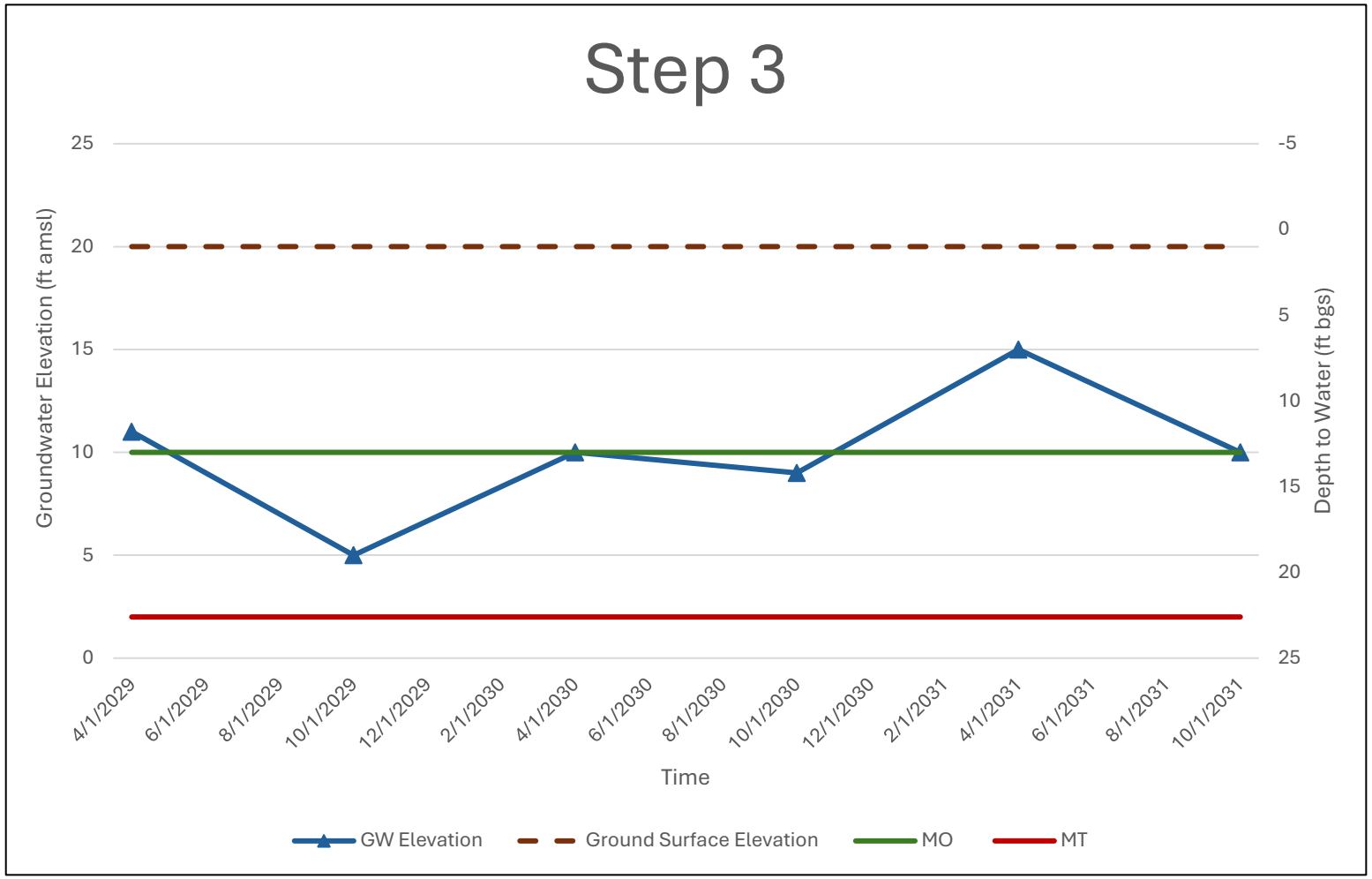
2027: the groundwater elevation shows a decline of 4 feet below the measurable objective to 6 feet (40% below the MO would be a 3.6 feet decline to 6.4 feet); therefore, *the assumed max pump rate must be reduced.*

If 80% of the annual range of groundwater elevation declines below the measurable objective at 50% or more of the RMPs for two consecutive years,

(in other words, if the groundwater elevation declines
to/below 5.2 feet in 2029
to/below 9.2 feet in 2030
to/below 6 feet in 2031)

Then the target assumed max pump rate will be reduced by 40%.

In this scenario, the target assumed maximum pump rate would have to be reduced by 40%, as more than 80% of the annual range of groundwater elevation has declined below the measurable objective for years 2029 and 2030, following the implementation of Step 2 in previous years.



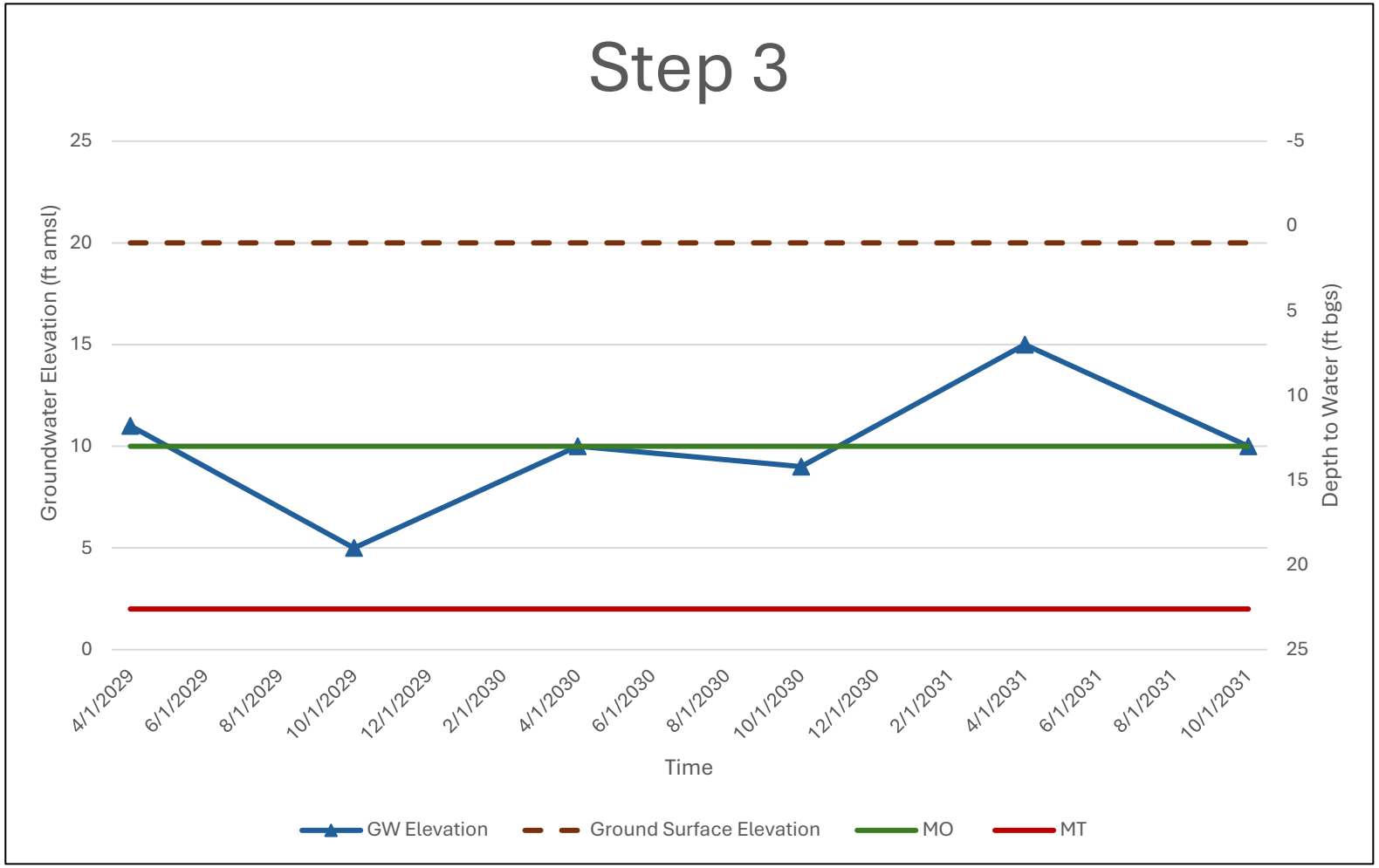
Time	GW Elevation (ft)
4/1/2029	11
10/1/2029	5
4/1/2030	10
10/1/2030	9
4/1/2031	15
10/1/2031	10

Annual Range = Spring - Fall

Year	80% of annual range (ft amsl)		
2029	4.8	MO - 4.8ft = 5.2ft	MO = 10ft
2030	0.8	MO - 0.8ft = 9.2ft	
2031	4	MO - 4ft = 6ft	

2029: the groundwater elevation shows a decline of 5 feet below the measurable objective to 5 feet (80% below the MO would be a 4.8 feet decline to 5.2 feet)

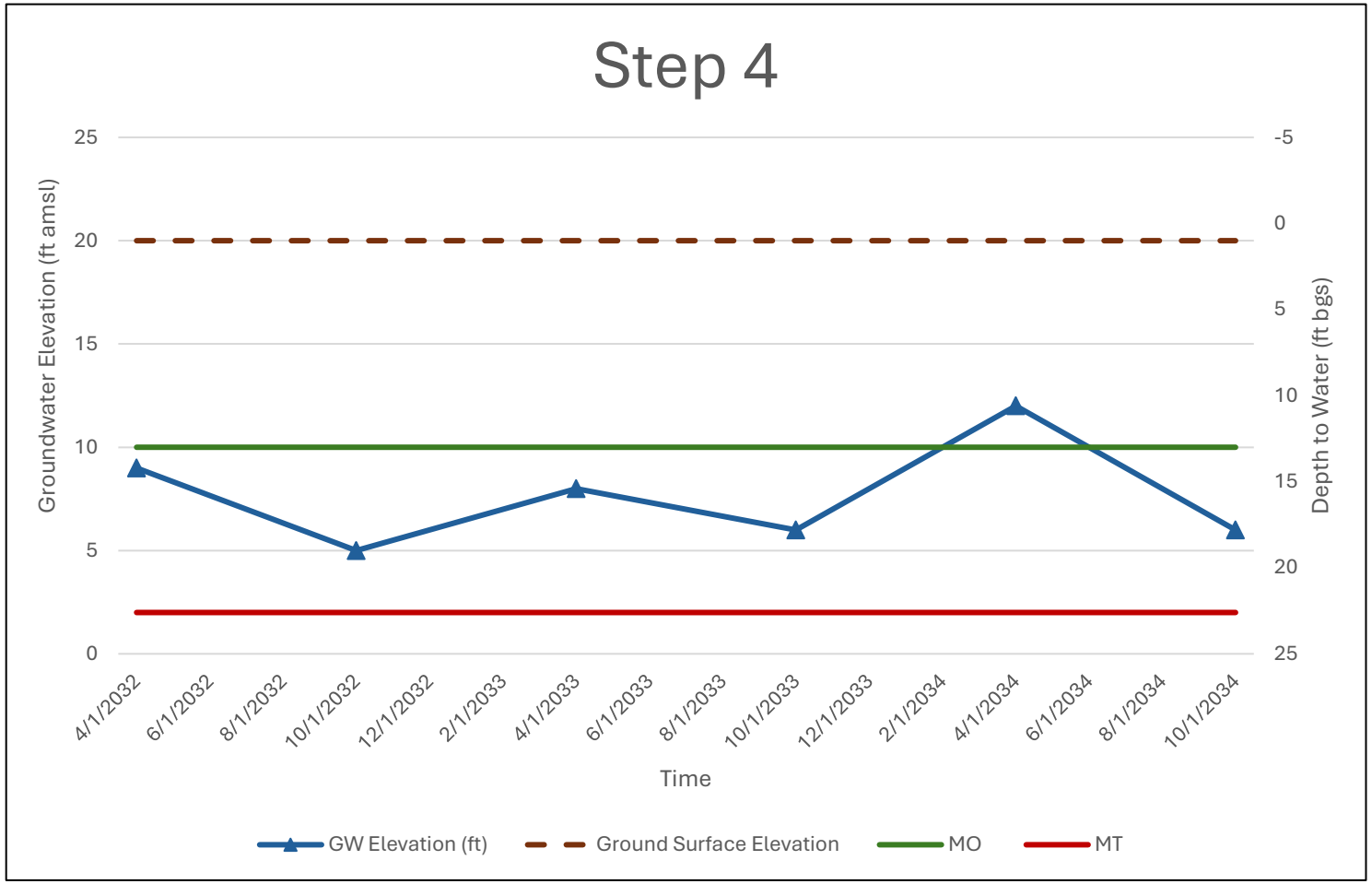
2030: the groundwater elevation shows a decline of 1 foot below the measurable objective to 9 feet (80% below the MO would be 0.8 feet decline to 9.2 feet); therefore, *the assumed max pump rate must be reduced*.



