



Committee Members  
Robert Macaulay  
Jordan Wamhoff

Any individual with a disability may request special assistance by contacting the chief clerk to the board of supervisors (acting on behalf of the Madera County GSAs).

Madera County  
Groundwater Sustainability Agency  
(in the Madera, Chowchilla, and Delta-Mendota Subbasins)  
Special Committee Meeting  
March 3, 2026  
1:30 p.m.

Meeting Location  
Madera County Government Center  
200 W. 4th Street, Madera CA 93637  
Board of Supervisors Chambers

REMOTE PARTICIPATION  
<https://us06web.zoom.us/j/88471820822>

Supporting documents relating to the items on this agenda are available through the County of Madera websites at [www.maderacounty.com](http://www.maderacounty.com) and [maderacountywater.com](http://maderacountywater.com). These documents are also available at the Office of the Clerk of the Board of Supervisors (acting on behalf of the Madera County GSAs), 200 West 4th Street, 4th Floor, Madera, CA 93637. Supporting documents relating to the items on this agenda that are not listed as 'Closed Session' may be submitted after the posting of the agenda and are available at the Office of the Clerk of the Board of Supervisors (acting on behalf of the Madera County GSAs). Please visit the Office of the Clerk of the Board of Supervisors (acting on behalf of the Madera County GSAs) for updates.

1. Call to Order
2. Flag Salute
3. Public Comment – This is an opportunity for comment on items not on this agenda. This is also a place to suggest topics for future meetings. Comments can be five minutes or less.





Committee Members  
Robert Macaulay  
Jordan Wamhoff

#### 4. New Business

- a. Action Item: Approval of the Madera County Groundwater Sustainability Agency Committee Meeting Minutes from February 3, 2025
- b. Informational Item: Semi-Annual Budget Update for the Madera County GSA
- c. Informational Item: Discussion of potential refinements to Domestic Well Mitigation Program
- d. Informational Item: Summary of informational Interviews with growers who expressed disinterest in a groundwater accounting platform
- e. Informational Item: Review of Fallow Fields Data
- f. Informational Item: Review of draft Chowchilla Subbasin Groundwater Demand Management Programs and Subsidence Mitigation Measures Report to receive feedback
- g. Action Item: Consideration and recommendation of entering into an Agreement among the Delta-Mendota Subbasin Groundwater Sustainability Agencies listed in Exhibit "A"

#### 5. Directors' Report

#### 6. Adjourn





Committee Members  
Robert Macaulay  
Jordan Wamhoff

ITEM 4.a

## MINUTES

Madera County Groundwater Sustainability Agency  
(in the Madera, Chowchilla, and Delta-Mendota Subbasins)  
Committee Meeting: February 3, 2026, 1:30 p.m.

Meeting Location: Madera County Government Center  
200 W. 4th Street, Madera CA 93637  
Board of Supervisors Chambers

### REMOTE PARTICIPATION

<https://us06web.zoom.us/j/87594364987>

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#### Attendance:

County GSA Directors: Robert Macaulay, Jordan Wamhoff

County GSA Staff: Stephanie Anagnoson, Jeannie Habben, Leticia Tapia, Tukta Phetasa, Emily Garcia, Aleta Allen, Jacinta Cabral, Jerod Weeks, Mayumi Ploszaj

County staff attending on behalf of the GSA: Regina Garza, Melisa DaSilva, Sarah Anderson, Mika Flores

6 members of the public in person; 25 members of the public on Zoom

1. Call to Order: 1:32pm  
The GSA Committee meeting was called to order by Director Macaulay.
2. Flag Salute  
The flag salute was led by Director Wamhoff.
3. Public Comment  
There was one public comment.
4. New Business
  - a. Action Item: Approval of the Madera County Groundwater Sustainability Agency Committee Meeting Minutes from November 12, 2025





Committee Members  
Robert Macaulay  
Jordan Wamhoff

ITEM 4.a

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0

- b. Informational Item: Look Back, Look Ahead: Review 2025 Accomplishments and 2026 goals for the Madera County GSA  
This was presented by Ms. Anagnoson. There was one public comment.
- c. Action Item: Consideration and recommendation to the Board of Directors to approve Transfer of Appropriations to Allocate Appropriations to the Refunds and Reimbursements  
This was presented by Ms. Garcia. There were no public comments.

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0

- d. Action Item: Consideration and recommendation to the Board of Directors to:
  - 1) Find that the Prop 68 Chowchilla Subbasin Round 1 Funding Construction Project, including construction is exempt from CEQA pursuant to Executive Order N-7-22.
  - 2) Approve the agreement for the Prop 68 Chowchilla Subbasin Round 1 Funding Construction Project.This was presented by Ms. Cabral. There was one public comment.

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0





Committee Members  
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Jordan Wamhoff

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- e. Action Item: Consideration and recommendation to the Board of Directors to approve a one-year agreement with Madera Subbasin Annual Report – 7 party Cost Sharing  
This was presented by Ms. Allen. There was one public comment.

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0

- f. Action Item: Consideration and recommendation to the Board of Directors to approve a one-year agreement with Davids Engineering for the Madera Subbasin Annual Report  
This was presented by Leticia Tapia. There were no public comments.

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0

- g. Action Item: Consideration and recommendation to the Board of Directors to approve an agreement with Davids Engineering for allocation support for a three-year agreement  
This was presented by Ms. Phetesa. There was one public comment.

Result: Motion passed  
Moved: Director Wamhoff  
Second: Director Macauley  
Ayes: Director Macaulay; Director Wamhoff  
Vote passes: 2-0

- h. Informational Item: Review of Groundwater Accounting Platform Status  
This was presented by Ms. Allen. There were two public comments.





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i. Action Item: Consideration and recommendation to the Board of Directors to approve a receipt of unanticipated revenue for groundwater sustainability plan (domestic well mitigation) appropriations

This was presented by Mr. Weeks. There was one public comment.

Result: Motion passed

Moved: Director Wamhoff

Second: Director Macauley

Ayes: Director Macaulay; Director Wamhoff

Vote passes: 2-0

j. Action Item: Consideration and recommendation to approve a resolution amending rules and eligibility criteria for implementing the Domestic Well Mitigation Program in the Madera County Groundwater Sustainability Agency – Madera Subbasin

This proposed Resolution and Policy is consistent with the authority granted under the Sustainable Groundwater Management Act and is exempt from the California Environmental Quality Act under Guidelines sections 15307, 15308, and 15061(b)(3). This was presented by Mr. Weeks. There was one public comment.

Result: Motion passed

Moved: Director Wamhoff

Second: Director Macauley

Ayes: Director Macaulay; Director Wamhoff

5. Directors' Report

This was presented by Ms. Anagnoson

There were no public comments.

6. Adjourn: 2:51





Committee Members  
Jordan Wamhoff  
Robert Macaulay

ITEM 4.b

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Semi-Annual Budget Update

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## **DISCUSSION:**

The Madera County Groundwater Sustainability GSA (GSA) is funded through a groundwater sustainability fee adopted after a detailed financial analysis to ensure the GSA can implement and administer its Groundwater Sustainability Plan (GSP). The fee is structured to recover the reasonable costs associated with regulatory compliance, groundwater monitoring, data management, annual and five-year reporting, professional and legal services, staffing, administration, and prudent reserves. After consideration of rate options, the Board selected an irrigated-acreage methodology so that costs are equitably allocated to non-de minimis groundwater users who rely on groundwater and benefit from long-term basin management. This approach allows the GSA to remain financially self-sustaining, ensures that implementation costs are borne by groundwater users rather than the County's General Fund, and supports the continued responsible management of the subbasin.

This item provides a high-level quarterly financial update to the Committee to promote fiscal transparency and accountability. The overview summarizes current revenues, expenditures, and overall budget status to ensure the GSA Committee and the public remain informed on the GSA's financial position. Providing these regular updates supports sound financial management, reinforces responsible stewardship of fee revenues, and allows for early identification of any trends that may require Committee awareness or direction.

The GSA's finances remain stable through the first two quarters of the fiscal year, with revenues tracking as expected based on fee collections and grant reimbursements. Expenditures reflect ongoing regulatory compliance, professional services, staffing, and





Committee Members  
Jordan Wamhoff  
Robert Macaulay

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administrative support consistent with adopted budget categories. Professional and regulatory costs represent a significant portion of spending due to technical studies, monitoring requirements, and compliance activities. Overall, expenses are aligned with planned implementation efforts.

The GSA's major revenue sources include grant funds and the GSA Admin Fee. It is important to note that grant funds are not true revenue, but rather reimbursements for eligible expenses the GSA already incurred. Expenditures for the year continue to focus on regulatory compliance, professional support services, staffing, and administrative needs. Within professional support services, the budget includes funding for legal, financial, recharge, measurement, and land repurposing work.

While grants have temporarily expanded the GSA's capacity for projects and planning, they are not considered a sustainable long-term funding source. Technical expertise remains costly, and state grant availability is currently limited. Litigation should be anticipated, and maintaining a reserve plus funds for five-year GSP updates remains essential. Grower input has guided program design, including offering three measurement options.

Looking ahead, staff will continue to closely monitor revenues and expenditures to ensure the GSA remains aligned with its adopted budget and long-term financial plan. As program needs evolve and additional regulatory requirements emerge, future updates will reflect any necessary adjustments to maintain fiscal stability and operational effectiveness. The GSA remains committed to transparent reporting, prudent reserve management, and thoughtful planning to support sustainable groundwater management within its boundaries.

### **FISCAL IMPACT:**

This is an analysis of current financial picture in the County GSA. There is no impact to the County General Fund

JW





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ITEM 4.c

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Action Item: Discussion of potential refinements to Domestic Well Mitigation Program.

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### **DISCUSSION:**

The Madera GSA in the Madera Subbasin's Domestic Well Mitigation Program (Program) was developed as a component of the Joint Groundwater Sustainability Plan (GSP) to mitigate impacts to domestic well users resulting from declining groundwater levels. The program includes eligibility review, technical evaluation, coordination of well construction, inspection, and reporting. The Program is funded through the GSP fee adopted based on the Raftelis financial consulting analysis, which evaluated the anticipated costs of implementing GSP projects and management actions, including domestic well mitigation, and established a fee structure to equitably recover those costs from groundwater users.

Revenues generated from the GSP fee are intended to support program implementation and ensure long-term financial sustainability. In developing the fee model, Raftelis relied on technical cost estimates indicating that domestic well replacement costs ranged from \$25,000 to \$35,000. The \$35,000 figure reflects the upper end of the estimated cost range at that time. When the Program framework was initially established, the \$35,000 per-well limit was set as it was able to balance protection of domestic well users with the long-term fiscal sustainability of the Program.

During the Program development phase, the GSA Committee directed staff to look to existing programs as models rather than "reinvent the wheel," including the Chowchilla Subbasin Domestic Well Mitigation Program, which has been operational for several years and limits reimbursement to well construction only, excluding related expenses such as wiring, plumbing, and pump installation.





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In addition, GSA staff conducted outreach and facilitated focus groups to identify potential barriers homeowners might face when accessing and utilizing the program. A recurring concern raised during these discussions was the potential for significant out-of-pocket expenses and the ability of homeowners to cover costs not included under the current Program cap. In response to this feedback and from GSA Committee instruction, GSA staff considered several options to further assist homeowners with the additional costs.

GSA staff recommends an approach that maintains a \$35,000 per-well cap but allows reimbursement of all well-related expenses up to that amount, including but not limited to drilling, plumbing, electrical work, pump installation, and destruction of the old well. This structure would provide flexibility to address full system restoration while still establishing a clear overall funding limit.

GSA staff have received two applications from homeowners that would like to connect to an existing water system as allowed in the Program's approved rules. Madera County Public Works has provided a quote of approximately \$84,000 to extend a water main line approximately 400 feet and connect the two properties, plus an additional \$7,000 each in water connection fees. This estimate does not include the cost of plumbing from the main line to each residence. In these situations, total project costs can exceed the current per-well cap, and additional funding may be necessary to accommodate connection-based mitigation where it is determined to be the most appropriate solution.

**FISCAL IMPACT:**

There is no impact to the General Fund.

**ATTACHMENTS:**

N/A

JW





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Robert Macaulay  
Jordan Wamhoff

ITEM 4.d

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Summary of informational Interviews with growers who expressed disinterest in a groundwater accounting platform

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## **DISCUSSION:**

At the February 3, 2026, Madera County GSA Committee meeting, staff was asked to research why a significant percentage of growers expressed opposition to a groundwater accounting platform. In general, smaller growers voiced the opposition. Staff followed up with individual growers. The questions asked and a summary of responses are included below.

### **We noticed you marked that you weren't interested in a groundwater accounting platform and wanted to explore why. Do you have a moment to chat?**

Growers indicated that they did not understand a groundwater accounting platform or the need for one (despite outreach relating to groundwater accounting platforms). They did not see the added benefit in a groundwater accounting platform in addition to the satellite measurement. Most growers did not express cost as the controlling factor in their decision.

### **How often do you review your water use data and reports?**

Answers were almost equally distributed daily, weekly and monthly.

### **Do you use Hydrosat-Irriwatch? Do you like how it is set up?**

Answers were almost equally distributed among Irriwatch, Land IQ and meters





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Based on the mixed results from the questionnaire, including a significant number of responses indicating no interest in a groundwater accounting platform, staff recommends waiting a year and re-issuing an RFP if requested by the board and growers.

**FISCAL IMPACT:**

The groundwater accounting platform is associated with a cost, but there is no fiscal impact because this is an informational item.

**ATTACHMENTS:**

N/A

A.A





Committee Members  
Jordan Wamhoff  
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ITEM 4.e

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Review of Fallow Fields Data

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## **DISCUSSION:**

At the February 3, 2026, Madera County GSA Committee, staff was asked to return with an analysis of fallow fields, with the understanding that a decrease in water use would be tied to a decrease in the number of acres farmed.

Using the existing Allocation contract, staff asked Davids Engineering to create a time series of fallowed lands over time. Davids Engineering processed a time series for the Madera Subbasin, County GSA from 2016 – 2022 using a blend of crop data provided by the California Department of Water Resources (DWR) and the United States Department of Agriculture (USDA) CropScape dataset. For water years 2023 and 2024, a more refined crop data set was merged with existing DWR-CropScape data. Data for 2025 is not available yet. Based on the data, it appears cropped area has remained relatively stable over time in the Madera County GSA in the Madera Subbasin, but increased by roughly 3000 acres in the Madera County GSA in the Chowchilla subbasin in the 2022 time frame, which correlates to the Prop 218 protest in the Chowchilla Subbasin.

To look at water use over time, using OpenET for total evapotranspiration, and then subtracting effective precipitation and any data on surface water use, Davids Engineering also created a time series for evapotranspiration of applied water (ETAW) over time. Based on the data for ETAW, both the Madera County GSA in the Madera Subbasin and Chowchilla Subbasin showed low water use in 2023 and 2023 (wet and above normal years, respectively) and much higher water use in 2025 (dry).





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There are a number of policy options available to the Board of Directors, including increasing the penalty, which has been considered numerous times, as well as subtracting any overuse from future allocations. Other options may exist as well.

Staff has considered developing a fallow field program. It is possible to envision a program that enrolled acres that were fallowed in order to zero out evapotranspiration calculations. A potential program for fallow fields might include grower enrollment, the ability for staff to visit the fields in question (with advance notice) and eliminating ETAW on the fields (while tracking it in the background for verification purposes).

**FISCAL IMPACT:**

This analysis is paid for with the GSA Administration Fee.