Time	GW Elevation (ft)
4/1/2029	11
10/1/2029	5
4/1/2030	10
10/1/2030	9
4/1/2031	15
10/1/2031	10

Annual Range = Spring - Fall

Year	80% of annual range (ft amsl)			
2029	4.8	MO - 4.8ft = 5.2ft		MO = 10ft
2030	0.8	MO - 0.8ft = 9.2ft		
2031	4	MO - 4ft = 6ft		



Time	GW Elevation (ft)
4/1/2032	9
10/1/2032	5
4/1/2033	8
10/1/2033	6
4/1/2034	12
10/1/2034	6

Annual Range = Spring - Fall

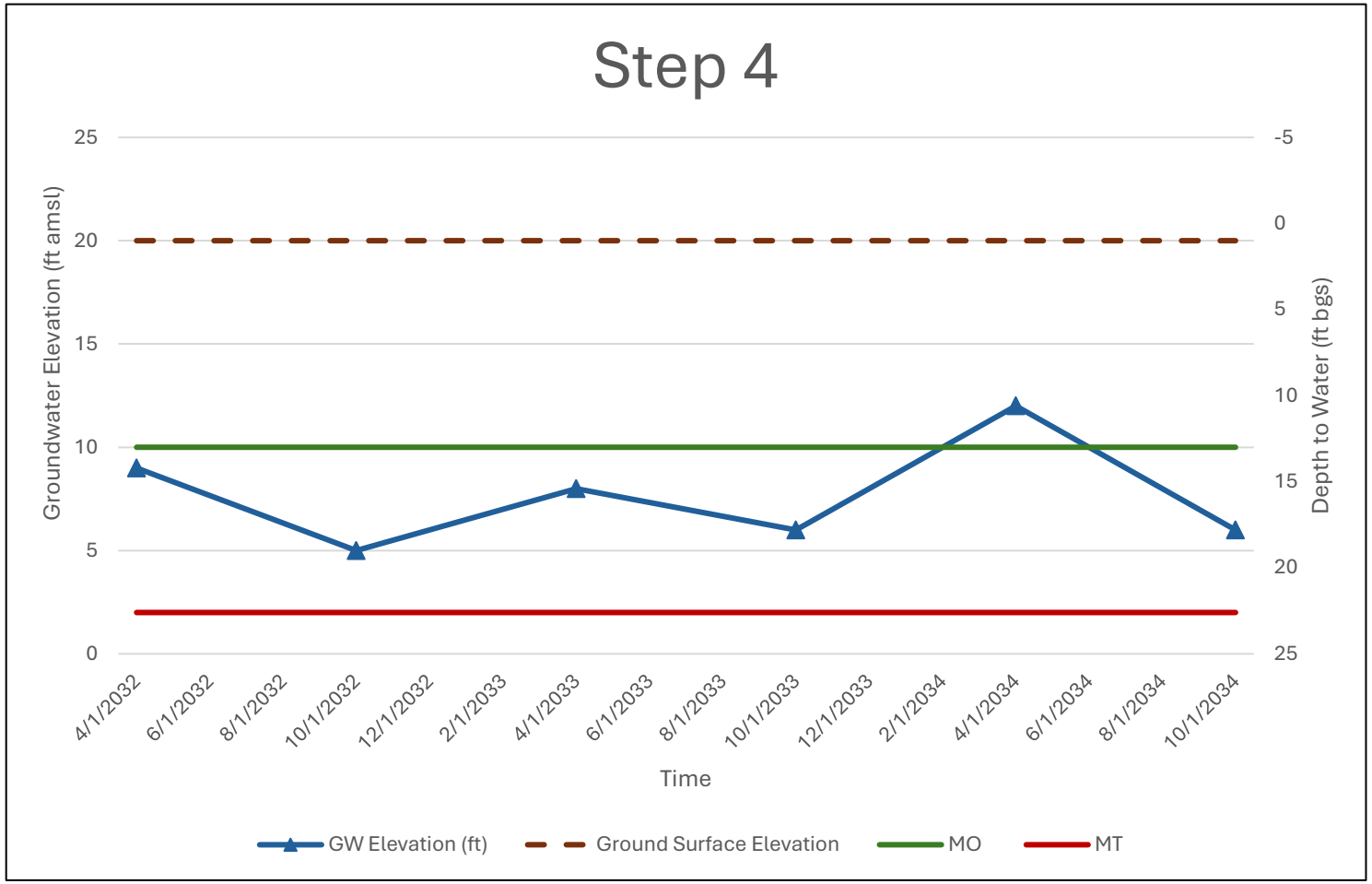
Year	100% of annual range (ft amsl)		
2032	4	MO - 4ft = 6ft	MO = 10ft
2033	2	MO - 2ft = 8ft	
2034	6	MO - 6ft = 4ft	

If 100% of the annual range of groundwater elevation declines below the measurable objective at 50% or more of the RMPs for two consecutive years

(in other words, if the both Spring and Fall measurements decline below the measurable objective)

Then the target assumed max pump rate will be reduced by 80%.

In this scenario, the target assumed max pump rate would have to be reduced by 80%, as 100% of the annual range of groundwater elevation has declined below the measurable objective for years 2032 and 2033 after Step 3 was already implemented in previous years.



Time	GW Elevation (ft)
4/1/2032	9
10/1/2032	5
4/1/2033	8
10/1/2033	6
4/1/2034	12
10/1/2034	6

Annual Range = Spring - Fall

Year	100% of annual range (ft amsl)		
2032	4	MO - 4ft = 6ft	MO = 10ft
2033	2	MO - 2ft = 8ft	
2034	6	MO - 6ft = 4ft	

2032: the groundwater elevation shows a decline of 1 feet below the measurable objective to 9 feet in the Spring and 5 feet below the MO to 5 feet in the Fall.

2033: The groundwater elevation shows a decline of 2ft below the measurable objective to 8ft in the Spring and a decline of 4ft below the measurable objective to 6ft – both annual ranges are 100% below the measurable objective ; therefore, *the assumed max pump rate must be reduced*.

Tehama County Groundwater Demand Management Working Group

Overview Report Executive Summary & Timeline
August 2024 - November 2025

Report created by the Consensus Building Institute. Updated December 2025

Introduction

The Groundwater Commission established a stakeholder advisory group, the Demand Management Working Group, pursuant to Board Resolutions 4-2024 and 2-2024, to help develop groundwater demand management programs. These programs are required as part of implementing the subbasins' Groundwater Sustainability Plans (GSPs) under the CA Sustainable Groundwater Management Act (SGMA). The Board Resolutions stated the demand management programs were to be established by January 1, 2026 (Red Bluff, Antelope, Los Molinos Subbasins) and January 1, 2027 (Corning Subbasin).

Key Outcomes

The Working Group has held 14 meetings between August 2024 and November 2025. The Working Group helped develop key elements of the demand management program, while also surfacing important areas for ongoing discussion.

Some of the key accomplishments by the Working Group included:

- Agreement that the program **starts with a polygon-based approach (Thiessen methodology)** for spatial management that would be updated as new information becomes available
- Support for a **hybrid approach** that prioritized **incentivized voluntary demand management** before triggering required groundwater **usage restrictions**.
- Feedback on drafting the Demand Management **Program Development Framework** report
- Review and input on the demand management actions **straw proposal**.
- Call for near-term **re-evaluation of Measurable Objectives (MOs)** for existing representative monitoring site (RMS) wells and establishing **MOs and Minimum Thresholds (MTs) for new RMS wells**
- Creating **placeholders for water trading program** details to be developed post January 2026 and identifying **other topics for future discussion** (see next section).

Meeting Materials are available online

Areas Requiring Further Discussion

The following are topics the Working Group identified as warranting further discussion (by the working group or other entities as appropriate):

- Reviewing the monitoring wells for demand management and confirming if demand management-specific MOs and MTs are warranted
- Addressing key data gaps and information needs (e.g., improved monitoring network, updated integrated hydrogeologic model, hydrogeologic connection to polygon boundaries)
- Trigger mechanisms: Rationale for activation thresholds
- Economic impact analysis and funding mechanisms
- Timeline concerns: constricted deliberations with 2026 deadline, when DM restrictions take effect (2031), ability of recharge projects to show results

- Flexibility mechanisms: appeals process, allocation trading, lease provisions, non-contiguous parcel management

Governance Structure and Roles

- District Board of Directors: Final decision-making authority
- Groundwater Commission: Advisory to District Board
    - Ad Hoc Committee (Crain, Ward, Hamer): Report and advisory to Commission; met occasionally to help distill information and frame presentations/discussions as needed
    - Working Group (Ad Hoc members plus Borror, Flynn, Myhre, Gruenwald, Turnbull): Advisory to Ad Hoc/Commission; consensus-seeking advisory body
        - Gruenwald and Turnbull also members of the Corning Subbasin Advisory Board (CSAB)
- District Staff: Administrative support, options analysis, possible recommendations
- Consultants (analyses/information-gathering, not policy recommendations)
    - Technical Consultants (LSCE, Davids, ERA): Technical information only
    - Facilitation Consultant (CBI): Meeting facilitation, materials development support
    - Legal Consultant (BKS): Legal defensibility opinions

Key Milestones Timeline

Phase 1: Formation & Information Gathering (Aug-Dec 2024)

Meeting 1 (Aug 26): Kickoff

- Background, problem definition, success criteria. Information requests identified.

Meeting 2 (Sep 25): Sustainable Yield Focus

- Draft program outline presented. Data/information needs identified (e.g., evapotranspiration [ET], irrigation methods, 10-year monitoring well data, etc.).

Meeting 3 (Oct 23): Polygon Approach Concept Adopted

- DECISIONS: WG recommended Thiessen polygon approach with RMS wells + wells with sufficient data as 'good enough starting point.' Agreement established with understanding of 5-year review cycles.

Meetings 4-5 (Dec 2, Dec 18): Polygon Refinement

- Continued polygon revision. Safe yield calculations per polygon. Data validation needs identified.

Phase 2: Program Development (Jan-Jun 2025)

Meetings 6-7 (Jan 22, Feb 18): Program Framework Development

- Technical consultants (LSCE, Davids Engineering, ERA Economics) engaged to develop framework outline for developing a demand management program. Economic analysis needs considerations began.

Meeting 8 (Apr 2): Dual Track Approach

- DECISIONS: Proceed on parallel tracks: 1) General technical framework document, and 2) Specific straw proposal. Guiding principles developed emphasizing incentives first, with recognition that allocations may be necessary.

Meetings 9-10 (Jun 4, Jun 25): Straw Proposal Elements

- Fee-based trigger mechanisms developed. Draft DM Program Development Framework Document previewed. Hydrograph data packages requested for specific polygon groupings.

Phase 3: Review, Refinement, Packaging, and Looking Forward (Jul-Nov 2025)

Meeting 11 (Jul 16): Deep Technical Discussion

- Further discussion on polygon boundaries and hydrogeologic reality. Detailed discussion of grouping approaches.

Meeting 12 (Aug 6): Refinement & Legal Review Initiated

- Final DM Program Development Framework document shared. Legal review (BKS) initiated. Multiple WG members submitted detailed written feedback raising concerns about timeline, polygon representativeness, and data needs.

Meeting 13 (Aug 27): Key Commitments

- DECISIONS: Confirmation to use polygon concept for management as starting point. Priority to develop MOs/MTs for new monitoring wells immediately (don't wait until 2031). Water trading program placeholder created. “Backstop” fee modified to have a maximum cap: up to $500 AFY
- Mid-process DM WG discussion issues summary document created

NOTE: Interim Activities (September-November)

- September: Straw Proposal presented to Groundwater Commission and Board of Directors; approved proposal for legal review
- October-November: consultant BKS legal review, LSCE technical memo

Meeting 14 (Nov 20): Legal Review & Technical Memo

- BKS legal review indicated no major legal concerns with the straw proposal. LSCE Technical Memo presented information related to the demand management program proposal development consolidated into a single document. Clarification that DM-specific MOs/MTs can differ from GSPs’ MOs/MTs. Next meeting: January 7-8, 2026.

Conclusion and Looking Forward

This process has demonstrated both the challenges and the value of stakeholder engagement in complex groundwater management. The Demand Management Working Group has provided essential perspectives that have shaped the program’s development, even where full consensus was not achieved.

The proposed Demand Management Program framework includes substantial flexibility and adaptive management provisions, acknowledging that perfect information is not available and that adjustments will be necessary over time.

Options For Incentivized Demand Management

- **Fallowing:** Reduction in total irrigated production acreage. Conversion to non-irrigated use such as grazing, dry crops, or recharge basin. Or land will simply be left undeveloped.
- **Crop Diversification:** Changing all or some irrigated land to crops that require less water. Almonds converted to olives may save 1 ac/ft per acre. Walnuts converted to olives may save .5 ac/ft per acre. Almonds converted to melons/squash may save 1.9 ac/ft per acre.
- **Replant Extension:** This is the temporary equivalent of fallowing. Extends the time between removal of old crop and planting of new, creating a period when irrigation is not required.
- **Irrigation Efficiency:** Reduces demand by decreasing the water required to produce a crop. Includes irrigation type, coverage patterns, soil moisture probes, scheduling, evapotranspiration (ET) monitoring and others.
- **Use of Surface Water VS Groundwater:** Promotes the use of all available surface supplies prior to the use of groundwater.
- **Soil Improvement:** Addition of various chemical, organic and inorganic soil amendments that reduce the amount of water required to produce a crop.

There are two ways to offer incentives for the above activities. The District could either charge a fee to all users (the fee would be compliant with Propositions 26 and 218 and implemented on a countywide, subbasin wide or areawide basis) and use the funds collected to offer programs and incentives encouraging the above activities, or the incentive to do these activities could be fee reduction or avoidance.

If the District charges a fee to implement the incentive programs and activities, that fee would be added to the base GSA fee in accordance with law. The Board of Directors would approve program budgets and set conditions for acceptance into the program. District Staff or contractors would oversee the outcomes in the field and the District would have parameters to measure reduction in use.

In the fee reduction or avoidance scenario, the user would pay less fees in exchange for doing one of the above activities. Certain programs would require less funding if there is less risk of overdraft and less revenue would be required for water-supply projects to offset overdraft. The fee reduction or avoidance scenario fits well with the goal of incentivized Demand Management because those who choose to do an activity that reduces their groundwater use would lower their per-acre-foot cost associated with SGMA compliance and benefit from lower programmatic fees while having the freedom to choose the activity that works best for them.

Because the District will likely be using assumptive use fees (metering would be optional, not required), things like Fallowing, Crop Diversification and Replant Extension would be straightforward to calculate the reduction in groundwater use. The other activities would require either a meter to

prove use below assumptive groundwater volume or metering of surface water in order to subtract from assumptive volume.

Tehama County
Groundwater Demand Management Survey 2025

Report developed by the Consensus Building Institute for GSA Staff | Updated 12.1.2025

Overview

Context and Purpose

To support the implementation of the Sustainable Groundwater Management Act (SGMA), the Tehama County Flood Control and Water Conservation District (District) – the Groundwater Sustainability Agency (GSA) for Tehama County – has been considering approaches that increase supplies, reduce demand, and mitigate dry wells.

Community input is critical to the success of any SGMA demand management program. In summer-fall 2025, the District solicited **community input on the development of a Groundwater Demand Management Program** through a survey and factsheet (Appendices A and B).

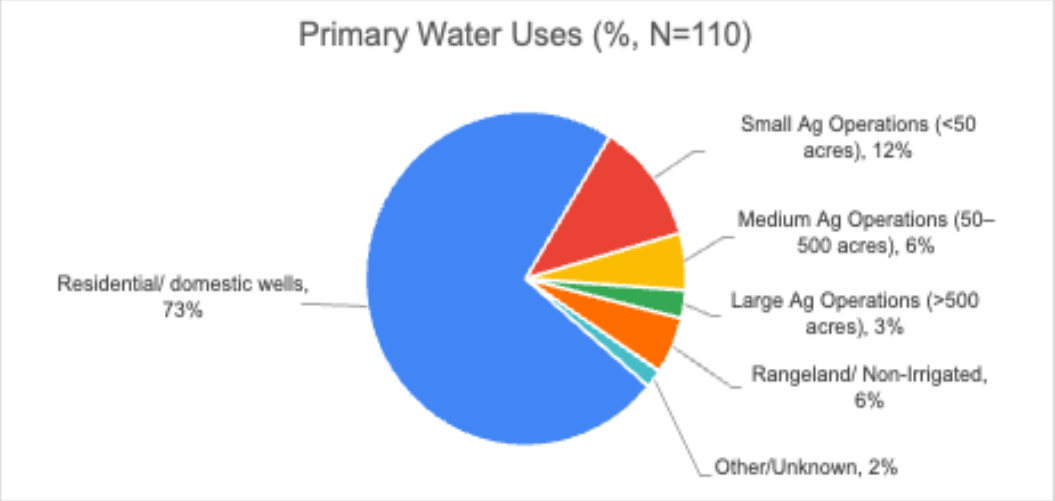
This report summarizes the feedback received from 110 respondents representing residential, agricultural, and commercial interests across the county.

Key Takeaways

- The survey respondents were predominantly **residential/domestic use well owners** (85-90%), and most respondents owned wells in **Red Bluff and Corning**.
- Respondents valued groundwater sustainability; however, their top priorities and concerns revolved around **costs and fairness**.
- They strongly preferred structures that would **recognize reduced or responsible use** (e.g., conservation or incentivized decreased pumping).
- There was a strong preference for a **"tailored" fee structure** over a flat fee, suggesting respondents wanted costs to be proportional to impact/usage.
- Responses indicated the community wants **more specifics** before they're ready to commit to supporting any specific approach.
- Regardless, respondents generally preferred **local management** over State Intervention, provided that the local program is **fair, protects low water users, and recognizes good stewardship.**
- The survey findings align with public comments received during Board of Directors and Groundwater Commission meetings, **confirming that fairness and affordability are top priorities** (validating the current criteria for narrowing down options).

Who Responded

110 valid responses were collected between August 8 and October 10, 2025 (3 responses were essentially blanks). Respondents were primarily residential well owners, with Red Bluff and Corning being the most represented subbasins. Agricultural operations ("Ops") participation was much smaller but still informative.



Based on 110 valid responses:

- Residential/domestic wells: ~80
- Small Ag Ops (<50 acres): ~13
- Medium Ag Ops (50–500 acres): ~6
- Large Ag Ops (>500 acres): ~3
- Rangeland/Non-Irrigated: ~6
- Other/Unknown: ~2

Well Locations

- Red Bluff: ~49
- Corning: ~22
- Bowman: 17
- Antelope: 11
- Los Molinos: ~11

Note: Numbers are approximate because three respondents owned wells in multiple subbasins, and many indicated they used groundwater for both residential/domestic uses and another category.

Big Picture Themes

Across responses, the following themes arose:

- **Fairness first** - preference for those who use the most water to pay their fair share, and those who conserve are rewarded
- **Financial stress** - households/small farms operating on tight budgets; keep costs as low as possible
- **Well Reliability -** protect those most vulnerable to declining groundwater impacts
- **Local control** - keep management in Tehama County, not the State
- **Trust & Transparency** - be clear about how decisions are made and present evidence that management actions and projects are data-driven and minimize unintended consequences

Specific Findings

Management Zones: Overall Support

There was more support than opposition for the concept of management zones (creating zones based on groundwater conditions with different fees/restrictions if triggered). However, a large middle group wanted more information. Perspectives varied across subbasins and within, indicating a need for tailored messaging and outreach for each subbasin.

Overall

- Strong support/Support if fair: 33%
- Neutral/Need more info: 26%
- Oppose: 18%
- Not answered: 24%

Subbasin

- Red Bluff: Most supportive (38% support; 23% opposed)
- Corning: More polarized (24% strongly support; 14% strongly oppose)
- Los Molinos: Most concerned (30% oppose)
- Antelope: Generally supportive (36%; 0% explicit opposition)
- Bowman: Nearly evenly split

Water Use Type

- Medium and large ag operations highly supported using management zones (67%)
- Some small ag operations supported management zones (23%), but most were neutral or uncertain
- Domestic users were more divided, with 23% supporting management zones and 21% opposing (48% were neutral or uncertain)

Fee Structure Preferences (Option A: Simple vs Option B: Tailored)

Overall, respondents tended to favor Option B (tailored fee structure), especially among domestic well owners. Domestic users preferred a more complex administrative system, as long as it guaranteed that costs would be strongly tied to usage/impact. Small ag operations appeared to worry that a "Simple/Flat" fee (Option A) would make them to pay a disproportionately high share of the costs relative to their actual impact. They wanted a system that distinguishes them from large ag operations. There was not a notable trend among the small sample size of large ag operations (one preferred Option A, one preferred Option B, and one did not provide an answer).

Overall

- Option A (simple): 17%
- Option B (tailored): 46%
- Neutral/no preference: 10%
- Not answered: 26%

Subbasin

All subbasins preferred Option B (tailored) over Option A (simple)

- Los Molinos: 60% (vs. 10% for A)
- Red Bluff: 48% (vs. 23% for A)

- Corning: 43% (vs. 10% for A)
- Bowman 41% (vs. 18% for A)
- Antelope: 36% (vs. 9% for A)

Water Use Type

- Residential users favored Option B (tailored) (50%) over Option A (simple)(16%)
- Small ag operations strongly favored Option B (56%) over Option A (11%)
- Large ag operations and rangeland owners were split evenly

Financial Situation

Subbasin

Residents, especially in Corning Subbasin, indicated they were fee averse. Red Bluff showed a more nuanced mix of willingness and concern, indicating the groundwater concerns may be overriding general anti-fee sentiment.

I understand groundwater management requires fees, but my budget is limited.

- Corning: 43%
- Red Bluff: 21%

I do not want any more fees, but I prefer local control over State…

- Corning: 29%
- Red Bluff: 29%

Local control and groundwater protection are important to me; I am willing to pay my share

- Corning: 0%
- Red Bluff: 21%

Antelope and Los Molinos respondents tended to select "Prefer not to answer" (50% of respondents in each basin).

Water Use Type

"Willingness to Pay" scaled with size, with large ag operations being the most willing to pay in exchange for retaining local control. Medium and small ag operations indicated they were significantly more constrained by "Limited Budgets." Most residential well owners cited limited budget concerns or at least a preference for local control.

- Residential only: Limited budget (29%) or preferred local control over State (23%)
- Small Ag Operations/Mixed: Limited budget (23%) or preferred local control (15%)
- Medium Ag Ops: Limited budget (67%) or prefer local control (33%)
- Large Ag Operations: prefer local control (67%) or willing to pay (33%)

Priorities and Concerns

Priorities

Respondents prioritized affordability above all else, with "Keeping costs/fees low" ranking as the top priority for almost every group, including residential users, small ag operations, and rangeland owners. Large agricultural operations diverged from this trend, prioritizing "Flexibility to adapt to conditions," indicating they are more concerned about overly corrective/rigid management actions.

Overall

Top 5 Priorities across all 110 respondents:

1. Keeping costs/fees low (45%)
2. Protecting small farms and rural residents (32%)
3. Ensuring fairness across all users (28%)
4. Local control over decisions (21%)
5. Protecting property values (17%)

Calculation Note: Total percentages exceed 100% because respondents could select up to 3 options.

Top Priority by Subbasin

- Corning: "Keeping costs low"
- Red Bluff: "Keeping costs low"
- Antelope: "Property values"
- Los Molinos: "Ensuring fairness"
- Bowman: "Keeping costs low"

Top Priority Water Use Type

- Residential well owners, small ag operations, and rangelands cited "Keeping costs low" as their top priority.
- Large ag operations selected "Flexibility to adapt to conditions" as their top priority.

Top Water Restriction Concerns

The top two concerns were tied for first place, highlighting the dual pressures facing respondents:

1. "Too costly for my operation/household" (40%)
2. "Fairness of how restrictions are applied" (40%)
3. "Domestic well reliability" (31%)
4. "Loss of local control" (25%)
5. "Impact on property values" (23%)

Calculation Note: Total percentages exceed 100% because respondents could select up to 3 options.

Additional concerns included expanding government actions, blaming large ag operations, stopping water inefficiencies, and ineffective management (moving too fast or too slow).

Top Concern by Subbasin

- Corning: "Costs"
- Red Bluff: "Fairness"
- Antelope: "Fairness" and "Well Reliability"

- Los Molinos: "Costs" and "Fairness"
- Bowman: "Costs" and "Fairness"

Top Concern Water Use Type

- Residential well owners' top concerns were "Fairness" and "Costs"
- Small ag operations were most concerned about "Costs"
- Large ag operations selected "Fairness" as their top concern.
- Rangeland owners were most concerned about "Losing Local Control"

Comments on Additional Challenges

Based on 46 substantive open-ended responses, the feedback revealed deep skepticism and anxiety regarding proposed groundwater management fees. Even the supportive voices emphasized transparency, fairness, and scientific rigor.

The concerns coalesced around five primary themes: fairness concerns, financial vulnerability, distrust of governance and data, unintended risks, and environmental values. The comments elevated a sixth theme – many concerns were based on inaccurate narratives, emphasizing a need to clarify truths vs. falsehoods.

1. Fairness Narratives: A Multi-faceted Two-Sided "Us vs. Them" Dynamic

The most pervasive sentiment was a fractured "Us vs. Them" dynamic, but it was not a simple story.