**ATTACHMENTS:**

Exhibit A of Fallow Field Analysis

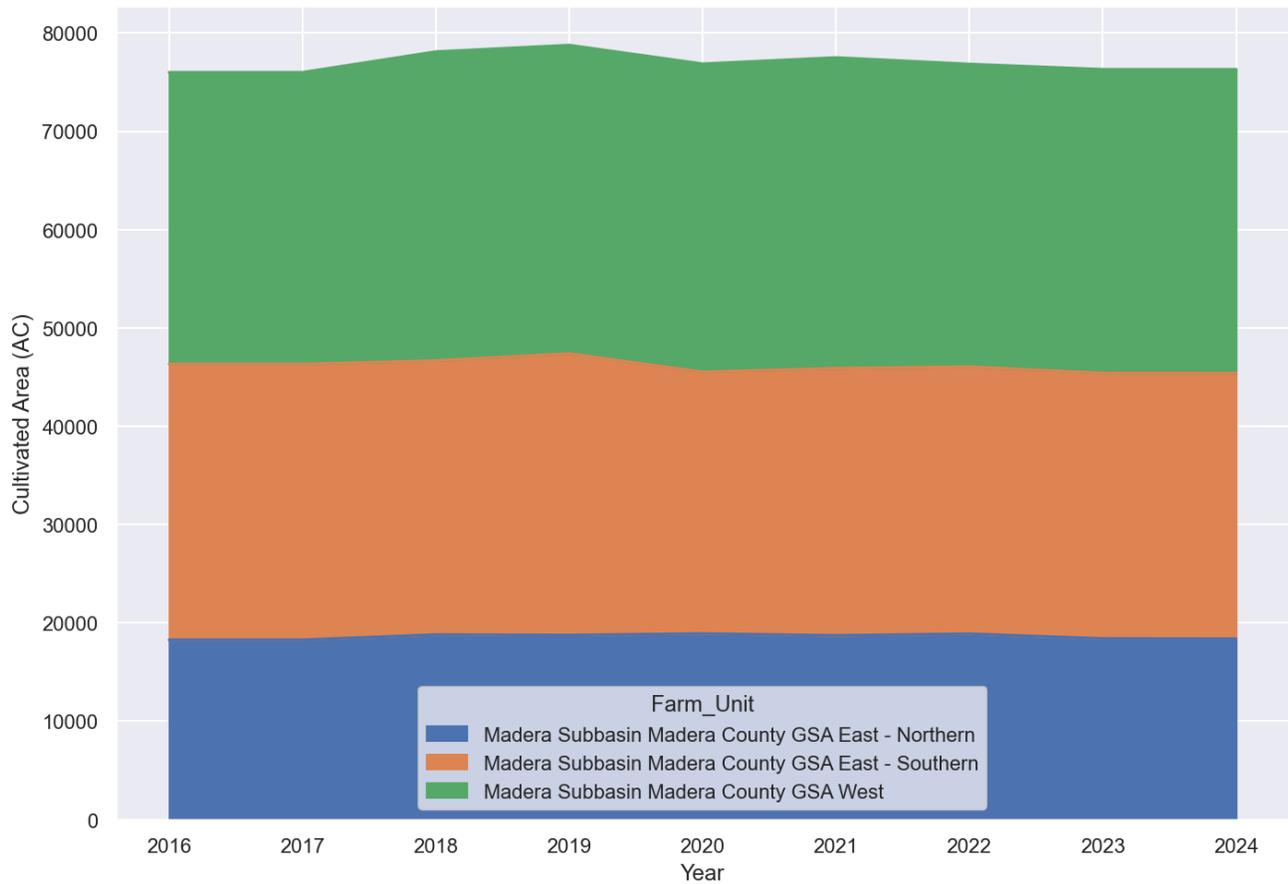
SA





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### Exhibit A

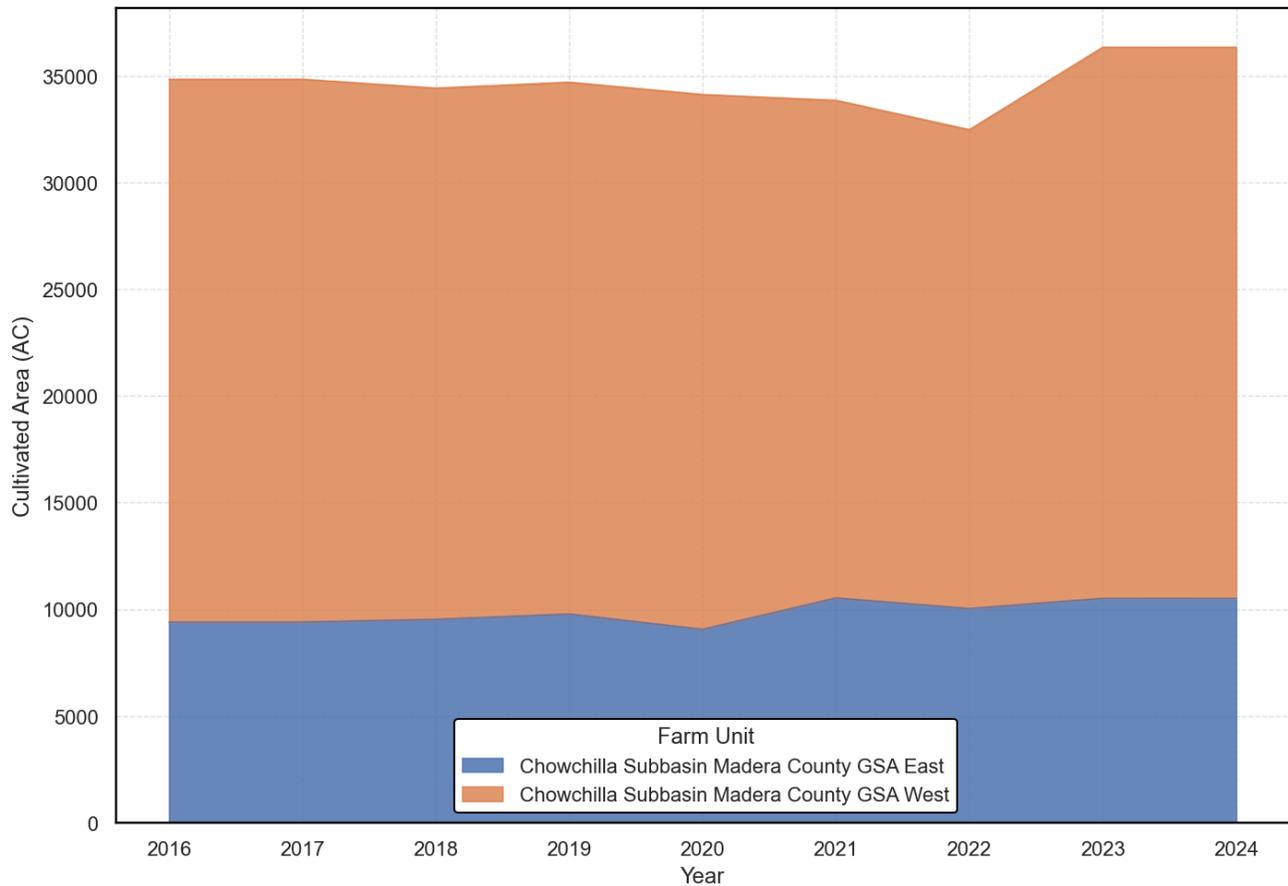


**Figure 1.** Cultivated area trend analysis for the Madera County GSA, Madera Subbasin farm unit zones. Note that the 2025 water year crop data is not available yet.





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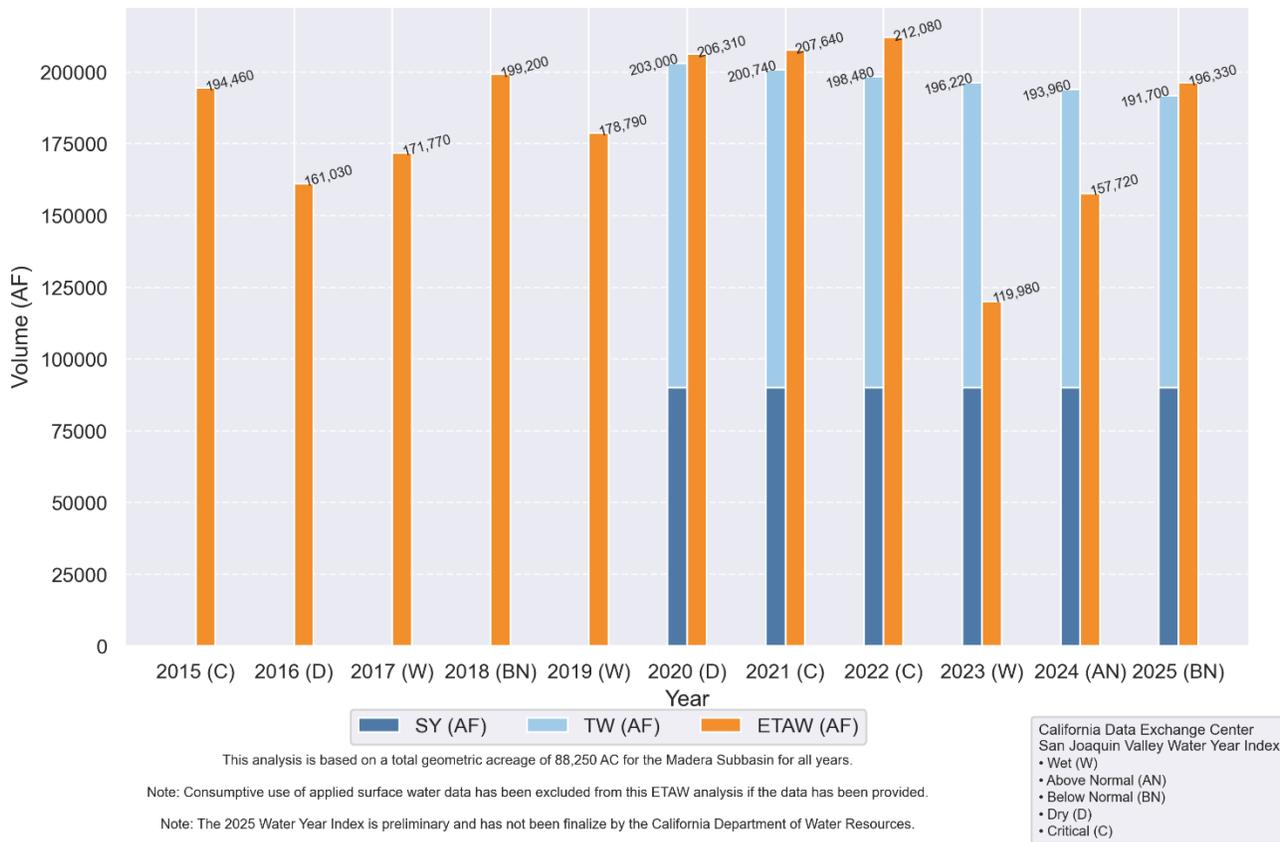
**Figure 2.** Cultivated area trend analysis for the Chowchilla Subbasin farm unit zones. Note that the 2025 water year crop data is not available yet. Note spike in 2022.





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Madera County GSAs Madera Subbasin Volume (AF) per year (2015-2025)



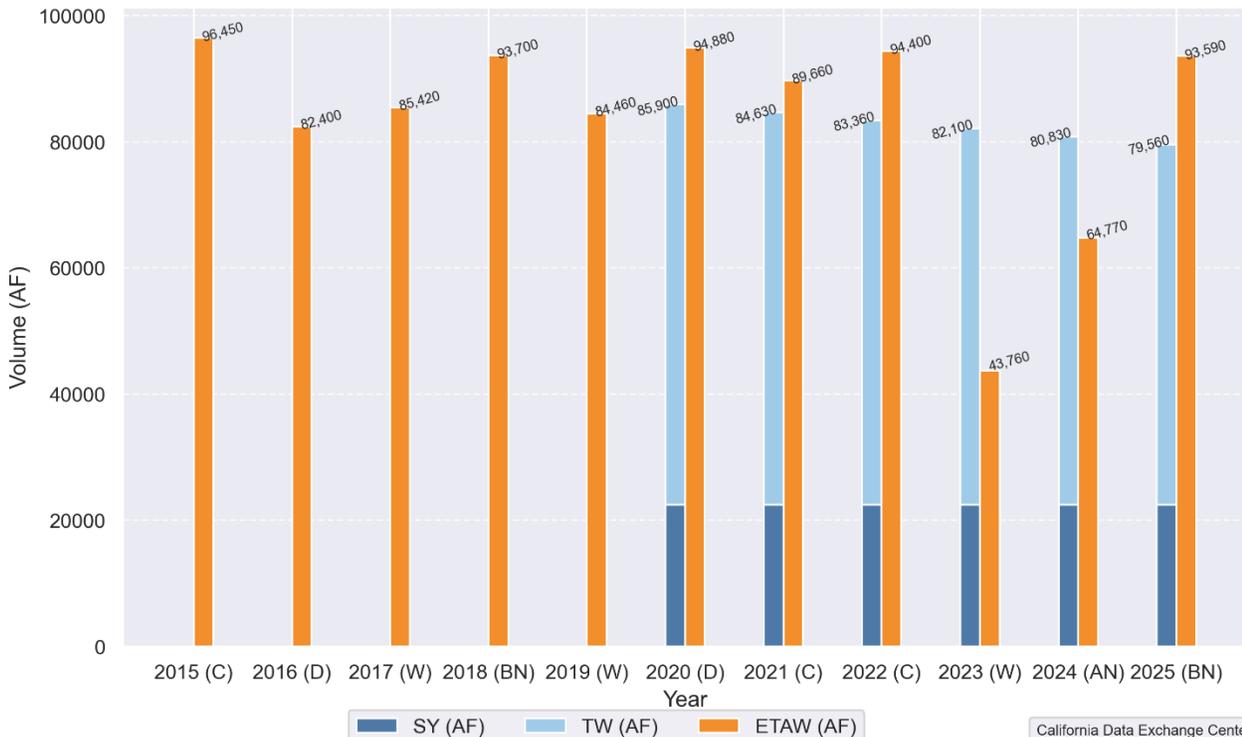
**Figure 3.** ETAW over time for the Madera County GSAs' farm units within the Madera Subbasin using OpenET-ET data (ensemble model) and PRISM-P data. Note that consumptive use of applied surface water has been excluded from this analysis if the data was available.





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Madera County GSAs Chowchilla Subbasin Volume (AF) per year (2015-2025)



This analysis is based on a total geometric acreage of 38,100 AC for the Chowchilla Subbasin for all years.

Note: Consumptive use of applied surface water has been excluded from this ETAW analysis if the data has been provided.

Note: The 2025 Water Year Index is preliminary and has not been finalized by the California Department of Water Resources.

California Data Exchange Center  
 San Joaquin Valley Water Year Index  
 • Wet (W)  
 • Above Normal (AN)  
 • Below Normal (BN)  
 • Dry (D)  
 • Critical (C)

**Figure 4.** ETAW over time for the Madera County GSAs' farm units within the Chowchilla Subbasin using OpenET-ET data (ensemble model) and PRISM-P data. Note that consumptive use of applied surface water has been excluded from this analysis if the data was available.





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Jordan Wamhoff  
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ITEM 4.f

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Informational Item: Review of draft Chowchilla Subbasin Groundwater Demand Management Programs and Subsidence Mitigation Measures Report to receive feedback

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### **DISCUSSION:**

Following a 2023 Inadequate Determination from the California Department of Water Resources (DWR) and amidst subsequent revisions to the Chowchilla Subbasin (Subbasin) Groundwater Sustainability Plan (GSP), the four Groundwater Sustainability Agencies (GSAs) representing the Chowchilla Subbasin (Chowchilla Water District, County of Madera - Chowchilla, County of Merced - Chowchilla, and Triangle T Water District) had several meetings with the State Water Resources Control Board (SWRCB) staff during which the SWRCB staff indicated that the GSAs must prepare demand management programs and subsidence mitigation measures with specific triggers, as a “backstop” to their existing Projects and Management Actions (PMAs).