- Residential Upset: Residential well owners overwhelmingly felt they were being penalized for depletion caused by large-scale agriculture. Many stated that their domestic usage is negligible compared to "corporate ranches" and "massive orchards," noting that their water tables only drop when agricultural irrigation begins in the spring. There was strong resistance to subsidizing commercial operations, with explicit calls to "meter the corporate ranches" rather than "taxing households that use water for basic survival."
- Small Farmer Pressures: Agricultural respondents (80% of whom were small family farms under 50 acres or livestock operations) revealed a secondary inequity. These farmers felt unfairly grouped together with "Big Ag" and punished by "blunt instruments" that treat all agriculture the same.
    - Several farmers noted they made responsible investments to farm on land with abundant water, yet they were being "punished to support others" who chose to farm in unsustainable locations.
    - Small farming operations cautioned that rigid fees and restrictions wouldn't just cut into profits—they would threaten the "destruction of life savings" and the loss of multi-generational family investments.
- Large Ag Operations Pragmatism: Due to the very small sample size among survey respondents, it is challenging to draw broader conclusions about large ag operations. However, of these respondents, there was an acknowledgement that some level of demand management is necessary to retain local control and even a willingness to pay their fair

share, but they strongly call for enough flexibility and not over-corrective measures.

There were a handful of responses that identified opportunities to address the "Us vs. Them" narrative. Respondents urged for different water users to find shared goals and approach the groundwater issues as partners.

2. Financial Vulnerability

A significant portion of respondents identified as retirees or residents on fixed incomes who cannot absorb additional costs. Several noted they have already incurred heavy costs deepening wells or replacing pumps and had no remaining budget for District fees. For this demographic, fee increases were viewed as a threat to their ability to remain in their homes.

3. Distrust of Governance and Science

While there was a strong preference for local over state control, comments revealed a need for greater transparency and assurance to build trust in the GSA's actions. In general, respondents called for science and management transparency and accountability to demonstrate funds are used effectively to address groundwater problems. Additionally, a recurring concern was that initial fees or monitoring requirements would inevitably increase over time without checks and balances. Residents asked for assurances against "fees that increase over time with no restrictions."

4. Unintended Consequences

Respondents identified a range of potential consequences that the District should be cautious about. Residents warned that strict water restrictions could compromise physical safety, specifically regarding wildfire protection (maintaining green "defensible space"). Additionally, many emphasized that groundwater is a property right and felt that restrictions would unfairly devalue their land and investments.

5. Environmental Values

Respondents expressed a strong desire for groundwater management solutions that align with natural systems (e.g., creek restoration) rather than engineered "fixes" like artificial recharge approaches that might introduce new risks (citing water quality concerns). Multiple agricultural respondents emphasized that farmers should be viewed as partners in environmental health (e.g., absorbing carbon and caretaking the land).

6. Inaccurate Narratives (Myth v Reality)

Several concerns appeared to be based on misconstrued perceptions, particularly that the District will require well metering, issue well moratoriums, take away water rights, and issue a tax that goes to the County's General Fund. Despite these inaccurate perceptions, these reflect extremely valid community concerns, and a high priority need to clarify reality vs. myth.

What This Means for the Demand Management Program

The community's concerns were not just about groundwater — they were about trust, fairness, and being heard. These findings can help guide how the District prioritizes program elements and implementation.

Messaging and engagement must emphasize:

- Fairness
- Data-driven decision making
- Local control
- Simplicity
- Tradeoffs
- Clear, consistent communication
- Reassurance that metering won't be required
- Opportunities for feedback

Transparency is essential:

- What options were considered and their tradeoffs
- How fees are calculated
- How zone boundaries are drawn
- What triggers actions

Implications for Policy Design

- Fee structure considers the ability to pay
- Management zones require a clear scientific basis
- Robust appeal process
- Well-developed outreach strategy
- Opportunity to align with community values (local control + fairness)
- Commitment to review and adapt to be responsive to groundwater needs

Opportunities to Build Support

- Position demand management as preventing State takeover
- Pair fees with visible benefits (projects, well support, monitoring)
- Protections for domestic wells
- Identify shared goals and advance multi-beneficial efforts

What to Consider Next

- Where is additional analysis needed?
- How will we respond to the core concerns: fairness, affordability, trust?
- Are there specific engagement needs?
    - More and diverse ag perspectives given the small sample size
    - Mixed use: residential + ag ("hobby farms" or "rural estates")
    - Potentially subbasin-specific engagement
- Which issues need clarification before presenting to the public? (e.g., tradeoffs and cost-benefit value of different approaches)

Appendices

Appendix A - Survey Questions

Appendix B - Factsheet

TEHAMA
COUNTY
FARM
BUREAU

December 3, 2025

Tehama County Groundwater Commission
Mr. Todd Hamer, Chairman
ToddHamer@sbcglobal.net

Dear Mr. Hamer,

The Tehama County Farm Bureau is concerned that the DWR requirement for extensive public input in developing the Ground Water Management Plan has not been met. In response, TCFB drafted a comprehensive and practical proposal for a Tehama County Groundwater Demand Management Plan (GDMP) designed to achieve long-term sustainability under California's SGMA (Sustainable Groundwater Management Act). This plan has been legally reviewed to address and comply with Tehama County Resolution 4-2024 as well as to meet DWR requirements for a Demand Management Plan as required by SGMA.

The attached plan was drafted in an effort to incorporate many of the excellent concepts developed by our local staff and ad-hoc efforts, while also taking into consideration proven methodologies implemented in other sub-basins. We believe there is firm support for the timely implementation of a demand management plan, and that this can be best achieved by not "reinventing the wheel." By leaning on precedent established in other GSA's we believe the attached plan significantly reduces Tehama County's risk of legal exposure.

Our plan is respectively submitted to allow immediate adoption by the Flood Control Board of Directors in order to move forward in a timely manner as required by Tehama County Resolution 4-2024.

TCFB requests that you agendize this **TCFB Tehama County Groundwater Demand Management Plan (GDMP)** to be considered as an alternative to the plan that county staff will present at the Groundwater Commission Meeting on December 10, 2025.

Respectfully,

Janet Rabo

Janet Rabo
President, Tehama County Farm Bureau

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TEHAMA COUNTY GROUNDWATER DEMAND MANAGEMENT PROGRAM

Framework for the Antelope, Red Bluff, and Los Molinos Subbasins

1. Program Basis and Authority

1.1 Resolution No. 4-2024

This Groundwater Demand Management Program (Program) is established pursuant to Resolution No. 4-2024 (Resolution), in which the District Board committed the District, as GSA, to "review, consider, and undertake mitigation actions for demand management" to address overdraft and groundwater level declines in the Antelope, Red Bluff, and Los Molinos Subbasins.

The Resolution recognizes the need for projects and management actions to achieve and maintain sustainable groundwater conditions by or before 2042 and acknowledges that hydrologic variability and project timing may increase the need for demand management.

1.2 Purpose and Objectives

Consistent with the Resolution, this Program is being developed to define the purpose, objectives, scope, roles and responsibilities, requirements, and potential outcomes for groundwater demand management in the three Subbasins. The anticipated goal of the Program is to address and mitigate overdraft and groundwater level decline, and related undesirable results, by reducing demand for groundwater during the GSP implementation period.

1.3 Required Two-Phase Structure

The Resolution specifies that the Program will consist of two categories of measures:

- **Phase I: Immediate Implementation Measures (Voluntary).**
  Measures to be "moved forward for immediate implementation (at the Program start date)," limited to voluntary actions such as best management practices, conservation, increased surface-water use in lieu of groundwater, multi-benefit land repurposing, dry farming, and non-substitution fallowing.
- **Phase II: Phased Adaptive Implementation Measures (Mandatory).**
  Measures to be "moved forward for phased adaptive implementation," developed so that they are "ready to implement in phases, commensurate with issues." These include allocations, well restrictions, pumping restrictions, and water market/trading and/or fee structures.

1.4 "Commensurate with Issues" Standard

The Resolution requires that phased adaptive measures be implemented commensurate with (a) the amount of demand reduction required, and (b) the specific issues facing the relevant area(s), considering regional "Special Zones," subbasin-wide, and management-area-wide applications as appropriate.

2. Stakeholder Communication and Engagement

(Precondition to Phase I and Phase II Implementation)

2.1 Legal and Policy Basis

Under SGMA, GSAs must consider the interests of all beneficial users and "encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin prior to and during the development and implementation of the groundwater sustainability plan." (Wat. Code, § 10727.8; *see also* § 10723.2.) The Department of Water Resources's Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement and Best Management Practices framework emphasize early, continuous, and documented engagement as a core element of SGMA implementation. This direction and guidance makes clear that GSAs should:

- Identify all beneficial uses and users and maintain a list of interested parties.
- Encourage active involvement of diverse stakeholder groups throughout planning and implementation.
- Document outreach activities and how public input is incorporated into decisions.

2.2 Program Communication and Engagement Plan

Before the District advances to adoption of Phase I voluntary measures and Phase II regulatory measures (allocations, restrictions, fee structures), it will prepare and maintain a written Program Communication and Engagement Plan (C&E Plan) that is:

- Aligned with DWR's Stakeholder Communication and Engagement Guidance and related SGMA Best Management Practices materials;
- Basin-specific to the Antelope, Red Bluff, and Los Molinos Subbasins; and
- Integrated with, but distinct from, any broader GSP communication plans.

At a minimum, the Program C&E Plan will:

1. Identify stakeholder groups and beneficial users, including but not limited to: agricultural pumpers, domestic well owners, small water systems, municipalities,

disadvantaged communities, tribes (if any choose to participate), environmental interests, and industrial/commercial users.

2. Describe key messages and anticipated questions related to both Phase I and Phase II measures.
3. Set out engagement methods and tools, such as public workshops, focused small-group meetings, surveys, mailings, website content, and use of DWR's digital toolkit examples.
4. Include an engagement schedule and milestones tied specifically to Program decision points, including any Board actions on Phase I or Phase II ordinances or resolutions.
5. Describe how feedback will be documented and used, including preparation of a "Response to Comments / Engagement Summary" prior to Board adoption of Phase I and Phase II measures, respectively.

2.3 Outreach Milestones Prior to Phase I and Phase II Adoption

As a matter of Program policy, the District will not bring Phase I voluntary measures or Phase II allocations or other mandatory Program measures forward for Board adoption until the following outreach milestones have been completed and documented:

a. **Baseline Listening Sessions.** At least one listening session in each Subbasin (Antelope, Red Bluff, Los Molinos) focused on concerns and questions about potential allocations, restrictions, and fees.

b. **Stakeholder Workshops.** One or more technical but accessible workshops explaining the need for demand management, the "commensurate with issues" standard, and the conceptual structure of Phase I and/or Phase II tools (without locking in specific numbers or maps).

c. **Targeted Engagement.** Direct outreach to domestic well users and disadvantaged communities, and invitations to tribal governments and small systems, consistent with DWR guidance on inclusive engagement.

d. **Public Review of Draft Phase I and Phase II Framework.** A publicly noticed comment period (e.g., 45 days) on a Draft Phase I Framework and Draft Phase II Framework, respectively, describing how allocations and related tools would function, supported by plain-language summaries and graphics.

e. **Engagement Summary Report.** A written summary documenting outreach methods used, meetings held, comments received, and how substantive input was incorporated or addressed, to be presented to the Board alongside any proposed Phase I and/or Phase II ordinance or resolution.

2.4 Ongoing Engagement During Implementation

The Program C&E Plan will also address ongoing engagement during implementation of both phases, including:

- Regular updates at Board or committee meetings;
- Periodic fact sheets and website updates;
- Opportunities for growers, domestic users, and other stakeholders to review data and account information; and
- A standing process for submitting questions and requests for clarification.

2.5 Outreach Requirements

No Phase I or Phase II allocations, restrictions, or related regulatory ordinances will be adopted unless and until:

a. The Program C&E Plan described above has been adopted;

b. The outreach milestones herein described have been satisfied and documented; and

c. The Board finds, based on substantial evidence in the record, that stakeholder engagement has been reasonably conducted consistent with DWR's Stakeholder Communication and Engagement Guidance and SGMA's requirements to consider beneficial users.

3. Program Structure Overview

3.1 Two-Phase Program

- **Phase I: Voluntary Measures.**
  Implemented at Program start following Stakeholder Engagement and focused on voluntary, incentive-based demand reduction and land/water management practices.
- **Phase II: Phased, Adaptive Mandatory Measures.**
  Developed during the Program design period so they are "ready to implement in phases, commensurate with issues," but only advanced to adoption after the engagement milestones in Section 2 are completed and documented.

3.2 Conceptual Plan in Appendix A

To keep this Program framework policy-focused and responsive to the Resolution, a conceptual plan outlining future steps, including methods, metrics, and tools supporting Phases I and II is included in Appendix A.

4. Phase I Measures (Voluntary)

4.1 Possible Measure Categories (from Resolution)

Phase I measures may be drawn from the voluntary actions listed in the Resolution, including:

a. Best management practices for irrigation and crop management;

b. Water conservation focused on reducing consumptive use and groundwater extractions;

c. Increased use of available surface water in lieu of groundwater;

d. Multi-benefit land repurposing (e.g., recharge, habitat, renewable energy, recreation);

e. Incentivized land use changes that provide a net groundwater benefit;

f. Dry farming; and

g. Fallowing not associated with groundwater substitution transfers.

4.2 Program Design Elements

For each Phase I measure, the Program will define:

- Eligibility criteria and geographic applicability;
- Determination of management zones;
- Determination of sustainable yield for each management zone;
- Credit system;
- Enrollment process and any required documentation;
- Incentives or support (if applicable);
- Verification methods; and
- How demand-reduction benefits will be estimated and incorporated into GSP implementation.

Supporting concepts are provided in Appendix A.

5. Phase II Measures (Phased Adaptive / Mandatory Tools)

5.1 Measure Types (from Resolution)

Phase II measures will consist of mandatory tools such as:

- Groundwater use allocations;

- Well or pumping restrictions; and
- Water market/trading and/or demand-management fee structures.

5.2 Implementation Protocol (Required Items)

In accordance with the Resolution, the Program will address, for Phase II measures:

- Identification of areas where measures may be applied (e.g., subbasins, management areas, or special zones);
- Determination of sustainable yield for those areas;
- Determination of a transition period to sustainable conditions prior to 2042, considering uncertainty and project timelines; and
- Processes and timelines for implementing, evaluating, and adapting measures through annual reports and periodic GSP evaluations.

5.3 Allocation and Enforcement Concepts

The Program will develop an allocation and enforcement framework that:

- Applies the "commensurate with issues" standard (Section 1.4);
- Uses management areas or special zones where appropriate; and
- Addresses development and enforcement of allocations related to consumed versus extracted groundwater, as called for in the Resolution.

Supporting concepts are described in Appendix A.

5.4 Technical Support and Administrative Record

The District will support development and implementation of the allocation and enforcement framework with technical data, analyses, and memoranda prepared by the District's consultants and technical team, and will incorporate those materials into the Program's administrative record (e.g., the Ludhorf & Scalmanini Consulting Engineers (LSCE) Technical Memorandum dated November 19, 2025, titled *"Technical Foundations for Safe Yield, Sustainable Yield, and Groundwater Demand Management in Tehama County,"* and any subsequent updates or successor memoranda).

6. Monitoring, Reporting, and Adaptation

6.1 Monitoring and Enforcement

The Program will define monitoring and enforcement processes for both voluntary and mandatory measures, including:

- Data sources and monitoring tools;

- Compliance-tracking methods; and
- Consequences for non-compliance with Phase II allocations and rules. [cite: 236–237]

Supporting concepts are described in Appendix A.

6.2 Reporting and Adaptive Management

Program performance and conditions will be evaluated through:

- Annual reporting consistent with SGMA; and
- Periodic GSP evaluations, with Program-related findings and any recommended adjustments documented in the record.

7. Funding and Financing

7.1 Funding approach and Board authority

The District will fund the Program through long-term GSA funding mechanisms as determined by the District Board. Anticipated funding sources may include: (i) GSA fees and assessments; (ii) funds generated through implementation of other projects and management actions (e.g., fines and/or penalties); (iii) county/state/federal funding, as available; and (iv) other sources, as identified.

Program funding must be available beginning at Program implementation to fund both Phase I and Phase II activities.

7.2 Base Fee (Administrative and Monitoring Costs)

To fund core administrative and monitoring costs for the three Subbasins, the District Board will consider approval of a Base Fee to be implemented on the 2026/2027 property tax bills (tax roll), following the applicable Proposition 218 or Proposition 26 process. This Base Fee is intended to cover baseline Program functions and costs, including:

- Legal services;
- Technical services;
- Administrative services;
- Operating expenses; and
- SGMA compliance expenses (including annual and periodic reporting requirements).

The Base Fee is intended to fund, among other things: administrative program costs; data collection, modeling, and monitoring (including automated monitoring systems for monitoring sites); annual satellite-based consumptive use reporting; consultant support to

refine sustainable yield and related technical assumptions as additional data becomes available; and public outreach activities required by Section 2 of this Program.

The Base Fee will be informed by the District's supporting budget materials, including Appendix B (Tehama County Groundwater Sustainability Agency Budget Forecast) as presented to the Groundwater Commission on August 13, 2025, which does not include budgeting for future projects or management actions).

7.3 Base Fee allocation methodology

The Base Fee will be allocated across three user groups:

a. Parcels 5 acres or less: flat per-parcel fee;

b. Non-irrigated lands greater than 5 acres: fee per non-irrigated acre; and

c. Irrigated lands greater than 5 acres: fee per irrigated acre.

The District will define classification criteria (including how irrigated and non-irrigated acres are determined) through the implementing Board action(s) and supporting fee study.

7.4 Additional fees for demand management actions (Phase II and projects)

Separate and additional funding mechanisms will be required to support future phased demand management programs and actions (including, as applicable, projects, incentives, mitigation programs, allocations administration, and enforcement). Any such fees will be considered and implemented only through the applicable Proposition 26 and/or Proposition 218 process, depending on the fee structure and purpose.

8. Term and Timeline

8.1 Program Start Date

The Resolution directs that the Program be developed and that implementation begin no later than January 1, 2026.

8.2 Program Duration

Upon implementation, the Program is intended to continue in perpetuity unless otherwise directed by the District.

8.2 Program Timeline

See Section 9 of Appendix A.

9. Governance, Approval, and Environmental Review

9.1 Program Governance

The Resolution contemplates the formation of a committee to develop and set the final terms of the Program. Final implementation and management of the Program, including Phase I and Phase II components, will be approved by the District Board prior to the Program start date.

9.2 Environmental Review

The District will conduct any environmental review determined necessary for Program implementation and will integrate such review with adoption of Phase I and/or Phase II regulatory measures where appropriate.

APPENDIX A

(To Be Adopted by Resolution and Amended as Needed)

1. Executive Summary

- Purpose and legal authority (SGMA, Tehama County ordinances)
- Plan goals: Achieve sustainable yield by 2042, protect critical domestic wells, maintain agricultural viability
- Key mechanisms - Establish:
    - Management Zones
    - Calculation of Safe Yield
    - Use of Measurable Objectives and Minimum Thresholds
    - Base Fee Structure for GSA Administrative Purposes – Baseline Fee for Users at or below Safe Yield
    - Fee Structure for Users above Safe Yield – Fees dedicated for projects to achieve sustainability goals
    - Allocation of transferable pumping credits + tiered fee structure
    - Other as determined to be necessary

2. Plan Area and Management Zones

- Subbasins (Antelope, Bowman, Los Molinos, and Red Bluff)
- Delineation of Management Zones (MZs) based on hydrogeologic conditions, historical pumping, and minimum threshold risks
- Map series showing Management Zones

3. Sustainable Yield Determination

- Update and refine best available sustainable yield estimate for entire subbasin and for each Management Zone (acre-feet/year)
    - Sources: Updated GSP numerical model (2022–2025), DWR projections, local studies
    - Example: Tehama Subbasin sustainable yield ≈ 220,000–250,000 AFY (to be refined)
- Breakdown of sustainable yield components:
    - Native yield
    - Imported surface water (captured recharge)
    - Managed recharge potential
    - Climate change adjustment (–10% by 2070)

- Allocation of funds for consultant in Q1&2 of 2026 to further refine sustainable yield based on future data in addition to work completed to date

4. Pumping Allocation and Credit System

4.1 Base Allocation (Free Credits)

- For Management Zones below Measurable Objectives – All irrigated parcels within such management zone receives a base allocation expressed in acre-feet per acre (AF/AC) tied to the parcel
- Example of Calculation for Base Allocation for Management Zones below Measurable Objectives: Allocation (AF/AC) = Total Sustainable Yield for Management Zone divided by Total Irrigated Parcel Acres
- De Minimis users (e.g. parcels using less than 2 acre-feet per year) exempt from curtailment

4.2 Develop Credit System

- Credits provided for Base Allocation, Recharge, In-Lieu Activities, etc..
- Up to 5 years of unused allocation may be carried forward

4.3 Transferability of Credits

- Credits may be transferable (sale, lease, permanent transfer) within the same Subbasin
- Credits may be transferable by single landowner for own use within the same Subbasin
- Registry system administered by County or local GSA
- Simple online platform for credit transactions and tracking

4.4 Develop Consumption Tracking with Appeal System

5. Penalty Fee Structure (Demand Management Fee)

5.1 Excess Pumping Fee

- Where applicable, tiered escalating fee for every acre-foot pumped above Base Allocation to be determined based on economic analysis for fees
- Fees adjusted every 3–5 years based on recharge project costs and inflation
- Implement Penalty Fee Structure prior to 2032 (Interim Milestone) – Prop 26 or Prop 218

5.2 Dedicated Use of Excess Pumping Fee Revenue

- Groundwater recharge projects (on-farm, dedicated basins, in-lieu)
- In-lieu conversion (surface water)
- Well mitigation program for domestic wells impacted by overdraft
- Drought reserve storage projects

- Incentive programs (e.g. extended fallowing, multi-benefit land repurposing, development of surface water use infrastructure, irrigation efficiency, land purchase for areas in cone of depression, etc…)
- No use for general county funds

6. Curtailments and Increased Fees Based on Triggers – Rampdown to Safe Yield (Excess Pumping can't be perpetual)

6.1 Assessment in 2032 (Interim Milestone)
- Review data and adjust fees, if necessary
- Possible adjustment of total allowed average consumptive use

6.2 Assessment in 2037 (Interim Milestone)
- Review data and adjust fees, if necessary
- Possible adjustment of total allowed average consumptive use

7. Metering, Monitoring, and Reporting

- Satellite-based consumptive use reporting with option for grower to self-meter
- Self-metering annual pumping reports due by December 31

8. Appeals and Hardship Provisions

- Hardship committee for temporary relief (drought, crop failure, new permanent planting)
- Appeals process for allocation disputes

9. Implementation Timeline

2026: Administrative Fee Collection (subject to Prop 26 or Prop 218); Finalize Management Zones; and Establish Safe Yield per Management Zone
2027: Issue initial parcel credit allocations
2028: Consumptive use program complete; credit trading platform live
2032: First excess pumping fees assessed (2031 pumping)
2032: Review and assessment of safe yield and fee structures, with adjustments as needed
2037: Review and assessment of safe yield and fee structures, with adjustments as needed
2042: Achieve sustainable yield (SGMA deadline)

10. Next Steps/Action Items

- Planned outline/framework approved and adopted by TCFCWCD Board in Q1 2026 – to be further developed consistent with Implementation Timeline above

APPENDIX B

(To Be Adopted by Resolution and Amended as Needed)

Tehama Project - GSP Implementation Budget 1 1.03 1.06 1.09 1.12 Flood tax and GSA tax
Fee Study Item 2.4 - Financial Assurance Plan
Five Year Revenue Needs Assessment
Evaluate typical vs. minimal funding level scenarios

Tehama County Groundwater Sustainability Agency Budget Forcast

EXHIBIT "A"

FIVE YEAR TEHAMA GSA BUDGET

(Option: combine Operating/SGMA Costs...)		Add 3% Inflation		Add 3% Inflation		Add 3% Inflation	
Category	Proposed	Proposed	Proposed	Proposed	Proposed	Comments
	FY2027	FY2028	FY2029	FY2030	FY2031	
OPERATING EXPENSES						
Legal Services						
General Legal Support	$55,000	$55,000	$55,000	$55,000	$55,000	Assumes County Counsel SGMA Compliance Support With Some Outside Counsel in Specialized
Total Legal Services	$55,000	$55,000	$55,000	$55,000	$55,000	
Technical Services						
Fee Process	$7,000	$7,000	$7,000	$7,000	$7,000	Reflects fee update costs.
Special Studies/Consultant Support	$30,000	$30,000	$30,000	$30,000	$30,000	Project studies, model calibrations, feasibility analysis, related items.
Total Technical Services	$37,000	$37,000	$37,000	$37,000	$37,000	
Administrative Services						
Administration and Management (0.75 FTE)	$160,000	$160,000	$160,000	$160,000	$160,000	County SGMA Program Manager/Technician Positions
Administrative Support (0.5 FTE)	$51,000	$51,000	$51,000	$51,000	$51,000	County SGMA Admin Assistant Support Position
District Overhead	$32,000	$32,000	$32,000	$32,000	$32,000	office, insurance, vehicles, HR etc.
Audits	$10,000	$10,000	$10,000	$10,000	$10,000	Covers cost of minimum biannual audit requirement for GSA
Outreach Materials/Printing & Copying	$15,000	$15,000	$15,000	$15,000	$15,000	Changed to $1,000 per month
Postage	$3,000	$3,000	$3,000	$3,000	$3,000	Prudent to have in budget
Website Development/Maintenance	$6,000	$6,000	$6,000	$6,000	$6,000	Necessary for GSP implementation occurs
Financial Services/Bookkeeping	$12,000	$12,000	$12,000	$12,000	$12,000	Regular reporting, preparation for audits.
Total Administrative Services	$289,000.00	$289,000.00	$289,000.00	$289,000.00	$289,000.00	
OPERATING EXPENSES SUBTOTAL	$381,000.00	$381,000.00	$381,000.00	$381,000.00	$381,000.00	
Operating Expenses Reserve (10%)	$38,000	$38,000	$38,000	$38,000	$38,000	Prudent to have in budget
TOTAL OPERATING EXPENSES	$419,000	$419,000	$419,000	$419,000	$419,000	
SGMA COMPLIANCE EXPENSES						
GSP Annual Monitoring/Reporting	$225,000	$225,000	$225,000	$225,000	$225,000	Assumes five (5) AR per year for SGMA compliance.
GSA Sub-basin Coordination	$20,000	$20,000	$20,000	$20,000	$20,000	Assumes quarterly GSA communications and coordination with sub-basins during GSP implementation.
GSP Periodic Evaluation/Amendments (@ 5 Yrs.)	$400,000	$400,000	$400,000	$400,000	$400,000	Assumes five (5) GSP updates with modeling every five years for SGMA compliance.
Monitoring/Data Management	$25,000	$25,000	$25,000	$25,000	$25,000	Assumes annual data upates with expanded monitoring network in A and C subbasins.
GSP Implementation Grant Funding Application	$20,000	$20,000	$20,000	$20,000	$20,000	Assumes availability of grant funds for GSP implementation activities.
SGMA COMPLIANCE EXPENSES SUBTOTAL	$690,000	$690,000	$690,000	$690,000	$690,000	
SGMA Compliance Expenses Reserve (10%)	$69,000	$69,000	$69,000	$69,000	$69,000	
TOTAL SGMA COMPLIANCE EXPENSES	$759,000	$759,000	$759,000	$759,000	$759,000	
TOTAL ANNUAL BUDGET	$1,178,000	$1,200,770	$1,228,640	$1,248,310	$1,268,080	Includes inflation

Notes:
Assumes GSA would meet quarterly with Glenn County/Water Commission Coordination.
Assumes Tehama County FCWCD would support GSA organizational operations including administrative, legal, insurance, and financial services aspects during post-GSP implementation period.
Assumes Admin/Mgmt. staff costs are based on County's approved 2025 Salary Schedule with 1.7 overhead multiplier to calculate full charge out rates.
Assumes GSP monitoring and reporting would be handled as an ongoing GSP implementation cost with consultant support.
Assumes Five Year Periodic Evaluations/Amendment updates would be funded over several budget years.
Assumes on-going grant funding procurement process to secure available State and Federal grants for GSP implementation.