Given SWRCB guidance and as part of the 2025 Revised Subbasin GSP, the GSAs signed the Demand Management Programs and Subsidence Mitigation Measures Memorandum of Understanding (MOU) to outline the GSAs commitment to developing groundwater demand management (GDM) programs and subsidence mitigation measures as the “backstop” to other PMAs.

The mitigation measures outlined in the MOU include both voluntary and mandatory measures with specific triggers for action to implement as necessary. Mandatory measures are enforceable actions that directly regulate groundwater use, such as groundwater allocations, groundwater extraction fees, or lower-aquifer extraction limits. Voluntary measures are incentive-based or cooperative efforts, such as recharge projects, multi-benefit land repurposing programs, and in-lieu surface water use, that achieve groundwater





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demand reductions through participation and collaboration.

Over the course of the last several months, the GSAs have worked to develop an actionable and implementable GDM Report (Report). The purpose of this Report is to document the GSAs' programmatic approach to prepare for implementation of GDM programs and subsidence mitigation measures beginning in 2026, consistent with the MOU, and to the extent conditions warrant.

The GSAs' programmatic, actionable approach is outlined in this Report as follows:

- **Section 2** describes the specific GDM programs and subsidence mitigation measures, both mandatory and voluntary, that the GSAs are implementing, or are preparing to implement as necessary.
- **Section 3** describes the trigger conditions, with specific spatial and time considerations, that the GSAs will monitor to determine when and where actions are necessary to avoid potential impacts.
- **Section 4** describes the monitoring approach for evaluating whether and where implementation trigger conditions have occurred.
- **Section 5** describes the public outreach and engagement process, including noticing to adjacent Subbasins.
- **Section 6** describes other program implementation and management decisions, including GSA roles and responsibilities, GSA feedback and periodic review to ensure that actions under this approach are effective, and potential GSA funding and financing approaches.

Section 2 of the Report outlines the existing programs and measures that are implemented or are being prepared for implementation if necessary.

For example, Madera County GSA has implemented a demand management program with allocation, penalties, and a recharge policy.

Madera County GSA also has existing voluntary measures such as participating in the Multi-Benefit Land Repurposing Program (MLRP), voluntary land fallowing, Chowchilla Bypass Flood Flow Recharge Projects, Water Purchase Programs, Water Imports Purchase, and Millerton Flood Release Imports.





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Since 2022, Madera County GSA has had an established groundwater allocation program for measuring and monitoring consumptive use for each irrigated parcel or farm unit. This allocation program is supporting sustainable groundwater management by gradually limiting groundwater extraction within the Madera County GSA areas to the sustainable yield of the Subbasin, accomplished by gradually reducing the transitional water to 0 AF per acre by 2040. In total, this is estimated to reduce demand to approximately 22,500 AF by 2040 for the Madera County GSA in the Subbasin.

Since 2023, penalties have been in place for exceeding the farm unit allocation. Penalties started out at \$100 per AF in 2023 and have increased by \$100 per AF per calendar year, up to a maximum of \$500 per AF for water use over the farm unit allocation. This includes an additional \$1000 per farm unit. The penalties collected go towards funding Madera County GSAs portion of the Domestic Well Mitigation Program in the Subbasin.

Madera County GSA has also developed and implemented a recharge policy that would credit recharge benefits to the allocation of areas where recharge occurred. There are two components to the recharge policy, one related to storing surface water derived from a water right or contract and the other from an approved diversion during a flood event.

Section 2 of the Report also outlines potential mandatory measures that the GSAs have identified that could be initiated or expanded if trigger conditions occur and indicate a need for additional or more aggressive response(s).

For example, Madera County GSA could potentially look into adjusting the transitional water to reduce groundwater extraction within focused areas, and/or set lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated. This could also include potentially requiring measurements of wells used for Concentrated Animal Feeding Operations (CAFOs).

These potential refinements can be considered and implemented according to trigger responses and focused in areas where trigger conditions occur. Refinements are expected to be determined on a case-by-case basis, depending on the location and extent of trigger conditions. Any refinements to the demand management program will require a robust and transparent public outreach and engagement process.

Section 3 of the Report outlines implementation triggers, extent, and timeline.





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Trigger thresholds have been set relative to subsidence, as subsidence is considered by the GSAs to be the most restrictive sustainability indicator in the Subbasin. A series of trigger thresholds have been developed to evaluate subsidence conditions in the Subbasin leading toward implementation of mandatory measures.

The condition for action to be taken requires subsidence triggers thresholds at two representative monitoring sites (RMS) to have been exceeded in the same year. These triggers follow a modified stoplight approach (green-yellow-orange-red light). Green means no action is necessary, yellow is to maximize the use of voluntary measures, orange will need to prepare for implementation of mandatory measures within one year and red will need to immediately implement mandatory measures.

The timeline for an evaluation will be presented each year as part of the Annual Report for the subbasin. At this time, if any trigger conditions have been met then subsequent action will be initiated related to the trigger exceeded.

Section 4 of the Report outlines the monitoring approach that will utilize the monitoring network and protocols established in the 2025 Revised Subbasin GSP.

Section 5 of the Report details public outreach and engagement approaches such as a combination of public meetings and advisory committee discussions, website postings, email lists, translated materials, and targeted outreach.

The GSAs also plan to work with adjacent subbasins toward a regional approach to subsidence mitigation. Collaboration with neighboring subbasins is necessary to adequately address subsidence concerns.

Section 6 of the Report outlines the roles and responsibilities of implementing the GDM programs and subsidence mitigation measures. Each GSA will be responsible for initiating the measures described above and in the Report within its jurisdiction.

Each GSA is responsible for funding and financing each individual GSAs effort.

This item was reviewed at the Chowchilla Subbasin Advisory Committee on February 18, 2026. Action was taken to recommended approval to each of the GSA's governing board.





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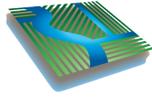
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**ATTACHMENTS:**

Chowchilla GDM Subsidence Mitigation Report – 20260218

TP





**DAVIDS**  
ENGINEERING, INC

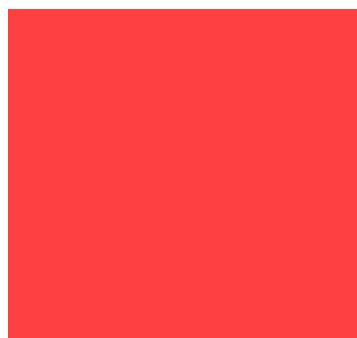
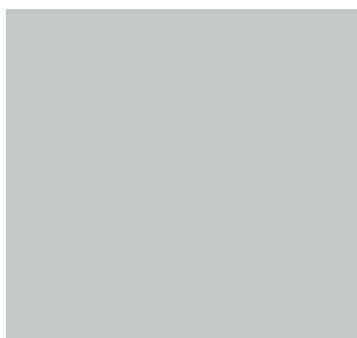
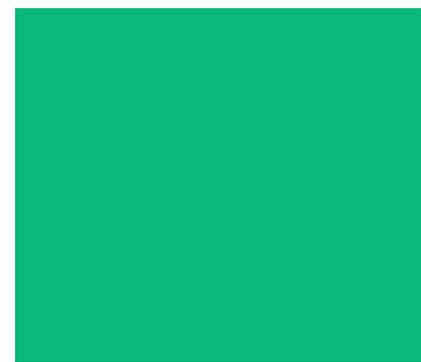


**Luhdorff &  
Scalmanini**  
Consulting Engineers

# Chowchilla Subbasin

## Groundwater Demand Management Programs and Subsidence Mitigation Measures Report

April 2026



# **Chowchilla Subbasin Groundwater Demand Management Programs and Subsidence Mitigation Measures Report**

**Prepared for**

**Chowchilla Water District GSA  
County of Madera GSA – Chowchilla  
County of Merced GSA – Chowchilla  
Triangle T Water District GSA**

**Prepared by**

**Davids Engineering, Inc.  
Luhdorff & Scalmanini, Consulting Engineers**

**April 2026**

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## 1 Introduction

The Chowchilla Subbasin (Subbasin) is designated by the California Department of Water Resources (DWR) as a critically overdrafted subbasin that forms part of the San Joaquin Valley Groundwater Basin (DWR Bulletin 118 No. 5-022.05). The Subbasin has experienced long-term groundwater overdraft and subsidence in recent decades, prompting the need for measures that reduce groundwater extraction, mitigate subsidence, and support the Subbasin’s Sustainable Groundwater Management Act (SGMA) compliance objectives.

The Subbasin is managed by four groundwater sustainability agencies (GSAs): Chowchilla Water District (CWD) GSA, Madera County GSA – Chowchilla (Madera County GSA), Merced County GSA – Chowchilla (Merced County GSA), and Triangle T Water District (TTWD) GSA. The locations and areas managed by each of the GSAs are summarized in **Table 1-1** and **Figure 1-1**. The four GSAs have collectively developed, adopted, and are now implementing one unified Groundwater Sustainability Plan (GSP) for the Subbasin. Under the GSP, the GSAs are collectively monitoring and managing groundwater conditions in the Subbasin to achieve sustainability by 2040, with each GSA responsible for implementing projects and management actions (PMAs) to achieve the Subbasin sustainability goal.

The initial GSP was first adopted in January 2020, and as of January 2025, the Subbasin GSAs have revised the GSP on three occasions. The first revisions were completed in 2022, when the GSP was revised to resolve deficiencies identified by DWR in their January 2022 consultation letter. The second revisions were completed in 2023, when the Subbasin GSAs revised certain sections of the GSP to address remaining deficiencies identified by DWR in their March 2023 inadequate determination. The third revisions were completed in January 2025, when the Subbasin GSAs revised certain sections of the GSP to address comments, and guidance provided by State Water Resources Control Board (SWRCB) staff. In June 2025, following SWRCB staff’s review of the 2025 Revised Subbasin GSP<sup>1</sup>, the SWRCB determined that a probationary designation for the Subbasin was not necessary and that it would return the Subbasin to DWR’s jurisdiction. The 2025 Revised Subbasin GSP remains under review by DWR staff as of early 2026. Coordinated implementation of the 2025 Revised Subbasin GSP is currently underway to achieve sustainable management of the Subbasin by 2040, in compliance with SGMA.

As part of the 2025 Revised Subbasin GSP, the GSAs signed the Demand Management Programs and Subsidence Mitigation Measures Memorandum of Understanding (MOU), included in Appendix 3.N. of the 2025 Revised Subbasin GSP. The MOU outlines the GSAs’ commitment to developing groundwater demand management (GDM) programs and subsidence mitigation measures as a backstop to other PMAs. These measures, with specific triggers and financial mechanisms, aim to address and mitigate overdraft, groundwater level decline, subsidence, and potential impacts stemming from subsidence during GSP implementation. While these measures are expected to broadly benefit groundwater conditions in the Subbasin across all sustainability indicators, subsidence and potential impacts of subsidence are anticipated to be the most limiting factors in achieving the Subbasin’s sustainability goal. The GSAs recognize that the sustainability indicator with the most restrictive sustainable management criteria will govern the determination of whether the Subbasin is on track to achieve sustainability, or whether undesirable results have occurred or are likely to occur. Given the historical rates and extent of subsidence in the Subbasin, the GSAs have prioritized the development and implementation of GDM and subsidence

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<sup>1</sup> The January 2025 Revised GSP is available on the Madera County website:  
<https://www.maderacountywater.com/chowchilla-subbasin/>.

mitigation measures to proactively monitor and promptly address subsidence conditions before undesirable results are experienced.

The purpose of this report is to document the GSAs’ programmatic approach to prepare for implementation of GDM programs and subsidence mitigation measures beginning in 2026, consistent with the MOU. In this approach, the GSAs are currently implementing certain existing GDM and subsidence mitigation measures to avoid potential undesirable results and impacts stemming from subsidence. These include “mandatory measures” (i.e., enforceable actions that directly regulate groundwater use) and “voluntary measures” (i.e., incentive-based or cooperative efforts). The GSAs are also preparing to implement other potential measures – both mandatory and voluntary – if conditions in the Subbasin require targeted actions to address impacts stemming from subsidence. To determine if, when, and where targeted actions are needed, the GSAs have developed a programmatic, actionable approach to evaluate and track subsidence conditions in the Subbasin against specific, measurable “trigger conditions” that demand increasing levels of action with increasing severity of subsidence. The trigger conditions are within the subsidence interim milestones established in the January 2025 Revised GSP, ensuring that actions taken under this approach support achievement of the Subbasin sustainability goal.

The GSAs’ programmatic, actionable approach is outlined in this report as follows:

- **Section 2** describes the specific GDM programs and subsidence mitigation measures, both mandatory and voluntary, that the GSAs are implementing, or are preparing to implement as necessary.
- **Section 3** describes the trigger conditions, with specific spatial and time considerations, that the GSAs will monitor to determine when and where actions are necessary to avoid potential impacts.
- **Section 4** describes the monitoring approach for evaluating whether and where implementation trigger conditions have occurred.
- **Section 5** describes the public outreach and engagement process, including noticing to adjacent Subbasins.
- **Section 6** describes other program implementation and management decisions, including GSA roles and responsibilities, GSA feedback and periodic review to ensure that actions under this approach are effective, and potential GSA funding and financing approaches.

**Table 1-1. Chowchilla Subbasin GSAs.**

GSA	GSA Abbreviation	GSA Area, Acres <sup>1</sup>	GSA Area, % of Total
Chowchilla Water District GSA	CWD GSA	85,500	59%
County of Madera GSA - Chowchilla	Madera County GSA	43,000	29%
County of Merced GSA - Chowchilla	Merced County GSA	1,300	1%
Triangle T Water District GSA	TTWD GSA	16,500	11%
<b>Total</b>		<b>146,300</b>	<b>100%</b>

<sup>1</sup> Areas include CWD annexations, TTWD annexations, and associated Subbasin boundary changes in 2023-2026.