Luhdorff & Scalmanini
Consulting Engineers

- TECHNICAL MEMORANDUM

DATE: November 19, 2025 Project No. 23-1-099

TO: Justin Jensen

FROM: Eddy Teasdale, PG/CHG; Leeah Schultz

SUBJECT: Technical Foundations for Safe Yield, Sustainable Yield, and Groundwater Demand Management in Tehama County

INTRODUCTION

Luhdorff and Scalmanini Consulting Engineers (LSCE) prepared this Technical Memorandum (TM) to support the Tehama County Flood Control and Water Conservation District (TCFCWCD or District). This TM provides a concise overview of several key technical components needed to inform groundwater management decisions in Tehama County. Major topics addressed in this TM include:

- Demand Management Concepts
    - How Representative Monitoring Sites (RMS) and Representative Monitoring Points (RMP) are used in the GSPs to track groundwater conditions and define undesirable results.
    - Recommended data requirements and durations for RMS/RMP trends, and how these compare to DWR expectations.
    - Benefits of managing groundwater extraction at smaller spatial scales to better reflect localized aquifer conditions.
    - Description of safe yield, how it is calculated, and why evaluating safe yield over longer periods (e.g., 10 years) provides a more reliable indication of sustainable yield.
    - Explanation of Thiessen polygons, how they are created, and their use in other resource allocation frameworks.
    - How combining polygons with similar characteristics can improve the effectiveness and equity of groundwater management.
- Groundwater Fees and Cost Information
    - Why fees are necessary for sustainable groundwater management and implementation of GSP actions.
    - Overview of groundwater use in Tehama County, including agricultural, domestic, and commercial sectors.

- Estimated groundwater demand by use type (e.g., AF/acre for crops, AF per household, AF used for commercial activities).
- Summary of parcel and acreage distributions (non-federal parcels, basin vs. countywide acreage, acres by crop type, number of households, number of commercial users).
- Cost comparisons for project implementation, including:
  - Cost per AF to incentivize recharge;
  - Cost per AF to construct, operate, and maintain recharge and other management projects.

Collectively, these components form the technical foundation for evaluating management strategies and supporting informed decision-making by the District.

Overview

Representative Monitoring Sites (RMS), also referred to Representative Monitoring Points (RMP) in the Corning Subbasin, serve as the backbone of groundwater level monitoring and data collection across Tehama County. These strategically selected wells form a subbasin-wide network that tracks hydrologic trends, documents aquifer responses over time, and provides the primary dataset used to evaluate progress toward achieving SGMA sustainability goals.

The RMS/RMP networks are used to evaluate each of SGMA's six sustainability indicators:

1. Chronic lowering of groundwater levels - Long-term declines in groundwater elevations that indicate persistent overdraft or insufficient recharge.
2. Reduction of groundwater storage - Decreases in total aquifer storage resulting from prolonged imbalance between pumping and recharge.
3. Degraded water quality - Declines in groundwater quality caused or exacerbated by groundwater extraction or management actions.
4. Land subsidence - Compaction of aquifer materials due to declining groundwater levels, which can damage infrastructure and reduce aquifer capacity.
5. Depletion of interconnected surface water - Reduction in groundwater discharge to streams, rivers, and wetlands, affecting ecosystems and surface-water availability.
6. Seawater intrusion - Inland migration of seawater into coastal aquifers; this indicator is not applicable in Tehama County due to its inland location.

Each sustainability indicator is evaluated using long-term trends in groundwater levels, along with supporting data collected from the RMS/RMP networks. These measurements provide the basis for determining whether groundwater conditions are stable, improving, or declining over time. The data are also used to identify undesirable results, which occur when groundwater conditions related to any of the six indicators reach levels that cause significant and unreasonable impacts within a subbasin.

Groundwater levels measured at RMS/RMP wells provide a consistent basis for determining whether the basin is operating within sustainable limits. They are essential for comparing actual conditions to established Measurable Objectives (MOs) and Minimum Thresholds (MTs) defined in each subbasin's GSP.

These thresholds mark the acceptable range of groundwater elevation and storage that prevents undesirable results and determines when Management Actions are triggered, which support decisions on groundwater extraction reductions (i.e., demand management) or fees. Groundwater levels are measured at least twice per year, typically during the spring high and fall low periods, to capture both seasonal and long-term aquifer responses.

A minimum of 10 years of somewhat consistent water level data is recommended for each RMP/RMS site, consistent with guidance from the California Department of Water Resources (DWR) (DWR, 2018). The data collected from the RMS/RMP networks establishes the foundation for monitoring and evaluating basin conditions, providing the framework for defining distinct management areas within each subbasin. By using these long-term datasets, the TCFCWCD can delineate smaller, more representative management zones that reflect localized aquifer behavior and support targeted groundwater management actions.

Benefits of Smaller Management Areas

Managing groundwater extraction at smaller, localized scales provides a more accurate and representative understanding of actual aquifer conditions. When management areas are refined geographically, monitoring networks can capture changes in groundwater levels, gradients and storage with greater precision. This higher-resolution understanding allows targeted areas experiencing stress, such as declining water levels, reduced well performance or diminished stream flow to be identified and addresses earlier and more effectively.

Working at a smaller scale also increases the effectiveness of corrective actions. Practices such as pumping reductions, recharge enhancement, or land-use modifications have a more direct and measurable influence on local groundwater conditions when applied within a defined, localized area. As a result, the relationship between management actions and aquifer response becomes clearer, improving both accountability and planning.

In contrast, managing groundwater extraction across broad or basin-wide areas can obscure localized problems. Aggregated conditions may appear stable even when certain zones are experiencing significant declines in groundwater elevations or other early indicators of undesirable results. This masking effect can delay necessary responses, increasing the likelihood that more severe or irreversible impacts will occur before intervention.

By delineating smaller management units, groundwater behavior can be assessed with greater precision, improving the estimation of both safe yield and sustainable yield within each subbasin. This enhanced resolution supports more reliable planning, equitable allocation of pumping, and more responsive management throughout the region.

Safe Yield and Sustainable Yield

Safe yield refers to the maximum quantity of groundwater that can be continuously withdrawn from an aquifer without causing adverse effects on the basin's overall condition or producing undesirable results. For the purposes of Tehama County's Groundwater DMP, safe yield is calculated as the average pumping rate plus or minus the average change in groundwater storage, calculated using 10-year rolling averages

ending with the most recent water year. This long-term averaging ensures the estimate captures both wet and dry hydrologic cycles, avoiding skewed results from short-term fluctuations.

Sustainable yield, as defined under SGMA, represents a broader and more regulatory-focused concept. SGMA defines sustainable yield 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 without causing an undesirable result."* While safe yield is used within the DMP to determine how much groundwater can be pumped under prevailing conditions, sustainable yield establishes the long-term, basin-wide limit required to maintain overall sustainability. Under Tehama County's demand management framework, sustainable yield will be updated every five years, reflecting new data, improved monitoring, and updated groundwater conditions.

In practice, using longer datasets improves the accuracy and reliability of both metrics—safe yield (shorter-term operational guidance) and sustainable yield (long-term regulatory guidance). Together, they describe how much groundwater can be withdrawn. In contrast, Thiessen polygons describe where management applies. These polygons provide the spatial structure necessary to assign, track, and manage groundwater use across localized areas, ensuring that pumping and recharge decisions reflect actual aquifer behavior on the ground.

Thiessen Polygons

Thiessen polygons are a standard spatial analysis tool used to distribute point-based data evenly across a defined area. For the purpose of Groundwater Demand Management, these polygons represent the specific areas by which groundwater resources are managed. Each polygon is generated using the Thiessen method around a single RMP/RMS.

Each Thiessen polygon is formed by drawing perpendicular bisectors between neighboring RMP/RMS wells so that every location within a polygon is closest to its central monitoring well. This process partitions the subbasin into non-overlapping zones of influence, with groundwater conditions within each zone assumed to reflect the measurements recorded at its corresponding RMP/RMS. This method provides a consistent spatial framework for interpreting monitoring data and applying management actions based on representative local conditions (TCFCWCD 2022c).

Beyond groundwater management, Thiessen polygons are widely used in environmental and resource planning disciplines to define areas of influence around specific data points. Common applications include:

- Environmental Monitoring
    - Estimate rainfall distribution by dividing regions based on proximity to individual weather stations.
    - Representing spatial influence zones for air quality or climate monitoring sensors
- Emergency Services and Public Safety
    - define service areas for fire stations, ambulance providers, or police response zones and ensure efficient coverage and minimize response times
- Agricultural and Environmental research

    - Mapping the effective coverage of irrigation systems or distribution uniformity across fields
    - Studying the spatial distribution of pests and plant diseases.
- Hydrologic and Water Resources Modeling
    - delineate zones of equal influence around recharge areas, monitoring wells or stream gauges
    - Supporting water budget calculations, by assigning land areas to the nearest hydrologic measurement point(s)
- Mining and Geological Assessments
    - Defining influence zones around exploratory drill holes to estimate ore body boundaries or resource grade distributions
    - Supporting block modeling and geostatistical analyses by partitioning the area according to proximity to sampling locations

These applications demonstrate how Thiessen polygons serve as a versatile tool for converting point-based measurements into meaningful spatial units for analysis, planning, and management.

In the context of Tehama County's Groundwater DMP, Thiessen polygons form the foundation for defining and combining areas with similar groundwater characteristics. Polygons with similar attributes, such as comparable groundwater elevations, change in storage or safe yield values, are combined to create what is referred to as a Combined Safe Yield Area (CSYA). Grouping polygons in this way allows for more effective management by:

- Simplifying monitoring and data collection within zones that share similar hydrogeologic behavior
- More efficiently identifying problem areas experiencing groundwater declines
- Calculating sustainable yield by averaging safe yield across multiple, similar polygons
- Identifying more stable areas that may require less intensive management intervention

The TCFCWCD proposes two Management Actions (Mas) that will be triggered when groundwater levels in a CSYA fall below the MOs.

Management Actions and Triggers

Management Action 1 – Establishes an escalating framework to reduce groundwater use when water levels decline below MOs, with the intention of preventing undesirable results. This MA1 introduces a series of pumping reductions and associated administrative fees based on how significantly groundwater elevations deviate from MOs within a CSYA.

The process is triggered when 50% or more of RMS/RMPs in a CSYA show declines below their MO levels for two consecutive years. There are four progressive tiers of management response based on the percentage of decline:

- Tier 1: A decline exceeding 20% of the annual range (Spring measurement minus Fall measurement) results in a 10% reduction in the target assumed maximum pump rate (AF/acre).
- Tier 2: A decline exceeding 40% of the annual range results in a 20% reduction.

- Tier 3: A decline exceeding 80% of the annual range results in a 40% reduction.
- Tier 4: A decline exceeding 100% of the annual range results in an 80% reduction.

At each tier, any pumping above the reduced target rate incurs increased administrative fees. As groundwater conditions improve, management restrictions are relaxed in reverse order. If water levels rise to a higher tier for two consecutive years, the corresponding reduction is lessened. After the groundwater levels remain above the MO for two consecutive years, all pumping restrictions are lifted.