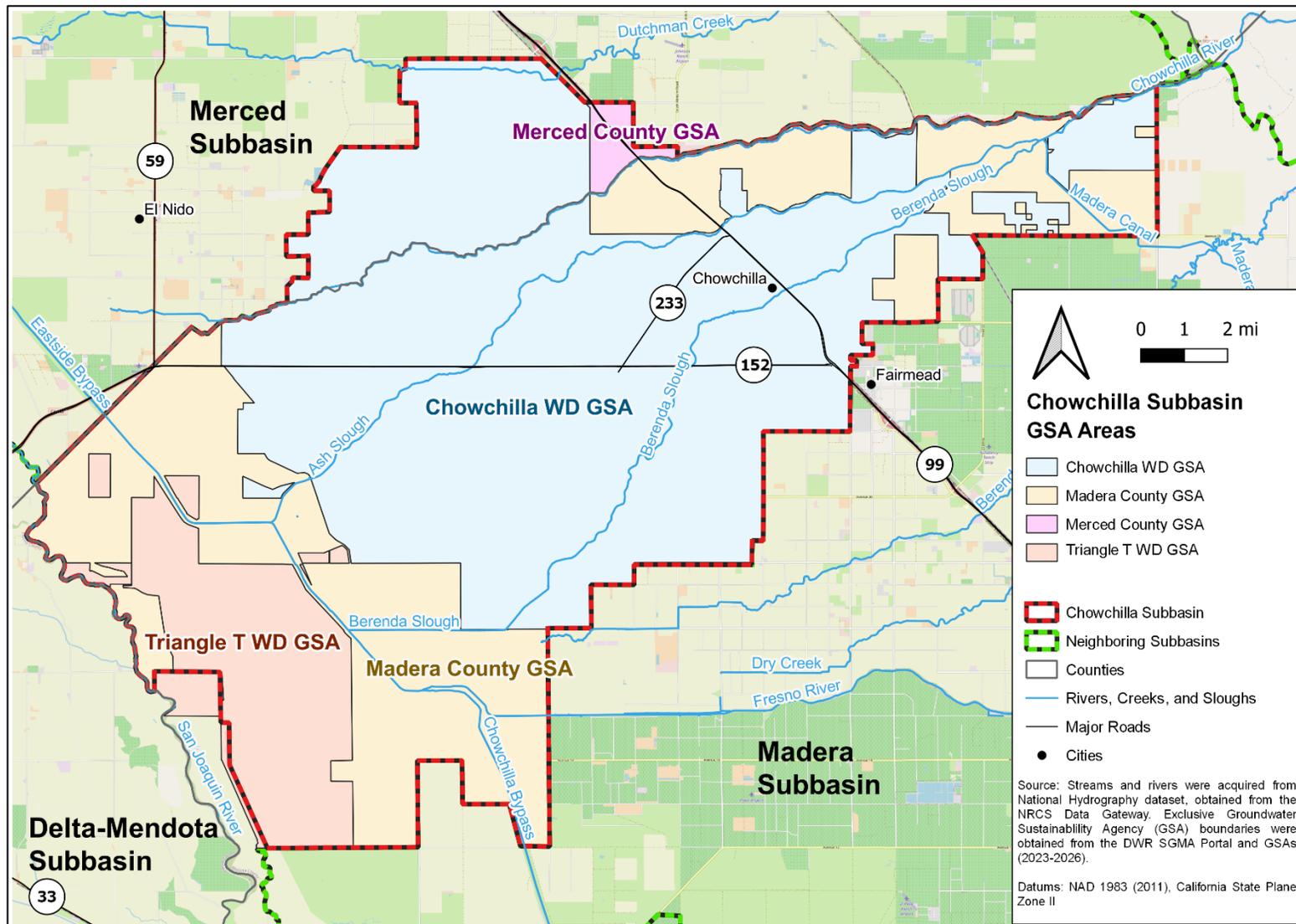


Figure 1-1. Chowchilla Subbasin GSAs Map.<sup>1</sup>

<sup>1</sup> Areas include CWD annexations, TTWD annexations, and associated Subbasin boundary changes in 2023-2026.

## 2 GDM Programs and Subsidence Mitigation Measures

This section describes the specific programs and measures that the GSAs are implementing, or are preparing to implement as necessary, for demand reduction and subsidence mitigation.

These measures represent specific actions:

- The GSAs have already taken or will be prepared to implement in 2026 (**Section 2.1**), or that
- The GSAs are prepared to initiate if conditions in the Subbasin exceed defined triggers (described in **Section 3**), indicating a need for further action (**Section 2.2**).

This report is intended to serve as a living reference and summary of the GSAs' initial efforts to develop and implement a coordinated framework of GDM and subsidence mitigation measures within the Subbasin. As new PMAs and measures are initiated, refined, or retired, the GSAs will document updates through Annual Reports, Periodic Evaluations, and future GSP revisions (Plan Amendments, as required), and will also review and revise this report, as necessary, to ensure that the Subbasin's GDM and subsidence mitigation framework remains current, clear, responsive to changing conditions, implementable, and an effective means of avoiding impacts to beneficial uses and users within the Subbasin.

### 2.1 Existing Programs and Measures

Since adoption of the 2020 GSP, the Subbasin GSAs have continued to develop and implement a wide range of PMAs that advance the Subbasin's sustainability objectives. Many of these efforts directly or indirectly contribute to achieving the goals of the MOU by reducing groundwater extraction, encouraging conjunctive use practices, and minimizing land subsidence.

In the 2025 Revised Subbasin GSP and GSP Annual Reports, each GSA has identified PMAs and management strategies suited to its unique water supply conditions and operational authorities. These PMAs and strategies include groundwater allocations and groundwater extraction fees, recharge and surface water use initiatives, and multi-benefit land repurposing efforts. As GSP implementation has progressed, several of these PMAs have matured into active programs and measures, or are currently planned and are in the process of being implemented in 2026. Together, they form the foundation of the Subbasin's adaptive management framework and provide a strong foundation for coordinated response actions under the MOU.

This section describes the existing programs and measures that the GSAs are currently implementing – or are preparing to implement – as of 2026, and how the GSAs will integrate these existing programs and measures into a coordinated framework of GDM and subsidence mitigation measures that can be maintained during GSP implementation, or intensified if monitoring indicates that triggers have been exceeded (i.e., trigger conditions occur) and further action is necessary. Within this framework, programs and measures are grouped according to their implementation approach:

- **Mandatory measures** are enforceable actions that directly regulate groundwater use, such as groundwater allocations, groundwater extraction fees, or lower-aquifer extraction limits.
- **Voluntary measures** are incentive-based or cooperative efforts, such as recharge projects, multi-benefit land repurposing programs, and in-lieu surface water use, that achieve groundwater demand reductions through participation and collaboration.

The following sections summarize the existing measures that each GSA is implementing or preparing to implement. **Table 2-1** and **2-2** identify the existing mandatory and voluntary measures, respectively, that are associated with each GSA, including implementation status. Detailed descriptions of each measure follow in the subsequent subsections.

In addition to these measures, the GSAs are also in the process of establishing a Subbasin Critical Infrastructure Operator Group, consistent with the 2025 Revised Subbasin GSP (2025 Revised Subbasin GSP Section 3.4.3). The Critical Infrastructure Operator Group was proposed by the GSAs – with strong support from critical infrastructure operators and agencies interviewed by the GSAs – as a means to keep up to date on impacts to critical infrastructure within the Subbasin. The Critical Infrastructure Operator Group is planning to meet annually to provide updates on any potential critical infrastructure impacts related to subsidence, coordinate ongoing PMA implementation, and to discuss any potential critical infrastructure mitigation concerns.

### 2.1.1 Existing Mandatory Measures

The GSAs’ existing mandatory measures are summarized in **Table 2-1**, and include enforceable programs that directly regulate groundwater use, such as groundwater allocations, groundwater extraction fee structures, or lower-aquifer extraction limits. The GSAs are currently implementing – or are preparing to implement – each of these measures as of 2026. Further details are provided below for each GSA.

**Table 2-1. Existing Mandatory Measures for GDM and Subsidence Mitigation.**

GSA	Existing Mandatory Measure Name	Status
CWD GSA	Groundwater Extraction Fee Program	Planned (2026)
Madera County GSA	Demand Management Program (with associated allocation, penalties, recharge policies, and land fallowing as a byproduct of other policies)	Implemented
Merced County GSA	Demand Management Program (consistent with Madera County GSA)	Planned (2026)
Triangle T Water District GSA	Subsidence Control Measures Agreement (with associated lower aquifer groundwater extraction limits) and forthcoming operating agreement	Implemented (2017), with an Operating Agreement Planned (2026)

#### 2.1.1.1 Chowchilla Water District GSA

CWD GSA is the largest GSA within the Subbasin by area (85,500 acres, 59% of the Subbasin), and includes land within the CWD service area. When available, irrigators within CWD use surface water supplies delivered by CWD and groundwater extracted from privately-owned wells to meet irrigation demand. As part of its sustainability strategy under SGMA, CWD GSA has focused on efforts that encourage greater use of surface water when it is available and discourage groundwater use.

CWD GSA is currently developing its Groundwater Extraction Fee Program as an enforceable measure for discouraging groundwater use within the CWD GSA area. The Groundwater Extraction Fee Program, described below, represents the GSA’s existing mandatory measure (beginning in 2026) and establishes an administrative and legal framework for further enforceable actions if required in the future.

#### 2.1.1.1.1 Groundwater Extraction Fee Program

CWD GSA is in the process of developing the Groundwater Extraction Fee Program (program) that establishes a tiered fee structure for groundwater extraction for irrigation within the CWD GSA area, with higher fees incurred for higher groundwater extraction above defined groundwater extraction thresholds. CWD GSA has committed to developing the administrative, legal, and measurement components necessary to initiate the program in 2026.

The Groundwater Extraction Fee Program is being developed as a strategy to discourage groundwater extraction and to encourage in-lieu recharge by making surface water a more financially attractive source of supply, particularly in years when ample surface water supply is available. The program's structure, based on fee tiers that increase with greater levels of groundwater extraction, is intended to influence irrigator behavior in a flexible but enforceable manner. Additional information about CWD GSA's development of the Groundwater Extraction Fee Program is provided in **Appendix A.1**. Opportunities for refining the Groundwater Extraction Fee Program in the future to respond to trigger conditions are described in **Section 2.2.1**.

#### 2.1.1.2 Madera County GSA

Madera County GSA is the second-largest GSA within the Subbasin by area (43,000 acres, 29% of the Subbasin), and includes lands outside the jurisdictional areas of other GSAs within Madera County. Madera County GSA currently administers a demand management program – with associated allocation, penalties, recharge policies, and land fallowing as a byproduct of other policies – that serves as a central component of its groundwater management strategy within the Subbasin. The Madera County GSA's demand management program, described below, represents the GSA's existing mandatory measure and establishes an administrative and legal framework for further enforceable actions if required in the future.

##### 2.1.1.2.1 Demand Management Program

Madera County GSA currently administers a comprehensive demand management program (program) – with associated allocation, penalties, recharge policies, and land fallowing as a byproduct of other policies – that will oversee a managed reduction in the volume of groundwater consumed by irrigated agriculture within the Madera County GSA area over the 20-year GSP implementation period. Since adoption of the groundwater allocation approach in 2020, Madera County GSA has proceeded with program development and implementation to incrementally reduce groundwater consumption across the Madera County GSA-managed portion of the Subbasin (and the Madera and Delta-Mendota Subbasins).

The demand management program currently establishes an enforceable “allocation” for consumptive groundwater use, expressed as evapotranspiration of applied water (ETAW), for each irrigated parcel or farm unit. The allocation each year is defined by Madera County GSA by combining the sustainable yield and a transitional water component that reduces in volume through 2040. Information on the allocation is provided on Madera County GSA's website: <https://www.maderacountywater.com/allocations/>.

This program is expected to support sustainable groundwater management by gradually limiting groundwater extraction within the Madera County GSA areas to the sustainable yield of the Subbasin, accomplished by gradually reducing the transitional water to 0 AF per acre by 2040. In total, this is estimated to reduce demand to approximately 22,500 AF by 2040 for the Madera County GSA in the Chowchilla Subbasin. The targeted volume of demand reduction was determined through an analysis of the basin setting and water budget, consistent with the Subbasin GSP, with the goal of mitigating overdraft

within the Madera County GSA area and achieving the sustainable yield by 2040. Program implementation is currently being supported by a structured monitoring and reporting system that enables accurate tracking of groundwater consumption and compliance across the Madera County GSA-managed areas.

Madera County GSA has been enforcing the approved allocations since 2022. In 2025, allocations were in place and were being tracked and enforced with associated penalties in the Madera County GSA (within the Chowchilla, Madera, and Delta-Mendota Subbasins) through measurements of groundwater use by approved measurement methods. Madera County GSA has also developed and is implementing a recharge policy that credits recharge benefits to the allocation of areas where recharge occurred.

Development and implementation of the demand management program has also been complemented by other projects and efforts by the Madera County GSA, including the Multibenefit Land Repurposing Program (MLRP) and the demand measurement program and verification project. Additional information about Madera County GSA's demand management program and associated policies is provided in **Appendix A.2**.

The demand management program applies to all lands within the Madera County GSA area, and is already implemented as of 2026. By setting and enforcing an allocation for consumptive groundwater use to mitigate overdraft and achieve the sustainable yield, the program is directly aligned with the goals of the MOU and will help mitigate impacts to aquifer depletion and subsidence. Opportunities for refining the demand management program in the future to respond to trigger conditions are described in **Section 2.2.1**.

#### *2.1.1.3 Merced County GSA*

Merced County GSA represents the smallest area of the Subbasin (1,300 acres, <1% of the Subbasin area), and includes lands in the Sierra Vista Mutual Water Company (SVMWC) that are within Merced County. Merced County GSA is currently in discussions with Madera County GSA and SVMWC with the intention of adopting a MOU that applies the Madera County GSA's demand management program (described in the previous section) to the Merced County GSA's area. The planned MOU, described below, represents the GSA's existing mandatory measure (beginning in 2026) and establishes an administrative and legal framework for further enforceable actions if required in the future.

##### *2.1.1.3.1 Demand Management Program*

Merced County GSA is currently in discussions with Madera County GSA and SVMWC with the intention of entering into an MOU where Merced County GSA and SVMWC would allow Madera County to apply and enforce the Madera County GSA's demand management program over the SVMWC lands in Merced County. Consistency in the demand management program will allow SVMWC to manage all lands within its service area according to the same allocation and associated policies. Consistency also supports the Subbasin's coordinated MOU framework.

Discussions are expected to result in an agreement between the parties that will apply all required components of the demand management program in the Merced County GSA consistent with the Madera County GSA program, including:

- Allocation and penalty policies
- Measurement and monitoring policies
- Recharge policies

Additional information about the agreement is provided in **Appendix A.3**. The agreement will result in an enforceable “allocation” for consumptive groundwater use in the Merced County GSA area that is based on the same sustainable yield and transitional water components as the Madera County GSA program, designed to gradually reduce groundwater use and achieve the sustainable yield by 2040. Likewise, the agreement will support immediate program implementation through the same structured monitoring and reporting system used in Madera County GSA to ensure accurate tracking of groundwater consumption and compliance across the Merced County GSA area.

By joining the demand management program that is already being implemented in Madera County GSA, Merced County GSA will have in place the administrative, legal, and measurement components necessary to implement these mandatory measures in 2026. Opportunities for refining the demand management program in the future to respond to trigger conditions are described in **Section 2.2.1**.

#### *2.1.1.4 Triangle T Water District GSA*

Triangle T Water District (TTWD) GSA covers approximately 16,500 acres (11% of the Subbasin) along the western edge of the Subbasin, in one of the Subbasin’s historically subsidence-prone regions. In efforts to mitigate subsidence and avoid undesirable results to beneficial uses and users and critical infrastructure, landowners in TTWD GSA signed the Subsidence Control Measures Agreement in 2017 together with other agencies in the Delta-Mendota Subbasin. The Subsidence Control Measures Agreement and a forthcoming operating agreement between the parties, described below, represents the GSA’s existing mandatory measures and establishes an administrative and legal framework for further enforceable actions if required in the future.

##### *2.1.1.4.1 Subsidence Control Measures Agreement and Operating Agreement*

In 2017, the initial Subsidence Control Measures Agreement was executed between certain landowners in the Subbasin’s western management area (including all of TTWD GSA and some neighboring landowners), and the Central California Irrigation District (CCID), San Luis Canal Company, and Henry Miller Reclamation District #2131. Landowners that entered into the initial Agreement collectively manage more than 14,000 acres in, or adjacent to, TTWD GSA. A copy of the initial agreement is provided in Appendix 3.F of the 2025 Revised Subbasin GSP, and was in effect from 2017-2021. The parties have worked under short term extensions in the time since the initial agreement, and are now in the process of negotiating an operating agreement consistent with the overall approach to groundwater extraction limits and subsidence mitigation as described in the initial agreement and this report, which define the specific pumping limitations and any further restrictions as necessary. The operating agreement covers issues including commitments through 2040 related to surface supply, facility operations and expansion, and operations in compliance with the MOU. While specific pumping limitations will not be explicitly defined in the operating agreement, the limitations in the initial agreement will remain in force and effect, with additional actions stemming from implementation of the triggers set forth in this report, as necessary.

The Subsidence Control Measures Agreement and the forthcoming operating agreement between the parties serves as TTWD’s existing mandatory measure related to subsidence mitigation. The initial agreement and forthcoming operating agreement have been developed for the purposes of (1) reducing groundwater extraction from the lower aquifer in areas where subsidence has historically occurred, and (2) facilitating the distribution and use of surface water in areas of the Subbasin managed by participating

landowners to reduce groundwater extraction. Under the initial Agreement, parties in the Subbasin have been required, among other provisions, to restrict the amount of groundwater they pump from the lower aquifer and to report, under penalty of perjury, the amounts of groundwater pumped, the source of that groundwater (upper versus lower aquifer), the amounts recharged, the amounts of surface water used for irrigation, and other information about their irrigated acreage and crops. Parties in the Subbasin are also required to implement projects that increase use of surface water for irrigation and increase use of surface water for direct recharge. These requirements are designed to reduce the potential for additional subsidence, protect nearby water conveyance and other critical infrastructure, and contribute to the Subbasin’s overall groundwater management objectives. The forthcoming operating agreement – expected to be signed in 2026 – will establish requirements to provide similar benefits to the Subbasin. Additional information about the Subsidence Control Measures Agreement and the forthcoming operating agreement is provided in **Appendix A.4**.

Like the Subsidence Control Measures Agreement, the forthcoming operating agreement will apply to lands within the TTWD GSA area, and is expected to be signed in early 2026. By setting and enforcing groundwater extraction limits, particularly from the lower aquifer, and requiring recharge and utilization of the upper aquifer, the operating agreement will be directly aligned with the goals of the MOU and will address actual impacts to aquifer depletion and subsidence. Such measures are already in place and are among the longest-standing enforceable subsidence mitigation measures in the Subbasin.

### 2.1.2 Existing Voluntary Measures

The GSAs’ existing voluntary measures are summarized in **Table 2-2** and include other PMAs that the GSAs are implementing – or are planning to implement – to reduce groundwater use, increase surface water use, and support the Subbasin sustainability goal. The GSAs are currently implementing – or are preparing to implement – each of these measures as of 2026. Further details are provided below for each GSA.

**Table 2-2. Existing Voluntary Measures for GDM and Subsidence Mitigation.**

GSA	Existing Voluntary Measure Name	Implementation Status
CWD GSA	Groundwater Recharge Basins	Implemented/ In Progress
CWD GSA	Flood-MAR	Implemented
CWD GSA	Enhanced Management of Flood Releases for Recharge	Implemented
CWD GSA	Land Fallowing Program	In Progress
Madera County GSA	Multi-Benefit Land Repurposing Program	In Progress
Madera County GSA	Water Purchase Program, Water Imports Purchase, and Millerton Flood Release Imports	In Progress
Madera County GSA	Chowchilla Bypass Flood Flow Recharge Projects	Implemented/ In Progress
Merced County GSA	SVMWC Recharge Basins to Capture Floodwater	In Progress
TTWD GSA	Utilize Existing Recharge Basin	Implemented
TTWD GSA	Additional Recharge Basins to Capture Floodwater	Implemented
TTWD GSA	Poso Canal Pipeline and Columbia Canal Company Pipeline Projects	Implemented

### 2.1.2.1 Chowchilla Water District GSA Existing Voluntary Measures

CWD GSA supports several voluntary efforts that encourage reduced groundwater pumping, increased recharge, and increased use of surface water when supplies are available. These include including direct recharge through constructed recharge basins, Flood-MAR, and strategic operation of CWD's distribution system as well as programs designed to improve in-lieu recharge, expand access to surface water, and promote land use changes that lower consumptive groundwater demand. Together, these voluntary measures offer growers flexible participation opportunities and complement the GSA's mandatory groundwater management tools.

#### 2.1.2.1.1 Groundwater Recharge Basins and Flood-MAR

As described in the GSP, CWD GSA is in the process of developing groundwater recharge basins totaling about 1,000 acres, distributed throughout its service area (2025 Revised GSP Section 4.1.1), and is also supporting Flood-MAR by delivering surface water to customers for recharge during winter months when surface water is available (2025 Revised GSP Section 4.1.2). Already, as of early 2025, CWD GSA has developed and is operating recharge basins with capacity in excess of 700 AF, and is in the process of developing an additional 300 acres of parcels acquired by CWD GSA for additional recharge basins. CWD GSA is taking extensive action to achieve recharge benefits with available surface water supplies.

Since GSP adoption, the CWD GSA has proceeded with multiple recharge projects, including development and operation of groundwater recharge basins. CWD has also begun implementing the Flood-MAR program. CWD GSA has invested substantial resources into developing recharge basins and supplies surface water for recharge whenever possible. Benefits of each project are reported annually in the GSP Annual Report.

#### 2.1.2.1.2 Enhanced Management of Flood Releases for Recharge

CWD utilizes its existing distribution system – including district canals and sloughs – to supply recharge during periods when flood flows are available and when the distribution system is not at its operational capacity. Diverted water is spread throughout unlined portions of the distribution system, allowing for increased groundwater recharge. CWD initiated this strategic management of its distribution system through focused efforts in 2017. CWD most recently conducted these efforts in 2024. Average annual benefits are estimated to be approximately 9,400 AF across all years, including drier years when flood flows are unavailable. More information about this project can be found in Appendix E of the GSP Annual Report submitted in 2020.

#### 2.1.2.1.3 Land Fallowing Program

CWD is developing a voluntary land fallowing program as part of its broader effort to reduce groundwater demand while supporting sustainable water conditions within the Subbasin. Under the proposed program, landowners may voluntarily fallow all or a portion of their irrigated acreage and receive compensation or incentives based on the anticipated groundwater savings. Estimated reductions associated with the program currently range from 5,000 to 10,000 AF per year, depending on participation levels.

CWD initiated design and outreach efforts for this program in Water Year 2022, including identification of interested landowners and evaluation of pilot scale proposals. Participation is voluntary and structured through annual, multi-year, or permanent fallowing agreements, with proposals evaluated individually to account for parcel specific conditions and anticipated water savings. This program provides a flexible,

grower-driven pathway for reducing consumptive groundwater use, complementing CWD's in-lieu recharge and surface water incentive efforts.

### *2.1.2.2 Madera County GSA Existing Voluntary Measures*

Madera County GSA implements voluntary programs that provide landowners with opportunities to reduce groundwater use through surface water substitutions and long-term land repurposing efforts. These measures include acquiring supplemental water supplies for in-lieu recharge and participating in the State's Multi-Benefit Land Repurposing Program, which incentivizes transitions to lower water use land uses. These voluntary efforts complement the GSA's allocation program by offering flexible pathways to achieve groundwater use reductions.

#### *2.1.2.2.1 Multi-Benefit Land Repurposing Program*

Madera County GSA participates in the Multi-Benefit Land Repurposing Program (MLRP), a California Department of Conservation grant-funded initiative that supports voluntary transitions of irrigated agricultural lands to alternative uses that require substantially less water. The program provides financial incentives and technical assistance to willing landowners to rest, retire, restore, or repurpose agricultural fields, reducing consumptive groundwater use while creating additional co-benefits such as habitat, flood management, community spaces, and renewable energy.

Since 2023, the Madera County GSA has worked closely with the County, Resource Conservation Districts, and local partners to design and implement program criteria, conduct public workshops, and solicit project applications. The current MLRP portfolio includes a variety of land-use transition projects that collectively provide measurable reductions in groundwater demand across participating parcels. These projects include but are not limited to: drought resistant crop conversions, habitat establishment, recharge basins, and community spaces.

MLRP contributes directly to groundwater sustainability by converting previously irrigated lands to lower water use alternatives, reducing annual groundwater consumption across a significant acreage. The program is particularly useful in areas where groundwater declines or subsidence risks are more pronounced, allowing voluntary participation to complement mandatory allocation reductions. Because participation is incentive-based, the program provides flexibility for growers while still achieving meaningful reductions in consumptive use.

#### *2.1.2.2.2 Water Purchase Program, Water Imports Purchase, and Millerton Flood Release Imports*

The Madera County GSA is also in the process of developing partnerships to import additional water into Madera County and to acquire CVP Section 215 flood water when it is available for recharge. Madera County GSA requested a change in place of use in 2019 and has since had multiple meetings with USBR. Madera County GSA has written a separate letter requesting Section 215 water to be available. Discussions are ongoing.

These supplemental supplies are intended to offset groundwater pumping during years when recharge opportunities or market conditions allow, thereby increasing in-lieu recharge and reducing consumptive groundwater use within the GSA. Water purchases are opportunistic and depend on hydrologic conditions, availability of surplus supplies, and negotiated agreements with external entities. When in use, such efforts could help reduce groundwater demand in areas where wells are more vulnerable to declining water levels or where subsidence risks may be elevated.

#### 2.1.2.2.3 Chowchilla Bypass Flood Flow Recharge Projects

Since GSP adoption, Madera County has continued work on a recharge planning study to refine the costs, benefits, and schedule for recharge projects described in the GSP. The recharge planning study has refined the costs and schedule for constructing additional basins and to conduct additional Flood-MAR of winter floodwater diverted from the Chowchilla Bypass. This study has resulted in the development of the Chowchilla Bypass Flood Flow Recharge Program. A description of the recharge study and planned recharge efforts is available at: <https://www.maderacountywater.com/recharge/>. In 2023, substantial recharge occurred under the provisions of Executive Order (EO) N-4-23 and Senate Bill 122, which opened the door to implementing recharge of flood waters in certain circumstances. Madera County GSA-reported diversions and recharge under these provisions totaled approximately 26,500 AF in water year 2023. In 2024, the Madera County GSA continued public outreach and engagement for the recharge program, including outreach related to the Madera County GSA recharge policies and solicitation of stakeholders' interest in consideration for involvement in ongoing recharge project planning or future projects, as they arise. In response to that outreach 2-100 acre-feet private recharge basins were constructed in late 2024 adjacent to the Chowchilla Bypass.

Since 2020, Madera County GSA has also continued design efforts, permitting, and construction for portions of the Chowchilla Bypass Flood Flow Recharge Program. These efforts are being funded by two Proposition 68 grants from DWR, which were based on work developed through the recharge planning study. Recharge projects are in various stages of design, permitting, and construction. Construction of diversion facilities will be completed in 2026 which will provide access to flood water within the Chowchilla Bypass for direct recharge in existing private recharge basins and Flood-MAR. Updates are provided in each GSP Annual Report.

#### 2.1.2.3 Merced County GSA Existing Voluntary Measures

Merced County GSA does not currently administer voluntary groundwater reduction or land repurposing programs within its portion of the Subbasin. However, opportunities for voluntary groundwater use reduction or surface water substitution may be available to landowners through broader county programs or individual operational decisions. A recharge program being implemented by SVMWC, which covers the Merced County GSA area, is described below.

##### 2.1.2.3.1 SVMWC Recharge Basins to Capture Floodwater

SVMWC, located in the Merced County GSA and Madera County GSA, is in the process of developing up to 300 acres of dedicated recharge basins.

In 2022, SVMWC applied for and was awarded Proposition 68 funding to support further development and construction of this project. As of early 2025, SVMWC has completed the 100% design documents, plans, and specifications, as well as a topographic survey of the project site. A construction bid package was completed, and the bid was awarded to Avid Water. Pre-construction photos are being completed, after which construction is anticipated to begin in 2025. Capital costs reported in 2024 total approximately \$64,000. Ongoing development and updates are provided in each GSP Annual Report.

#### 2.1.2.4 Triangle T Water District GSA Existing Voluntary Measures

TTWD has implemented voluntary measures that expand access to imported surface water and support in-lieu recharge as a means of reducing groundwater pumping. TTWD GSA's long-term investments in

conveyance infrastructure, including the Poso Canal Pipeline and the Columbia Canal Company Pipeline, provide growers with access to supplemental water supplies when available, helping to reduce reliance on deep aquifer pumping in an area sensitive to subsidence. These voluntary measures complement TTWD's mandatory lower aquifer pumping limits and enhance the GSA's overall groundwater management strategy.

#### 2.1.2.4.1 Utilize Existing Recharge Basin, and Additional Recharge Basins to Capture Floodwater

Since 2017, TTWD has implemented a program to divert surplus flows into existing recharge basins within the GSA. TTWD has continued to use the recharge basins during periods when flood water is available.

Since 2019, TTWD has also initiated work to develop additional dedicated recharge basins. In 2020-2021, TTWD GSA collaborated with the Madera County GSA on the DWR Proposition 68 grant to support recharge basin development. TTWD also successfully annexed 3,062 acres into its boundary. Following annexation, construction was completed for two recharge basins on the properties of two landowners in the annexed areas (Vlot and Haynes). Construction of the Vlot and Haynes recharge basins was completed using grant money from the Natural Resource Conservation Service, and Proposition 68 grant funds are being used to support construction of diversion infrastructure. Both basins can be served through conveyance infrastructure owned and operated by TTWD and provide for recharge when water is available.

TTWD is also continuing efforts to secure a permanent water right permit from the San Joaquin River system on the Chowchilla Bypass. When water is available, TTWD plans to divert water for direct irrigation and recharge into available recharge basins. Since GSP adoption, a temporary water rights permit has been granted and additional information in support of the permanent water right has been submitted to the SWRCB. However, following the issuance of EO N-4-23 in March 2023 (subsequently codified through California Water Code Section 1242.1), certain restrictions for diverting flood flows were waived, which opened the door to implementing recharge of flood waters in certain circumstances in absence of an approved water right. TTWD will continue to seek and exercise opportunities for diversion of surface water for groundwater recharge through available pathways.

#### 2.1.2.4.2 Poso Canal Pipeline and Columbia Canal Company Pipeline Projects

TTWD has invested in long term surface water importation infrastructure to reduce groundwater pumping and support subsidence mitigation. Through construction of the Poso Canal Pipeline and the Columbia Canal Company (CCC) Pipeline, TTWD has expanded its ability to deliver surface water to landowners within their jurisdiction during years when external supplies are available. These projects focus on increasing in-lieu recharge and reducing reliance on deep groundwater pumping, particularly in areas where extraction from beneath the Corcoran Clay has historically contributed to subsidence.

The Poso Canal Pipeline has been operational since 2018 and has delivered substantial volumes of imported surface water. These water imports have reduced the need for groundwater pumping during the irrigation season, resulting in direct groundwater demand reductions across TTWD's agricultural lands. The CCC pipeline was constructed concurrently, providing water in the years since construction with the exception of critically dry years.

## 2.2 Potential Programs and Measures

In addition to the existing measures already being implemented throughout the Subbasin, the GSAs have identified a range of measures that may be initiated or expanded if trigger conditions occur and indicate a need for additional, more aggressive response(s). These potential measures draw from the framework established in the MOU, which outlines both voluntary and mandatory measures that can be implemented by the GSAs in response to the occurrence of subsidence relative to triggers as Subbasin conditions evolve. Potential measures would be adaptively implemented or refined according to the location and extent of subsidence in the Subbasin.

### 2.2.1 Potential Mandatory Measures

As described in **Section 2.1.1**, the GSAs are already implementing an array of mandatory measures that can be strategically refined to provide increasing levels of response and mitigation within focused areas if triggers conditions occur and additional action is necessary. These potential refinements constitute the GSAs' potential mandatory measures and are summarized in **Table 2-3**. The mandatory measures described in this section represent actions that are not currently in effect, but are feasible, consistent with GSA authority, and ready to be implemented if and where trigger conditions occur.