Management Action 2 – Designed to work in coordination with MA 1 to prevent groundwater extraction above the sustainable yield from producing undesirable results or causing water levels to remain below MTs.

The action is triggered under two conditions:

I. If, over any two-year period, groundwater levels in any RMP/RMS fall below the MT for that site, the entire CSYA containing that RMP/RMS becomes restricted to its average safe yield.

II. If undesirable results occur at any time within the CSYA, that area will also be restricted to its average safe yield regardless of MTs.

The average safe yield becomes the calculated sustainable yield for the CSYA and is determined using a standardized method:

1. Each Thiessen Polygon within the CSYA is assigned a total safe yield (acre-feet).
2. The total safe yield is divided by the total irrigated acreage to obtain acre-feet per acre (AF/acre).
3. The safe yield for all polygons within the CSYA is averaged to produce a single calculated sustainable yield (AF/acre) that is representative of the entire management area.
4. This sustainable yield value will be recalculated every five years beginning January 1, 2031.

Once this MA2 is in effect, all groundwater extractors are limited to the calculated sustainable yield for their combined irrigated acreage. This applies to all contiguous parcels under the same ownership served by one or more extraction facilities. If a property spans multiple CSYAs, the most restrictive yield value applies. Extraction volumes may be determined by reported data or by assumed use rates.

MA2 remains in place until all three of the following conditions are satisfied:

1. No existing undesirable results are present within the CSYA.
2. Groundwater levels in all RMS/RMPs within the CSYA remain above MTs for at least two consecutive years.
3. Conditions requiring Step 1 of Management Action Number 1 are no longer met.

Within 180 days of the DMP's adoption, the TCFCWCD Board of Directors will adopt an ordinance establishing a fine of up to $500 per acre-foot for all groundwater, whether measured or assumed, extracted in excess of the sustainable yield during an active pumping restriction.

The successful implementation of these Management Actions relies on a stable and equitable funding mechanism. To support monitoring, enforcement, and incentive-based programs, the TCFCWCD has established a fee structure designed to sustain the administrative and operational functions of the DMP.

Fees

Fees are an essential and practical component of achieving sustainable groundwater management in Tehama County. They provide a stable and predictable source of funding that enables the TCFCWCD to meet its legal, technical and administrative obligations under SGMA. Fee revenue supports the continuation of grant-funded programs, support day-to-day operations needs, and provides the resources necessary to the County to implement, administer, and enforce demand management actions across the subbasins.

Collected fees are used to support several critical program areas. They incentivize water users to extract less groundwater by tying costs to water use, thereby deterring over-pumping when groundwater levels decline. Fees also fund and sustain demand management programs that directly reduce groundwater pumping through voluntary measures, such as crop conversion, irrigation efficiency improvements, and fallowing programs.

In addition, fees are necessary to cover GSA administrative and operational expenses, including groundwater monitoring, reporting, and staffing. They also fund technical studies, modeling, and research needed to refine safe yield and sustainable yield calculations, as well as project design, construction, and maintenance for recharge and conservation projects. Lastly, fees further support public education and enforcement, ensuring transparency, compliance, and informed participation from all groundwater users.

The revenue generated through groundwater management fees directly supports the development and implementation of projects and incentive programs that advance sustainability objectives. These investments enable the design, construction, and maintenance of infrastructure and management projects that improve recharge, enhance water use efficiency, and offset groundwater extraction throughout Tehama County.

Surface and Groundwater Projects

The cost of implementing and maintaining groundwater and surface water projects in Tehama County varies widely depending on the type, scale, and infrastructure requirements of each project. As noted by project collaborators, surface water connection projects can range from approximately $40 to $1,200 per acre-foot (AF) during the first year of implementation (P. Dhaliwal, personal communication, 2025). These costs typically decrease in subsequent years as initial capital investments (such as the installation of pumps, pipes, filtration systems, and other conveyance infrastructure) are distributed over the project's operational lifespan.

Groundwater-focused projects exhibit similar variability, with estimated costs ranging from about $60 to $1,435 and averaging around $400 per acre-foot, including capital investments, though these figures also decline over time. However, as highlighted by technical staff, these estimates generally represent construction and installation costs only and do not account for water acquisition or delivery costs (W. Anderson, personal communication, 2025).

Comparable recharge efforts in other regions demonstrate similar long-term investment patterns. For example, the Fresno Irrigation District's recharge pond program estimates cost to recharge (through ponds) to be about $42 per acre-foot (2005–2025) (E. Teasdale, personal communication, 2025).

Overall, project implementation costs for groundwater, surface water and recharge programs across the region vary widely depending on project type, scale, infrastructure needs, and permitting requirements. Initial first-year implementation costs generally range from approximately $40 per acre-foot for low-cost recharge or incentive-based programs to as high as $1,435 per acre-foot for more capital-intensive projects, such as construction of recharge basins, or complex conveyance improvements. These cost differences reflect the substantial variation in design, construction, operational complexity, and long-term maintenance requirements associated with different project categories.

Incentive Mechanisms

The TCFCWCD has also identified several options for incentivized demand management that encourage voluntary reductions in groundwater use while supporting agricultural and economic productivity.

Common incentive-based activities include:

- Fallowing, or the reduction of total irrigated acreage, through conversion to non-irrigated uses such as grazing, dryland cropping, or recharge basins.
- Crop diversification, where growers transition to lower-water-use crops
- Delayed replanting, a temporary reduction approach that delays the replanting of orchards or other crops, creating a period in which irrigation is not required.
- Irrigation efficiency improvements, including the adoption of advanced irrigation systems, soil-moisture monitoring, evapotranspiration (ET) scheduling, and other technologies that reduce water demand.
- Substitution of surface water for groundwater, promoting the use of available surface supplies before groundwater extraction.
- Soil improvement practices, such as applying organic or inorganic amendments that improve soil moisture retention and reduce irrigation requirements.

Two primary mechanisms can be used to support these activities:

1. Direct incentive funding, where a set amount is added to the base GSA fee and used to fund voluntary conservation programs. Program budgets and participation criteria would be approved by the Board of Directors, with field verification by District staff or contractors.
2. Fee avoidance, where users who voluntarily implement water-saving practices receive reduced groundwater management fees. This method aligns well with the goals of demand management, as participants both reduce their groundwater use and benefit financially from lower per-acre-foot costs associated with compliance under SGMA.

Because the TCFCWCD is likely to implement assumptive use fees (i.e., fees based on estimated groundwater use rather than mandatory metering), many reductions in groundwater demand such as such as fallowing, crop switching, crop diversification, or delayed replanting can be readily quantified using standard water use assumptions. These practices lend themselves well to an assumptive framework because the associated reduction in groundwater demand can be calculated without installing meters.

In contract, activities such as irrigation efficiency improvements or surface water substitution may require voluntary metering or other verification methods if water users wish to receive credit for reductions below the standard assumed groundwater volume to verify reductions below the assumed groundwater volume.

This incentive-based structure gives groundwater users the flexibility to choose the actions that best align with their operations, while still ensuring that the District can demonstrate real measurable progress toward achieving long-term groundwater sustainability.

Groundwater Uses in Tehama County

Agricultural irrigation represents the largest single use of groundwater across all Tehama County subbasins, where the cultivation of diverse crop types accounts for the majority of total extraction. In 2024, the Corning Subbasin exhibited the highest proportion of agricultural groundwater use at 97%, followed closely by the Red Bluff and Los Molinos Subbasins at 93% each, the Antelope Subbasin at 91%, and the Bowman Subbasin at 57% (TCFCWCD and CSGSA 2025a, 2025b, 2025c, 2025d, 2025e). While domestic and municipal uses play a critical role in supplying households and small communities, their overall contribution to total groundwater demand is considerably smaller compared to agricultural use. Additionally, tribal and public water systems similarly rely heavily on groundwater for their drinking water supply (TCFCWCD and CSGSA 2021; TCFCWCD 2022a, 2022b, 2022c, 2022d).

Commercial and industrial uses, including agricultural processors and small businesses, depend on groundwater for processing, manufacturing, and service operations (TCFCWCD and CSGSA 2021). Additionally, environmental and habitat uses are recognized as vital beneficiaries of groundwater. Groundwater helps maintain baseflow in creeks, preserve wetlands, and support groundwater-dependent ecosystems (GDEs), including riparian vegetation and wildlife habitats (TCFCWCD 2022b, 2022c).

Groundwater provides both direct and indirect benefits to a wide range of property owners and users throughout Tehama County. For agricultural landowners and farmers, reliable groundwater access sustains a variety of crops, maintaining property values and regional agricultural income (TCFCWCD and CSGSA 2021). Residential and rural property owners, particularly those outside municipal service areas, also depend on private wells for safe and affordable drinking water.

Commercial and industrial property owners benefit from dependable groundwater supplies that support food processing, manufacturing, and other local economic activities. The general public, including disadvantaged communities (DACs), tribal groups, and environmental organizations, also benefits from sustainable groundwater management, which protects both human and ecological water needs (TCFCWCD 2022a).

Finally, groundwater contributes to recreational opportunities and the overall health of native plant and animal species through its role in sustaining GDEs and riparian ecosystems (TCFCWCD and CSGSA 2021).

Applied Water Use in Tehama County

Table 1 presentes the assumed water used associated with for agricultural crops, as well as typical domestic and commercial demands. The methodology and data sources used to develop these assumptions are described in the following section.

Table 1. Assumed Volume per Use Type (AF/acre/yr)	
Use Type	**Applied Water Use**
Grain (wheat, barley, oats, hay, misc.)	1.6
Rice (wild, flooded, upland)	4.7
Safflower	2.1
Other Field Crops (flax, hops, sorghum, sudan, castor beans, sunflower, millet, sugarcane)	3.3
Alfalfa	3.7
Pasture (mixed, native, Bermuda, fescue, clover, rye, Klein grass, misc. grasses)	4.4
Cucurbits (melons, squash, cucumbers, watermelon)	1.8
Truck Crops (artichokes, asparagus, green beans, carrots, celery, lettuce, peas, spinach, bush berries, strawberries, peppers, broccoli, cabbage, cauliflower)	2.4
Almonds & pistachios	3.6
Other Deciduous (apples, apricots, walnuts, cherries, peaches, nectarines, pears, plums, prunes, figs, kiwis)	3.3
Citrus & subtropical (grapefruit, lemons, oranges, dates, avocados, olives, jojoba)	2.6
Vineyard (table grapes, wine grapes, raisins)	2.4
Domestic Well and Urban Use Factors	**AF/Connection/ Year**
Domestic Well (household)	0.75
Urban Residential (household)	0.5
Commercial	3.64

Source: DWR 2020; US Census Bureau 2020

Agricultural Usage

Applied water use for Tehama County's agricultural sector was estimated using the most recent data from the DWR Land and Water Use Data for Water Years 2016–2020. This dataset provides applied water values, expressed in acre-feet per acre, for individual crop types across the region. These values were used to estimate assumed groundwater volumes for agricultural use by calculating the net irrigation water required to produce each crop. The calculation incorporates multiple factors, including soil and crop characteristics, precipitation, and crop evapotranspiration. It divides the result by the mean seasonal irrigation system application efficiency to determine the final applied water volume (DWR 2020).

Crop acreage within Tehama County was calculated through a GIS analysis using the most recent LandIQ land use dataset provided by the DWR (LandIQ, 2023). This analysis identified a total of 117,321 acres of active cropland across the County, not including approximately 20,979 acres of Young Perennials, Urban,

Idle and Unclassified Fallowed land for a total of 138,300 acres. Acreage totals for individual crop types are summarized in **Table 2**.

Table 2. Acreage per Crop Type	
Crop Type	**Acreage (2023)**
Grain and Hay Crops (wheat, barley, oats, hay, misc.)	8,203.85
Rice (wild, flooded, upland)	94.05
Field Crops (flax, hops, sorghum, sudan, hybrid sorghum/sudan, castor beans, dry beans, sugar beets, sunflower, millet, sugarcane, safflower)	1,529.01
Pasture (alfalfa and alfalfa mixtures, mixed pasture, native pasture, Bermuda grass, fescue, clover, rye grass, Klein grass, turf farms, misc. grasses)	23,984.11
Truck Crops (melons, squash, cucumbers, watermelon, artichokes, asparagus, green beans, carrots, celery, lettuce/leafy greens, peas, spinach, bush berries, blueberries, strawberries, peppers, broccoli, cabbage, cauliflower, greenhouse, potatoes, sweet potatoes)	517.22
Deciduous Fruits and Nuts (almonds, pistachios, apples, apricots, walnuts, cherries, peaches, nectarines, pears, plums, prunes, figs, kiwis, mixed deciduous, pomegranates)	64,143.17
Citrus & subtropical (grapefruit, lemons, oranges, dates, avocados, olives, jojoba, eucalyptus, mixed subtropical fruits)	18,596.23
Vineyard (table grapes, wine grapes, raisin grapes)	253.43

Source: DWR 2023

Domestic (Household) Usage

The average household water use was determined using data from the City of Red Bluff 2020 Urban Water Management Plan (UWMP) (Red Bluff 2022), which reports an average daily water use of 253 gallons per capita per day. This rate is considered representative of domestic water use across the Red Bluff, Los Molinos, Antelope, and Bowman subbasins. Using the most recent 2020 Census block household data and 2023 American Community Survey data from the US Census Bureau, Tehama County was found to contain 24,934 households with an average of 2.6 persons per household (USCB, 2020, 2023b). When applied to the UWMP daily use rate, this equates to an estimated 18,370.5 acre-feet of water per year used by households Countywide (**Table 1**).