**Table 2-3. Potential Mandatory Measures for GDM and Subsidence Mitigation.**

GSA	Existing Mandatory Measure Name	Potential Mandatory Measure (Potential Refinements Within Focused Areas if Triggers Conditions Occur)
CWD GSA	Groundwater Extraction Fee Program	Potentially adjust fee tiers, increase fee rates, modify extraction thresholds, and/or link fee tiers and rates to the severity or spatial extent of trigger occurrences. Potentially implement together with a Surface Water Incentive Program.
Madera County GSA	Demand Management Program (with associated allocation, penalties, and recharge policies)	Potentially adjust transitional water to reduce groundwater extraction within focused areas, and/or set lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated. Potentially require measurement of wells used for Concentrated Animal Feeding Operations (CAFOs).
Merced County GSA	Demand Management Program (consistent with Madera County GSA)	Program implementation and refinements consistent with Madera County GSA
Triangle T Water District GSA	Subsidence Control Measures Agreement (with associated lower aquifer groundwater extraction limits) and forthcoming operating agreement	Potentially adjust lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated, refine the geographic extent of lower aquifer pumping restrictions, and/or strengthen monitoring requirements to ensure continued compliance

### 2.2.1.1 Chowchilla Water District GSA

#### 2.2.1.1.1 Groundwater Extraction Fee Program

CWD GSA is in the process of developing the Groundwater Extraction Fee Program (program). As described in **Section 2.1.1**, CWD is preparing to implement the program regardless of whether future trigger conditions occur. However, if future trigger conditions occur, the program also provides a scalable mechanism for CWD GSA to quickly, efficiently, and adaptively implement further enforceable mandatory measures. Potential refinements may include:

- Adjusting fee tiers (e.g., escalating fees more quickly to discourage groundwater extraction),
- Increasing fee rates (e.g., increasing the cost of groundwater extraction),
- Modifying extraction thresholds (e.g., reducing the threshold at which fees begin), and/or
- Potentially linking fee tiers and rates to the severity or spatial extent of trigger occurrences.

CWD has also evaluated a Surface Water Incentive Program framework that would encourage growers to maximize the use of available surface water and reduce reliance on groundwater pumping. The Surface Water Incentive Program could also be implemented as a counterpart to the Groundwater Extraction Fee Program (**Section 2.1.1**).

CWD GSA will consider these potential refinements and others, as warranted, as further mandatory measures that can be taken if and when trigger conditions occur. It is anticipated that potential refinements would be implemented in a targeted approach focused in areas where trigger conditions occur. Potential refinements will be considered and implemented according to the trigger response process described in **Sections 3 and 4** of this report. The specific refinements to be implemented will be determined by CWD GSA through governing body consideration and action. Refinements are expected to be determined on a case-by-case basis, depending on the location and extent of trigger conditions.

Regardless of whether trigger conditions occur, CWD GSA is planning to implement the Groundwater Extraction Fee Program across the entire CWD GSA area beginning in 2026. Together, CWD GSA's planned program and these refinements will allow CWD GSA to adapt to evolving Subbasin conditions while maintaining consistency with the Subbasin's coordinated MOU framework.

### 2.2.1.2 Madera County GSA

#### 2.2.1.2.1 Demand Management Program

Madera County GSA currently administers a comprehensive demand management program (program) – with associated allocation, penalties, and recharge policies – that will oversee a managed reduction in the volume of groundwater consumed by irrigated agriculture within the Madera County GSA area over the 20-year GSP implementation period. The program is described further in **Section 2.1.1**.

If future trigger conditions occur, the program provides two primary avenues for Madera County GSA to adaptively refine program implementation to address trigger conditions in locally focused areas. Potential refinements may include:

- Adjusting transitional water to accelerate reductions in consumptive groundwater use, and/or
- Setting lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated.
- Requiring measurement and reporting of wells used for Concentrated Animal Feeding Operations (CAFOs) using approved measurement methods (e.g., based on the approach and considerations described in **Section 2.2.2.7**).

Madera County GSA will consider these potential refinements and others, as warranted, as further mandatory measures that can be taken when trigger conditions occur. It is anticipated that potential refinements would be implemented in a targeted approach focused in areas where trigger conditions occur. Potential refinements will be considered and implemented according to the trigger response process described in **Sections 3 and 4** of this report. The specific refinements to be implemented will be determined by Madera County GSA through governing body consideration and action. Refinements are expected to be determined on a case-by-case basis, depending on the location and extent of trigger conditions. Any refinements to the demand management program will require a robust and transparent public outreach and engagement process (**Section 5**).

Regardless of whether trigger conditions occur, Madera County GSA is continuing to implement the demand management program. Together, Madera County GSA's ongoing program and any targeted refinements will allow Madera County GSA to adapt to evolving Subbasin conditions while maintaining consistency with the Subbasin's coordinated MOU framework.

### *2.2.1.3 Merced County GSA*

#### *2.2.1.3.1 Demand Management Program*

Merced County GSA is currently in discussions with Madera County GSA and SVMWC with the intention of joining the demand management program already being implemented in Madera County GSA. These discussions and the planned program are described further in **Section 2.1.1**.

If future trigger conditions occur, the same considerations for adaptive refinements to program implementation apply in both Madera and Merced Counties. Consistent with the Madera County GSA program, potential refinements may include:

- Adjusting transitional water to accelerate reductions in consumptive groundwater use, and/or
- Setting lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated.
- Requiring measurement and reporting of wells used for CAFOs using approved measurement methods (e.g., based on the approach and considerations described in **Section 2.2.2.7**).

As in Madera County GSA, these potential refinements and others, as warranted, can be taken when trigger conditions occur. It is anticipated that potential refinements would be implemented in a targeted approach focused in areas where trigger conditions occur. Potential refinements will be considered and implemented according to the trigger response process described in **Sections 3 and 4** of this report. The specific refinements will be determined through governing body consideration and action. Refinements are expected to be determined on a case-by-case basis, depending on the location and extent of trigger conditions. Any refinements to the demand management program will require a robust and transparent public outreach and engagement process (**Section 5**).

Regardless of whether trigger conditions occur, Merced County GSA is intending to adopt an MOU that implements the Madera County GSA's demand management program in 2026. Together, the adopted program and any targeted refinements will allow Merced County GSA to adapt to evolving Subbasin conditions while maintaining consistency with the Subbasin's coordinated MOU framework.

#### 2.2.1.4 Triangle T Water District GSA

##### 2.2.1.4.1 Subsidence Control Measures Agreement and Operating Agreement

As described in **Section 2.1.1**, TTWD GSA has been managing groundwater with respect to the Subsidence Control Measures Agreement since it was signed in 2017, and will continue such management through the forthcoming operating agreement. While specific pumping limitations will not be explicitly defined in the operating agreement, the limitations in the initial agreement will remain in force and effect, with additional actions stemming from implementation of the triggers set forth in this report, as necessary.

If future trigger conditions occur, the agreement provides a mechanism for adaptive management. Possible refinements to address trigger conditions in locally focused areas include:

- Defining or adjusting lower aquifer groundwater extraction limits within focused areas where subsidence risks are elevated (e.g., tightening limits within focused areas),
- Refining the geographic extent of lower aquifer pumping restrictions (e.g., focusing on areas where trigger conditions occur), and/or
- Strengthen monitoring requirements to ensure continued compliance.

TTWD GSA (via TTWD and landowners who have signed the agreement) will consider these potential refinements and others, as warranted, as further mandatory measures that can be taken when trigger conditions occur. It is anticipated that potential refinements would be implemented in a targeted approach focused in areas where trigger conditions occur. Potential refinements will be considered and implemented according to the trigger response process described in **Sections 3 and 4** of this report. The specific refinements to be implemented will be determined by TTWD GSA landowners and governing body consideration and action. Refinements are expected to be determined on a case-by-case basis, depending on the location and extent of trigger conditions.

Regardless of whether trigger conditions occur, landowners in TTWD GSA are planning to sign the operating agreement in 2026. Together, ongoing efforts and these refinements, will allow TTWD GSA to adapt to evolving Subbasin conditions while maintaining consistency with the Subbasin's coordinated GDM and Subsidence Mitigation MOU framework.

#### 2.2.2 Proposed Voluntary Measures

The MOU identifies a range of voluntary measures that can reduce groundwater demand or mitigate subsidence, including multi-benefit land repurposing programs, increased in-lieu use of available surface water, and voluntary water conservation and efficiency practices. Proposed voluntary measures that the GSAs may implement as necessary are described in the subsections below.

##### 2.2.2.1 Water Conservation and On-Farm Efficiency

Water conservation and irrigation efficiency improvement practices provide growers throughout the Subbasin with flexible options to reduce consumptive groundwater use. These practices may include soil-moisture monitoring, improved irrigation scheduling, regulated deficit irrigation, agronomic soil-management techniques, runoff capture, and other best management practices implemented voluntarily by growers and are not administered as formal GSA programs, broad adoption can produce meaningful groundwater use reductions.

If trigger conditions occur, efficiency related voluntary efforts may be suggested to growers through expanded outreach, especially in areas with declining groundwater levels or increased subsidence, or by offering technical assistance to growers in implementation.

#### *2.2.2.2 Dryland Farming and Crop-Shift Practices*

Growers may voluntarily transition their irrigated lands to lower water-use alternatives through dryland farming, crop rotations, or shifts to more drought-tolerant crops. These voluntary transitions allow landowners to adjust irrigation demand based on operational needs, resource availability, or market conditions. When adopted across multiple parcels or in targeted areas, dryland farming and crops shift decisions can provide measurable reductions in consumptive groundwater use and support subsidence mitigation goals.

If trigger conditions occur, voluntary adoption of these practices may be encouraged in areas where groundwater level declines or subsidence risks warrant additional reductions in pumping.

#### *2.2.2.3 Land-Use Change and Multibenefit Repurposing*

Land use transitions, such as conversions to rangeland, habitat restoration, renewable energy installations, or other multibenefit land repurposing uses, offer growers long-term alternatives to irrigated agriculture. These transitions may be supported through conservation partnerships, cost share programs, technical assistance providers, or state and federal grant programs such as the MLRP described in **Section 2.1.1.2**. Voluntary land use changes reduce long term consumptive groundwater use and complement Subbasin wide efforts to manage demand and mitigate subsidence.

If trigger conditions occur, repurposing efforts may be expanded or targeted toward areas where additional groundwater use reductions would be most beneficial. Additional refinements may include prioritizing project funding (if available) to landowners in high-risk areas, increasing incentive levels (if applicable) to expand participation, or coordinating repurposing efforts with allocation reductions to further mitigate groundwater demand.

#### *2.2.2.4 Fallowing*

Voluntary fallowing, provides a flexible means of achieving near term groundwater use reductions. Growers may participate in this measure through conservation programs, land repurposing efforts, or individual operational decisions. Fallowing of agricultural lands could be seasonal, annual or multi year. This measure can reduce groundwater demand rapidly, making it especially useful in areas with declining groundwater levels or elevated subsidence rates.

If trigger conditions occur, voluntary fallowing may be strengthened through targeted participation incentives and compensation, expanded outreach, and/or prioritization in areas experiencing the most severe effects of groundwater depletion or subsidence risk.

#### *2.2.2.5 In-Lieu Recharge*

In years when surface water supplies are available, growers may voluntarily increase their use of delivered surface water to reduce reliance on groundwater pumping through in-lieu recharge. Participation may involve utilizing existing surface water delivery systems, taking advantage of water purchase opportunities, or coordinating delivery schedules to maximize substitution of groundwater with surface

water. Although participation depends on hydrology and supply conditions, increased in lieu recharge can significantly reduce groundwater extraction, particularly during wet years.

If trigger conditions occur, in-lieu recharge efforts may be refined by prioritizing surface water deliveries and surface water use in areas experiencing greater subsidence impacts, by increasing the scale or frequency of purchases during wet years, or by securing additional partnerships to receive supplemental surface water supplies if available.

#### *2.2.2.6 Direct Recharge*

Direct recharge efforts will also complement the benefits of other proposed voluntary measures. The GSAs are already engaged in substantial direct recharge projects, as described in **Section 2.1.2**, although these may be further refined during GSP implementation where and as needed.

If trigger conditions occur, direct recharge efforts may be refined by prioritizing deliveries to recharge basins or fields for Flood-MAR in areas facing subsidence impacts or risks, by improving surface water delivery infrastructure, or by making operational enhancements to increase recharge.

#### *2.2.2.7 Groundwater Extraction Management for Concentrated Animal Feeding Operations*

The Chowchilla Subbasin GSAs may consider implementing targeted groundwater extraction management measures for CAFOs if future groundwater-level or land subsidence conditions indicate a need for additional management response. Groundwater use associated with CAFO operations, including livestock drinking water, wash water, and other facility related uses, represents a category of agricultural groundwater extraction that is not directly tied to irrigated acreage and may warrant separate consideration where impacts to groundwater conditions are identified.

Madera County GSA is considering requiring measurement of wells used for CAFOs as one potential refinement to its demand management program (**Section 2.2.1.2**). More broadly, implementation of this measure by other GSAs in the Subbasin would require all groundwater extractions associated with CAFO operations to be quantified and reported using approved measurement methods, such as flowmeters. This information would allow groundwater use associated with CAFO operations to be evaluated independently and in relation to observed groundwater level trends or subsidence patterns within the Subbasin.

If monitoring indicates that groundwater extractions associated with CAFO operations contribute to localized groundwater level declines or subsidence, the GSAs could implement additional management actions. Potential actions may include limits on extraction volumes, restrictions on pumping from deeper aquifer zones, seasonal operational constraints, or other targeted measures designed to reduce impacts on groundwater conditions from CAFO operations. Any such actions would be applied in a manner proportional to the observed impacts and tailored to the areas where management is warranted.

### 3 Implementation Triggers, Extent, and Timeline

Subbasin GDM programs and subsidence mitigation measures will be implemented based on the exceedance of a series of triggers. Trigger thresholds have been set relative to subsidence, as subsidence is considered by the GSAs to be the most restrictive sustainable management criteria (SMC) in the Subbasin.

#### 3.1 Triggers

A series of trigger thresholds have been developed to evaluate subsidence conditions in the Subbasin leading toward implementation of mandatory measures. These trigger thresholds follow a modified stoplight approach (green-yellow-orange-red light) to categorize conditions leading toward increasing action. Trigger thresholds are based on the subsidence SMC presented in the 2025 Revised Subbasin GSP (Table 3-1). Each Representative Monitoring Site (RMS) in the Subbasin will be evaluated using these trigger thresholds (more detail on monitoring is presented in Section 4).

The condition for action to be taken requires subsidence trigger thresholds at two RMS to have been exceeded in the same year. However, nothing precludes the GSAs from taking action earlier, at their discretion.