To express this demand on a per-parcel basis, average domestic groundwater use can be estimated as follows:

- Total households: 24,934
- Total domestic groundwater use: 18,370.5 AFY
- Estimated domestic use per household (or domestic parcel):

$$\frac{18{,}370.5 \text{ AFY}}{24{,}934 \text{ households}} \approx 0.74 \text{ AF per parcel per year}$$

Thus, a typical domestic well parcel in Tehama County is estimated to use approximately 0.7 to 0.8 acre-feet per year, depending on household size and local water-use practices.

Commercial Usage

Annual commercial water use in Tehama County will be estimated using a multi-step approach designed to develop a representative water use factor for the commercial sector. The primary method involves obtaining five years of historical commercial water use data from nearby urban water suppliers, including the cities of Corning and Red Bluff, which are considered reasonable analogs for commercial use patterns within Tehama County. This data will be supplemented with information from each city's UWMP, where available, to provide additional context on commercial demand characteristics.

Commercial water use patterns will be evaluated across both urban areas to identify consistent usage ranges and inform the development of a final estimated commercial water use factor (AF/Year) applicable to Tehama County. The cities have been contacted, and data requests are currently pending (**Table 3**).

Table 3. Non-Federal Parcel Distribution in Tehama County

Water Agency	5-Year Avg. Annual Use Per Commercial Account	Estimated Avg. Annual Use Per Commercial Account	Estimated Number of Commercial Accounts	Notes
City of Corning	846,883 gallons	2.6 AFY	270	Using 2020-2024 Commercial Water Use Data
City of Red Bluff	339,394 gallons	1.04 AFY	649	Using 2020-2024 Commercial Water Use Data
Average		**1.82 AFY**		Using 2020-2024 Commercial Water Use Data

Source: City of Corning; City of Red Bluff

The average commercial water use in the City of Corning is approximately 2.6 AFY per commercial account. For Red Bluff, the average commercial water use is approximately 1.04 AFY per commercial account.

Alternatively, the commercial category could be subdivided into industry-specific subclasses (e.g., restaurants, retail, personal care services, and light industrial users). However, this approach would require extensive additional data collection and would introduce analytical complexity that is unlikely to provide proportional benefit for the purposes of this DMP. Water use varies significantly by business type due to the diversity of operational needs, and these differences also vary across agencies depending on how their utility billing categories are structured. In some cases, additional data manipulation may be required to align inconsistent billing classifications or consumption categories, further complicating analysis. **Table 4** summarizes key points regarding water usage by different business types.

Table 4. Commercial Water Use by Business Type

Business Type	Water Use Description
Office Buildings	Restrooms, heating and cooling, and landscaping are the areas that consume the most water in office buildings.
Restaurants	Restrooms and kitchen use are the highest water uses.
Healthcare Facilities	Hospitals and other health care facilities have the highest water use, with cooling equipment, plumbing fixtures, landscaping, and medical equipment being the primary uses.
Retail Sales Stores	Water is used for sanitation, maintenance, and aesthetic appeal, with specific uses including toilet flushing, air-conditioning, washing floors, and lawn watering.
Government and Military Facilities	Water use encompasses both domestic and commercial activities, with specific uses varying according to the facility's function.
Educational Institutions	Water is used for sanitation, maintenance, and aesthetic appeal, with specific uses including toilet flushing, air-conditioning, and washing floors.
Resorts and Hotels	Water is used for sanitation, maintenance, and aesthetic appeal, with specific uses including toilet flushing, air-conditioning, and lawn watering.
Car Washes and Laundries	Water is used for daily operations, sanitation and maintenance.
Business Parks	Water is used for sanitation, maintenance, and aesthetic appeal, with specific uses including toilet flushing, air-conditioning, and lawn watering.

Although understanding water-use patterns by individual business type can be valuable for certain planning efforts, it is not the most practical basis for developing a representative commercial water-use factor for this DMP. Business-type-specific factors would likely require annual updates based on the most recent 12-month billing period (e.g., July through June), increasing both workload and uncertainty. For these reasons, LSCE recommends using the average annual water use per commercial connection as the primary basis for estimating groundwater demand for the commercial sector.

To support this evaluation, commercial business counts in Tehama County were compiled using the most recent County Business Patterns dataset from the U.S. Census Bureau (USCB, 2023). Relevant commercial and institutional sectors were identified by filtering North American Industry Classification System (NAICS) codes associated with businesses that typically use water as part of their operations. These sectors included Newspaper Publishers; Radio and Television Broadcasting; Libraries and Archives; Offices of Real Estate Agents and Brokers; Monetary Authorities and Central Banks; Personal Care Services (e.g., hair and nail salons); Automotive Repair and Maintenance; Food and Beverage Manufacturing; Retail Trade; Ambulatory Health Care Services; Hospitals; Nursing and Residential Care Facilities; Food and Beverage Retailers; Restaurants and Other Eating Places; Religious, Grantmaking, Civic, Professional, and Similar Organizations; Educational Services; and Golf Courses and Country Clubs. Applying these filters resulted in the identification of approximately 956 commercial establishments within Tehama County.

Parcels Subject to the DMP

To identify the number of State of California, federal, and non-federal parcels within each of the five managed groundwater subbasins, a GIS analysis was conducted using multiple spatial datasets. The analysis incorporated the California Land Ownership shapefile from CAL FIRE (CAL FIRE, 2019), the Bulletin 118 Groundwater Basins shapefile from DWR (DWR, 2019), and Tehama County parcel data provided by the Tehama County Transportation Commission (TCTC, 2024). These datasets were overlaid to quantify the total number of federal, state and non-federal parcels and their corresponding acreage, within each subbasin. The total numbers of parcels and their acreages corresponding to each subbasin are shown in **Table 4**.

Within the five managed subbasins, the raw GIS analysis identified 36,430 non-federal parcels (including 236 State-owned parcels) and 237 federal parcels. However, because some parcels extend across more than one subbasin boundary, they are counted once in each subbasin they intersect. This boundary overlap results in a slightly higher aggregated parcel total when summing across all subbasins (36,745 non-federal parcels, 258 State parcels, and 271 federal parcels) reflecting double-counting and, in some instances, triple-counting of parcels located in multiple subbasins. The same effect is observed in the acreage totals, where the raw summed acreage across subbasins is 744,664 acres, compared to the tabulated total acreage of 712,593 acres.

To determine how many parcels within each subbasin may be subject to groundwater management fees, the total parcel count (which includes both federal and non-federal parcels, with State parcels included in the non-federal category) was adjusted by subtracting all State and federal parcels. This calculation isolates the number of parcels subject to fees.

Table 4. Parcel Distribution of Relevant Subbasins in Tehama County				
Location	**Total Number of Parcels**	**Number of Federal Parcels**	**Number of State Parcels**	**Number of Parcels Applicable to Fees**
Antelope Subbasin	3,643	34	18	3,591
Bowman Subbasin	6,247	21	10	6,216
Corning Subbasin	7,963	59	57	7,847
Los Molinos Subbasin	2,821	33	134	2,654
Red Bluff Subbasin	16,342	124	39	16,179

Source: CalFire 2025; DWR 2019; Tehama County GIS Department 2024

Table 4. Acreage Distribution of Relevant Subbasins in Tehama County				
Location	**Total Number of acres**	**Number of Federal Acres**	**Number of State Acres**	**Number of Acres Applicable to Fees**
Antelope Subbasin	24,343	2,245	448	21,650
Bowman Subbasin	128,240	1,369	921	125,950
Corning Subbasin	171,076	9,141	2,238	159,697
Los Molinos Subbasin	102,828	4,747	22,841	75,240
Red Bluff Subbasin	286,106	12,216	1,401	272,489

Source: CalFire 2025; DWR 2019; Tehama County GIS Department 2024

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MEMORANDUM

TO: **Justin Jenson**

FROM: **Morgan S. Biggerstaff**
Jennifer T. Buckman

CC: **Daniel Klauser**

DATE: **November 5, 2025**

RE: **Comments on Draft Demand Management Actions Program**

Tehama County Flood Control and Water Conservation District (District) is the Groundwater Sustainability Agency (GSA) for the various groundwater subbasins in Tehama County and is responsible for implementing management actions to achieve sustainability with the subbasins pursuant to the Sustainable Groundwater Management Act (SGMA). At the District's request, BKS reviewed the Groundwater Sustainability Plan (GSP) for the Corning, Red Bluff, Antelope and Los Molinos Subbasins as well as the approval letters, staff reports and recommended corrective actions issued by the Department of Water Resources (DWR) and the GSA's three sets of draft demand management program documents.

Based on its review of these materials, BKS provides the following comments and recommendations related to the draft demand management program documents.

ANALYSIS

I. Produce a Robust Technical Report and Administrative Record to Support Implementation of Demand Management Actions

The GSA's demand management actions include a number of policy decisions, including how to allocate groundwater within the various subbasins. To maximize the chances that these decisions will be upheld in the event of any legal challenge, the policy decisions should be supported by findings based on substantial evidence in the record of proceedings before the agency. (Code Civ. Proc., § 1094.5.) If landowners or other affected parties were to challenge these demand management actions, the GSA would need to

defend them based on one of the following three types of supporting information: (1) facts, (2) inferences based on facts, or (3) expert opinions predicated upon facts. This means the GSA and its experts must "show their work" so BKS can, in turn, show it to the court if necessary.

Therefore, BKS recommends the GSA's SGMA consultant produce a technical report or memorandum that explains the basis for the different elements of the demand management program including how and why the Thiessen polygon method is an appropriate basis for groundwater allocation in the subbasins and how the safe yield calculation can be properly allocated among the polygons. Similarly, it will be important to provide a reasoned explanation for the policy choice to treat contiguous Assessor Parcel Numbers under one ownership that fall within multiple Combined Safe Yield areas as if they all fall under the most restrictive Combined Safe Yield Area. Because this default rule has the potential to impair a grower's ability to grow certain types of crop, it may be appropriate to include a variance procedure so application of the rule does not create unintended disparities.

BKS also recommends the GSA and its SGMA consultant produce a technical analysis that explains how and why the triggers and incremental stages in Management Action Number 1 were chosen.

II. Utilize a Rate Consultant and Produce a Fee Study Supporting Adoption of GSA Fees

BKS recommends the GSA utilize a rate consultant to develop appropriate GSA fee structures, since Propositions 218 and 26 are frequent sources of legal challenge to fees imposed by public agencies. To be defensible, subbasin-specific projects and demand management actions paid for with GSA fees should be paid by those who will benefit from the measures. This could mean subbasin-specific pumping fees or acreage fees, as appropriate.

For example, Corning and Red Bluff Subbasins are in overdraft but Antelope and Los Molinos are not. Corning Subbasin has only one identified principal aquifer whereas the others have upper and lower aquifers. These distinctions suggest that subbasin-specific fees or charges may be appropriate to address differences in local conditions.

In contrast, a countywide fee to cover GSA administrative and operational costs could be utilized for broadly applicable SGMA monitoring and management actions such as grower education.

III. Overdraft Conditions in the Subbasins Could Require Implementation of Management Action Numbers 1 or 2 Prior to 2031

DWR may take issue with the GSA delaying implementation of Management Action Numbers 1 and 2 for five years after their adoption. Under SGMA, groundwater conditions (not the calendar) should drive implementation of additional management actions. As noted in the DWR staff reports approving the GSPs, DWR could disapprove the GSP in future evaluations if the GSA has not "adequately responded to comments that raise credible technical or policy issues with the Plan." (23 CCR § 355.4(b)(10).) To address this concern, BKS has proposed targeted revisions that clarify the GSA intends to delay implementation of Management Action Numbers 1 and 2 until January 1, 2031 "unless conditions change such that earlier implementation in a Subbasin must be considered."

IV. Additional Miscellaneous Recommendations

- DWR staff asked the GSA to provide evidence in future reports that Red Bluff, Los Molinos and Antelope Subbasins have two principal aquifers (see the Recommend Corrective Actions for those GSPs). Technical information should be developed to respond to this request.
- Groundwater users may not have an incentive to engage in the demand management activities that require installation of a meter if the GSA is not going to pay for the meter. The GSA should consider whether it is willing to advance these costs in order to assist the overall program.

BKS is happy to discuss any follow-up questions you may have regarding these recommendations.

Morgan S. Biggerstaff

Tehama County

Agenda Request Form

File #: 25-2090 **Agenda Date:** 12/10/2025 **Agenda #:** 3.

Standing Agenda Items

Requested Action(s)

1. Groundwater Recharge
2. Grant Status
3. Demand Management Plan Working Group Update
4. Well Mitigation Plan Working Group Update
5. Annual Report Status
6. Outreach