**Table 3-1. Subsidence SMC (Interim Milestones) for the Subbasin Eastern and Western Management Areas, from 2025 Revised Subbasin GSP (Table 3-5).**

Interval Ending at Year	Maximum Average Annual Rate of Subsidence (feet)	Maximum 5-Year Cumulative Subsidence (feet)
2025		2.25
2030	0.20	1.00
2035	0.10	0.50
2040	0.05	0.25

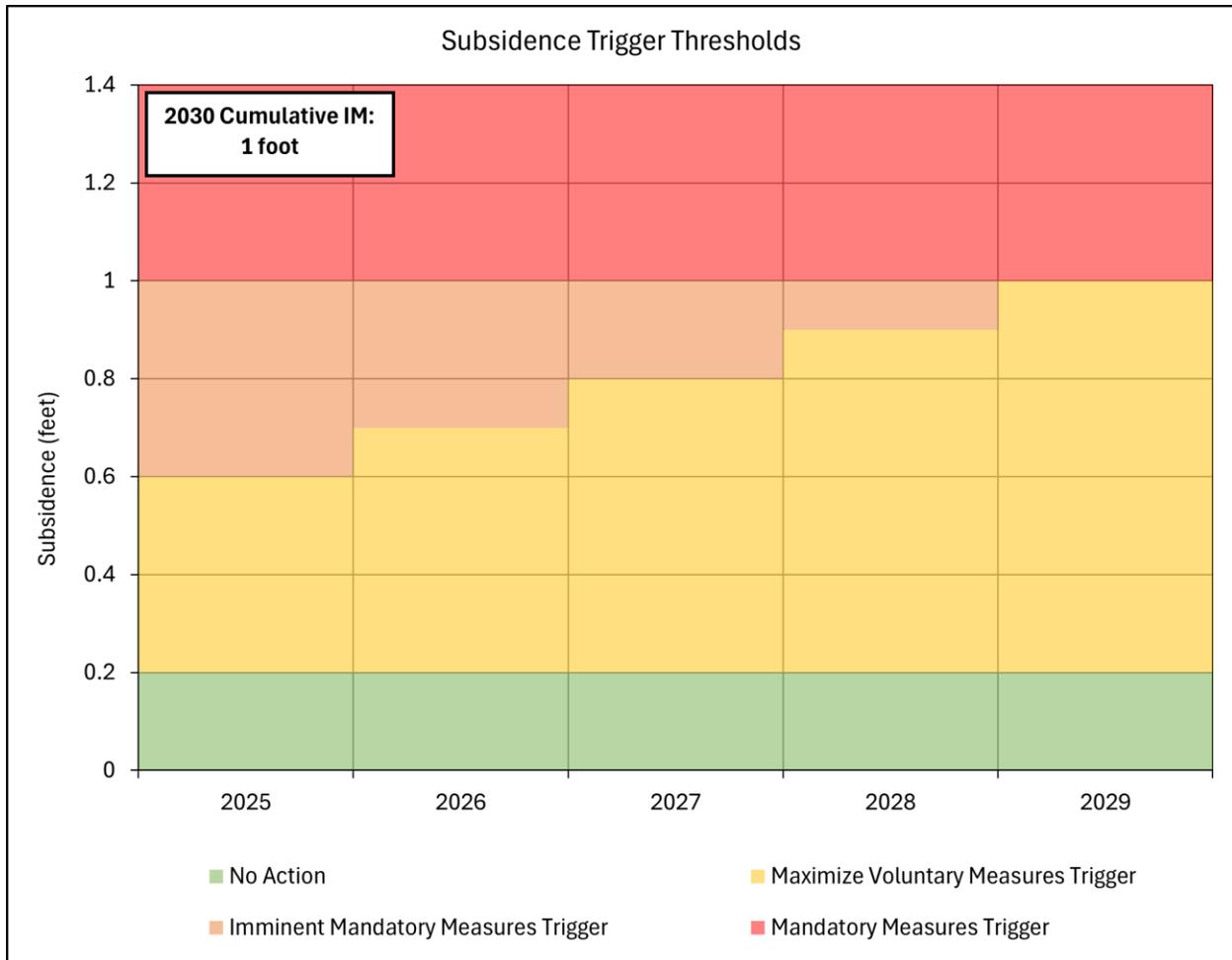
The No Action, or Green Light, trigger threshold is below the one-year annual rate interim milestone (IM) for each 5-year interval over the implementation period. Being within this threshold indicates that the Subbasin (as indicated by conditions each RMS station) is on track toward sustainability and no action is required.

The Maximize Use of Voluntary Measures, or Yellow Light, trigger threshold is an exceedance of the one-year annual rate IM. This threshold is evaluated compared to cumulative observed subsidence and does not initiate mandatory action. When a station or stations are within this threshold, efforts within the Subbasin to maximize use of voluntary measures are encouraged.

The Imminent Mandatory Measures, or Orange Light, trigger threshold is an exceedance of a percentage of the 5-year cumulative IM cap. The percentage of the 5-year cumulative cap is most conservative in the first year of each 5-year interval over the implementation period and increases as the interval progresses. This threshold is evaluated compared to cumulative observed subsidence. If the condition for action within this threshold has been met, the Subbasin will need to prepare to implement mandatory measures within one year.

The Mandatory Measures, or Red Light, trigger threshold is an exceedance of the 5-year cumulative IM cap. This threshold is evaluated compared to cumulative observed subsidence. If the condition for action within this threshold has been met, the Subbasin will need to immediately take action to implement mandatory measures.

An example of the template to be used to evaluate an RMS station during the 2025 to 2029 interval showing the four trigger thresholds is shown in **Figure 3-1**.



**Figure 3-1. Template for Evaluation of Subsidence Trigger Thresholds for the 2025 to 2029 Interval.**

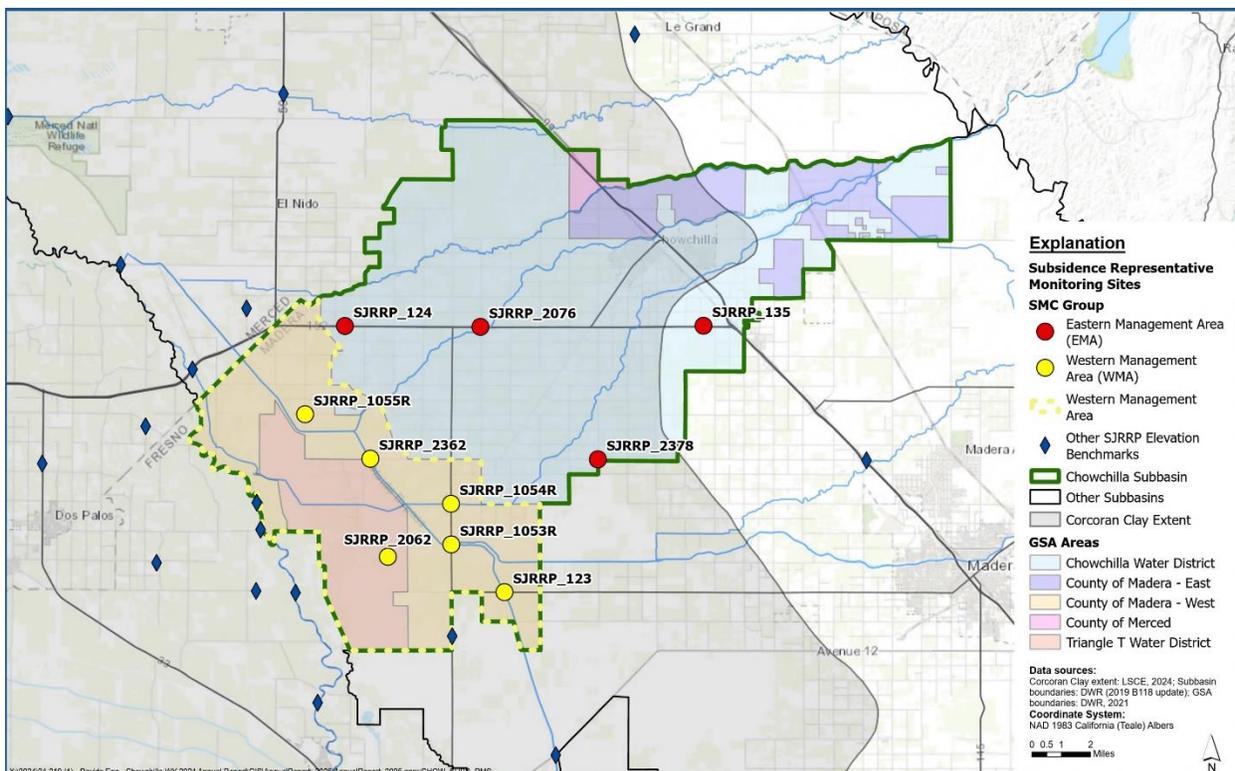
### 3.2 Extent

Once the conditions for action have been met, the spatial extent of triggered action needs to be determined. **Figure 3-2** shows a generalized approach to identifying the Zone of Implementation (ZOI) following a trigger exceedance.



**Figure 3-2. Generalized Process to Determine the Spatial Extent of Triggered Action.**

The first step is to identify the RMS stations that have exceeded subsidence trigger thresholds. The RMS stations to be evaluated are shown in **Figure 3-3**.



**Figure 3-3. Land Subsidence Representative Monitoring Sites.**

The next step is to evaluate the spatial extent of subsidence within the Subbasin. To best understand the extent of subsidence trigger exceedances and to appropriately address elevated subsidence with mandatory measures, cumulative subsidence for each 5-year interval will be used to determine the potential ZOI for mandatory measures. Two sets of data will be evaluated to best determine where to

target mandatory measures. First, the SJRRP Elevation Benchmark data used to evaluate Subbasin RMS stations. When this data is contoured, it provides a continuous, if generalized due to limited data points, surface to evaluate the spatial extent of subsidence in the Subbasin. From this dataset, a potential ZOI can be drawn. This ZOI can then be adjusted as necessary based on InSAR data. The InSAR data provides a more detailed look at the extent of subsidence in the Subbasin. However, due to different monitoring challenges, the InSAR data often has spatial gaps in the dataset.

A primary boundary will be drawn along the contour line of the mandatory measures trigger threshold. Within this boundary, mandatory measures will be implemented according to the timeline laid out in **Section 3.3**. A secondary boundary will be drawn along the contour line of the imminent mandatory measures trigger threshold. Within this boundary, notice should be provided to landowners according to the timeline for the Imminent Mandatory Measures trigger threshold as laid out in **Section 3.3**. Any parcel with 50% or greater of area within a given boundary will be subjected to triggered action(s).

### 3.3 Timeline

An evaluation of subsidence RMS stations compared to trigger thresholds will be presented each year as part of the Annual Report for the Subbasin. At this time, if any trigger conditions have been met, subsequent action will be initiated related to the trigger exceeded. **Figure 3-4** shows a generalized approach to actions necessary within each trigger threshold.

If RMS stations are within the No Action trigger threshold and/or no trigger conditions have been met, there is no action required and the RMS stations will be reevaluated during the next Annual Report cycle.

If RMS stations are within the Maximize Use of Voluntary Measures trigger threshold, no action is required but is encouraged. GSAs should continue to pursue voluntary measures and utilize the noticing methods laid out in **Section 5** to encourage and provide resources for voluntary measures by groundwater extractors throughout the Subbasin.

If conditions are met within the Imminent Mandatory Measures trigger threshold, phased actions will be taken throughout the year. First, within a month of the publication of the Annual Report (by May), GSAs should provide written notice of a trigger exceedance to stakeholders along with an explanation of next steps and continue to encourage voluntary measures. Within three months (by July), GSAs should identify which specific mandatory measures will be implemented if necessary and provide an implementation plan and timeline for implementation. This implementation plan should include any necessary board action to approve potential mandatory measures and potential implementation zone. Conditions will be reevaluated during the next Annual Report cycle to determine whether implementation is necessary.

If conditions are met within the Mandatory Measures trigger threshold, immediate action is required. Within one month of the publication of the Annual Report (by May), GSAs should provide written notice of a trigger exceedance to stakeholders along with an explanation of mandatory measures and explanation of penalties for exceedances. Within one to two months (by May-June), mandatory measures will need to be implemented following the implementation plan developed under the Imminent Mandatory Measures trigger. In the unlikely event that the Mandatory Measures trigger threshold is exceeded without an implementation plan having been developed, mandatory measures will need to be implemented within one to two months, or as soon as possible. Conditions will continue to be reevaluated

during each Annual Report cycle. Two consecutive years of conditions below this threshold are necessary before mandatory measures can be terminated.



Figure 3-4. Approach for Annual Evaluation of Subsidence Triggers.

## 4 Monitoring Approach

Monitoring will utilize the monitoring network and protocols established in the 2025 Revised Subbasin GSP. The Subbasin Annual Report includes a discussion of subsidence conditions based on review of SJRRP Elevation Benchmark and InSAR data. Further evaluation of these data related to the Subsidence Triggers will be included as an appendix to the Annual Report. Charts and tables for each RMS station comparing observed subsidence to trigger thresholds will be presented. If no triggers are exceeded, the RMS stations will be reevaluated during the next Annual Report cycle. If triggers are exceeded, a list of next steps will be provided as well as a timeline for action. The monitoring approach will be coordinated with program outreach and engagement activities (**Section 5**), including noticing to adjacent subbasins as appropriate.

## 5 Public Outreach and Engagement

### 5.1 Outreach and Engagement Approach

The GSAs will continue to use the coordinated communication and engagement framework established in the 2025 Revised Subbasin GSP, which outlines stakeholder categories, communication methods, and participation pathways across the Subbasin. This existing framework provides the basis for informing the public about GDM and subsidence conditions, collecting input on potential management actions, and supporting transparent decision making should additional measures become necessary.

Consistent with the GSP's outreach plans, the GSAs will rely on a combination of public meetings and advisory committee discussions (including public GSP advisory committee meetings), website postings, email lists, translated materials, and targeted outreach to agricultural, domestic, environmental, disadvantaged community stakeholders, and critical infrastructure operators (described below). Examples of these methods include, but are not limited to, bilingual notifications, publicly noticed GSA board meetings, and direct engagement with stakeholder groups.

Outreach related to GDM and subsidence mitigation will occur at several key stages, with a focus on outreach and communication targeted to stakeholders within the ZOI. Initial communication will focus on raising awareness when monitoring results indicate groundwater conditions are approaching trigger thresholds. As potential measures are developed, the GSAs will discuss those measures through public meetings or advisory committee workshops, as appropriate, allowing stakeholders – particularly those in the ZOI – to understand what actions are under consideration and provide early feedback. Draft versions of potential measures or implementation plans will also be made available for public review, as appropriate. After comments are received and considered, as applicable, final recommendations for potential measures would be brought to the applicable GSA Board(s) in open session, with documentation explaining how input influenced the final decision.

Stakeholder feedback will play a meaningful role throughout this process. Comments may help refine program design, identify potential operational challenges, or highlight opportunities for collaboration with local landowners, community groups, or resource management organizations. The GSAs may maintain comment logs or response summaries, consistent with GSP public engagement practices, to document how feedback has been addressed and how it informed program development.

Following adoption of any new or modified GDM or subsidence mitigation measures, the GSAs will continue to provide updates through public meetings, Annual Reports, and GSP updates. These ongoing communication efforts are intended to keep stakeholders informed about program implementation, monitoring results, and any subsequent refinements. In this way, the Subbasin's public outreach framework remains integrated, transparent, and responsive as conditions change and the GSAs implement the measures described in this report.

As part of the GSAs' outreach efforts, the GSAs are also in the process of establishing a Subbasin Critical Infrastructure Operator Group, consistent with the 2025 Revised Subbasin GSP (2025 Revised Subbasin GSP Section 3.4.3). The Critical Infrastructure Operator Group was proposed by the GSAs – with strong support from critical infrastructure operators and agencies interviewed by the GSAs – as a means to keep up to date on impacts to critical infrastructure within the Subbasin. The Critical Infrastructure Operator Group is planning to meet annually to provide updates on any potential critical infrastructure impacts

related to subsidence, coordinate ongoing PMA implementation, and to discuss any potential critical infrastructure mitigation concerns.

## 5.2 Noticing to Adjacent Subbasins

The Subbasin GSAs plan to work with adjacent subbasins toward a regional approach to subsidence mitigation. Actions in adjacent subbasins can affect conditions in the Subbasin and collaboration is necessary to adequately address subsidence concerns. The GSAs may also consider incorporating the Critical Infrastructure Operator Group into broader coordination efforts with adjacent Subbasins, as critical infrastructure may be impacted by regional conditions across multiple subbasins.

As part of the noticing process following a threshold exceedance, a written notice will be sent to adjacent subbasins. This notice will include the subsidence conditions being observed, what the Subbasin is doing to address these conditions, and the extent of the issue. The notice is proposed to include regional maps of subsidence conditions in the Subbasin and adjacent subbasins. The written notice will also solicit input from neighboring subbasins, fostering bi-directional discussion and coordination toward a regional approach to subsidence mitigation.

## 6 Program Implementation and Management

Effective implementation of groundwater demand management and subsidence mitigation measures requires clear coordination among the Subbasin GSAs, a transparent approach to evaluating changing groundwater conditions, and a process for determining when new or expanded measures should be activated. This section describes the roles and responsibilities of the GSAs, the review and feedback process that will support decision making and the general framework for funding and financing program actions.

### 6.1 Roles and Responsibilities

Implementation of the GDM and subsidence mitigation measures described in this report will be carried out by each GSA within its respective jurisdiction. However, the GSAs remain committed to coordinating with the broader group of GSAs in the Subbasin through regular monitoring and evaluation of conditions relative to the trigger conditions outlined in this report, and to implementing their existing and potential programs and measures in accordance with the processes described herein. While the GSAs coordinate at the Subbasin level to assess monitoring results and identify when trigger conditions have been met, the execution of any required actions will occur at the GSA level according to each agency's governing authorities, infrastructure, and regulatory tools. Each GSA is ultimately responsible for developing, funding, and administering the specific programs and measures, mandatory or voluntary, that are applicable to its service area.

When trigger conditions are reached, each GSA will be responsible for initiating the measures described in this report within its jurisdictional area. Responsibilities include: determining which measures must be activated, notifying affected growers or stakeholders, implementing administrative or regulatory procedures, and monitoring the effectiveness of selected measures. Cross-GSA coordination will continue throughout this process to ensure that actions taken in one area support overall Subbasin objectives and are consistent with the response of neighboring GSAs.

### 6.2 Feedback and Review

Program implementation will be guided by a recurring review process that evaluates current groundwater level and subsidence conditions and determines whether activation or adjustment of measures is warranted. At a minimum, the GSAs will collectively review conditions during the preparation of each GSP Annual Report, coinciding with the annual Subbasin Advisory Committee meeting. These recurring reviews allow the GSAs and stakeholders to assess the status of trigger conditions, evaluate the performance of existing measures, and identify whether additional actions may be required.

The feedback and review process will be coordinated with program outreach and engagement activities (**Section 5**), including targeted communication with stakeholders in the ZOI, ongoing communication with critical infrastructure operators through the Critical Infrastructure Operator Group, and noticing to adjacent subbasins as appropriate. The GSAs may convene additional meetings or technical reviews outside the annual cycle if monitoring data indicate that conditions are changing rapidly or if stakeholder input suggests that need for further evaluation. This adaptive process parallels the broader GSP implementation framework, in which monitoring results, PMA performance, and sustainability indicators are assessed annually and every five years through the GSP Periodic Evaluation. Decisions made under the GDM and subsidence framework will be integrated into these existing reporting processes to ensure continuity between demand management efforts and the Subbasin's overall sustainability strategy.

### 6.3 Funding and Financing

The GSAs are responsible for developing and implementing programs and measures within their respective jurisdictions. Funding and financing of individual GSA efforts is the responsibility of the individual GSAs. GSA funding and financing is expected to come from one, or a combination, of the following sources:

- Reserve fund
- GSA fees and assessment
- Funds generated through implementation of other projects and management actions (e.g., fines and/or penalties)
- County/state/federal funding, as available
- Other sources, as identified

If future programs or measures will be carried out through coordinated efforts among more than one GSA – including any potential future mitigation of infrastructure impacts – the participating GSAs will cooperate in good faith and share responsibility for associated costs in a proportionate manner. Cost sharing between GSAs is anticipated to be based on the location of the actions, and/or each GSA’s relative contribution to the Subbasin-wide overdraft.

## **Appendix A. Existing Mandatory Measures Supporting Documentation**

### **Appendix A.1. Chowchilla Water District GSA Groundwater Extraction Fee Program**

## Appendix A.2. Madera County GSA Demand Management Program

*Excerpt from Chowchilla Subbasin GSP Water Year 2024 Annual Report (April 2025)*

As a primary element of its efforts to achieve groundwater sustainability, Madera County GSA has continued steps to implement a demand management program that will oversee a managed reduction in the volume of groundwater consumed by irrigated agriculture over the 20-year GSP implementation period. This program is expected to result in a total reduction in demand to approximately 22,500 AF by 2040 for the Madera County GSA in the Chowchilla Subbasin. The precise costs and benefits of these demand management efforts are still being quantified and are expected to be reported in the next GSP evaluation and updates, as well as future Annual Reports.

To implement this overall demand management program, Madera County GSA has:

- Conducted a water market study (completed in 2021),
- Planned a Voluntary Land Repurposing Program (VLRP),
- Developed an allocation program, which is now being tracked and enforced with associated penalties, and
- Implemented a demand measurement program and verification project (through 2024) to support decisions related to the allocation and demand management program.

The following sections briefly describe the VLRP, MLRP, the allocation program, and the demand measurement program and verification project.

Together with the other GSAs in the Subbasin, the Madera County GSA has also developed a Demand Management Programs and Subsidence Mitigation Measures MOU, with voluntary measures for immediate implementation and mandatory measures with trigger conditions to mitigate subsidence in the Subbasin.

*Voluntary Land Repurposing Program (VLRP) and Multibenefit Land Repurposing Program (MLRP).* Since initial Subbasin GSP development, the Madera County GSA received grant funding to explore the feasibility of adopting a sustainable agricultural land conservation (SALC) easement program within the Madera County GSA. The SALC program has since been referred to as the Voluntary Land Repurposing Program (VLRP). The VLRP aims to develop criteria for identifying and prioritizing agricultural land for protection, and to develop an incentive structure for agricultural landowners to rest, retire, restore, or permanently protect their land via various types of water-centric conservation easements.

Madera County GSA developed the VLRP through a stakeholder-driven process in 2020-2022, involving multiple public workshops and meetings, stakeholder interviews, and outreach with conservation groups. Details about this process are documented in previous Annual Reports. Rules and criteria for implementing the VLRP were approved by the Madera County GSA in December 2022. However, due to the failure of the Proposition 218 process, the Madera County GSA in the Subbasin is unable to fund the program at this time.

As of early 2025, stakeholders in the Madera County GSA in the Subbasin have the opportunity to participate in a grant-funded Multibenefit Land Repurposing Program (MLRP), which is receiving applications for projects in the Chowchilla, Madera, and Delta-Mendota Subbasins. The Multi-Benefit Agricultural Land Repurposing Plan (MALRP) was approved by the Board of Supervisors in October 2024.

The Madera County GSA is continuing GSP implementation and is seeking ways to reduce implementation costs (e.g., grants, refinements) and to secure alternate local funding to successfully implement PMAs, with stakeholder input and discussion (see Section 7.1.5.1 of the Chowchilla Subbasin GSP Water Year 2024 Annual Report).

Allocation Program. Since initial Subbasin GSP development, the Madera County GSA has developed an allocation framework. The allocation framework was developed primarily by Madera County GSA staff through a series of public meetings with the Madera County GSA Advisory Committee. Following discussions in these meetings, the Madera County GSA Board of Directors adopted resolutions in December 2020, June 2021, and August 2021 that describe "per-acre" allocations and rules for credits. The Madera County GSA Board of Directors approved penalties for groundwater use in excess of these allocations in 2022. Links to the resolution documents are provided in previous Annual Reports.

Madera County GSA has been enforcing the approved allocations since 2022. In 2024, allocations were in place and were being tracked and enforced with associated penalties in the Madera County GSA (within the Chowchilla, Madera, and Delta-Mendota Subbasins) through measurements of groundwater use by approved measurement methods (described in the following section). Madera County GSA has included certain refinements to the framework, allowing "farm units" (i.e., fields irrigated from the same well that are grouped and considered together in enforcement of the allocation) to be changed at the end of the calendar year, and allowing never-irrigated lands to opt-in in November of each year.

Madera County GSA has also developed a recharge policy that would credit recharge benefits to the allocation of areas where recharge occurred. In March 2024, Madera County GSA approved recharge credit policies through Resolution 2024-030. One policy is related to recharge with surface water that is purchased, and one policy is related to recharge with water taken under Executive Order (EO) N-4-23, which was subsequently codified through California Water Code Section 1242.1 and that allows for flood waters to be used for groundwater recharge in certain circumstances. Both policies have a "floor" of a 75% recharge credit and a "ceiling" of 90% recharge credit depending on data specific to the land on which the recharge occurred. The recharge credit is limited to the aquifer in which recharge occurred.

Per Resolution 2022-143, the penalties for exceeding the allocation include \$1,000 per farm unit for those that have exceeded the authorized amount, in addition to a \$200 per AF penalty for water use over the allocation in 2024 (penalties started at \$100 per AF in calendar year 2023, increasing by \$100 per AF per calendar year to a maximum of \$500 per AF for water use over the allocation).

Enforcement of the allocation is incorporating adjustments to account for recharge credits, land following credits, and successful appeals in the future.

Additional information about the allocation enforcement process is described as part of the demand measurement program and verification project, below.

Demand Measurement Program and Verification Project. As reported in prior Annual Reports, Madera County GSA has continued to implement a demand measurement program and verification project to support implementation of the GSA's allocation program.

The main objective of the demand measurement program is to use, evaluate, and establish rules and processes for demand measurement options that are permitted to track ETAW against an allocation established in the Madera County GSA area (described in the previous section).

Three approved demand measurement options are available to growers in the Madera County GSA for allocation enforcement:

- IrriWatch approach (remote sensing approach that quantifies ETAW from satellite imagery using the Surface Energy Balance Algorithm for Land (SEBAL) algorithm)
- Land IQ approach (remote sensing approach, similar to IrriWatch, that quantifies ETAW from land use and satellite imagery)
- Use of approved flowmeters that are installed correctly and calibrated regularly. Although Madera County GSA is not responsible for installing flowmeters, Madera County GSA has adopted pre-approval processes for the use of private meters as a means of allocation tracking and enforcement. The adopted processes are intended to ensure correct installation and maintenance of flowmeters and their accuracy.

The Madera County GSA has allowed and developed an appeals process for growers who have selected to use the IrriWatch and Land IQ approaches, although there is no appeals process for those using flowmeters. In 2023, Madera County GSA revised the rules for appealing the determination of use of the allocation through Resolution 2023-150. Madera County GSA expects to reevaluate measurement options for the program moving forward in 2025.

In early 2024, Madera County GSA also approved recharge credit policies that would credit recharge benefits to the allocation of areas where recharge occurred (described above). Enforcement of the allocation is incorporating adjustments to account for recharge credits, land fallowing credits, and successful appeals in the future.

Additional information regarding the demand measurement program is available on the Madera County website: <https://www.maderacountywater.com/measurement/>.

Since 2022, the Madera County GSA has also conducted the Madera Verification Project to analyze the consistency of measurements from flowmeters to the demand estimates developed from the IrriWatch and Land IQ remote sensing measurements. Through the Madera Verification Project, the Madera County GSA has conducted extensive outreach among growers in the Chowchilla, Madera, and Delta-Mendota Subbasins who will be directly impacted by the demand measurement efforts. Through these outreach efforts, the Madera County GSA has gained substantial feedback and made changes to the demand measurement program to ensure that it is locally accurate, effective, and equitable to growers. Additional information about the Madera Verification Project is provided in the previous Annual Report.

*Demand Management.* Through these many interrelated efforts, the Madera County GSA is in the process of implementing the planned demand management program described in the GSP. This management action is expected to result in a large reduction in groundwater pumping at the cost of reduced crop production and related economic activities in Madera County. Madera County GSA has observed landowner responses to the demand management program thus far, and initial data shows promising reductions in ETAW from actions in 2023-2024. However, the precise costs and benefits of these demand

management efforts are still being quantified and are expected to be reported in future GSP evaluations and updates as well as future Annual Reports.

## Appendix A.3. Merced County GSA Demand Management Program

## Appendix A.4. Triangle T Water District GSA Program Subsidence Control Measures Agreement

*Excerpt from the 2025 Revised Subbasin GSP, Section 3.3.3.7 (with additions on the operating agreement in February 2026)*

### **3.3.3.7.2 Subsidence Control Measures Agreement**

The minimum thresholds (MTs) for land subsidence in the Subbasin, specifically the Western Management Area (WMA), were established to be consistent with the Subsidence Control Measures Agreement (initial Agreement) between certain landowners in the WMA of the Subbasin, the Central California Irrigation District (CCID), San Luis Canal Company, and Henry Miller Reclamation District #2131. Landowners that entered into the initial Agreement collectively manage more than 14,000 acres in the WMA. A copy of the initial Agreement is provided in Appendix 3.F (of the 2025 Revised Subbasin GSP). The initial Agreement was executed in 2017 and was in effect from 2017-2021. The parties have worked under short term extensions in the time since the initial Agreement.

The provisions of the initial Agreement were designed to mitigate subsidence and avoid undesirable results to beneficial uses and users and critical infrastructure in the Subbasin and the adjacent Delta-Mendota Subbasin. The expressed purpose of the initial Agreement is to:

1. Reduce the use of groundwater from the Lower Aquifer. Loss of groundwater storage and associated reduction in pore pressures in clay layers in the Lower Aquifer (indicated by lowering groundwater levels) is understood by all parties to lead to conditions that cause and/or exacerbate land subsidence. The relationship between loss of groundwater storage and associated reduction in pore pressures in clay layers, lowering groundwater levels, and land subsidence is a central and common point of understanding between all parties who signed the initial Agreement, including the Expert Panel established under the Agreement.
2. Facilitate the distribution and use of surface water in areas of the Subbasin that are managed by participating landowners to reduce groundwater extraction (particularly from the Lower Aquifer), reduce subsidence, recharge the Upper Aquifer, and mitigate effects to critical infrastructure, including Sack Dam and the Poso Canal. Both systems are gravity-flow systems that are vulnerable to capacity reductions due to land subsidence and may require significant operational changes if subsidence continues unabated (e.g., pumping, relocation or reconstruction of diversion infrastructure).

Under the initial Agreement, parties in the Subbasin are required, among other provisions, to restrict the amount of groundwater they pump from the Lower Aquifer and to report, under penalty of perjury, the amounts of groundwater pumped, the source of that groundwater (Upper Aquifer or Lower Aquifer), the amounts recharged, the amounts of surface water used for irrigation, and other information about their irrigated acreage and crops. Parties in the Subbasin are also required to implement projects that increase use of surface water for irrigation (providing in-lieu recharge benefits to the Lower Aquifer) and increase use of surface water for direct recharge (increasing storage in the Upper Aquifer to support sustainable use of groundwater from the Upper Aquifer instead of the Lower Aquifer).

The initial Agreement also requires evaluation of the Lower Aquifer safe Yield by an Expert Panel to determine the allowable amount of pumping from the Lower Aquifer that can occur without causing continuation of subsidence. While this Safe Yield evaluation was being conducted, the initial Agreement set specific limits for Lower Aquifer pumping as follows: 0.9 acre-feet per acre (AF/ac) in 2017, 0.75 AF/ac in 2018, 0.65 AF/ac in 2019, 0.6 AF/ac in 2020, and 0.5 AF/ac in 2021. Following completion of the Lower Aquifer Safe Yield Study by the Expert Panel, the annual limits and future allowable groundwater pumping amounts from the Lower Aquifer were modified in accordance with Expert Panel findings. The most recent Draft 2022 Expert Panel Report prepared in April 2023 is provided in Appendix 3.F (*of the 2025 Revised Subbasin GSP*).

Since the initial Agreement was signed in 2017, parties to the Agreement have successfully constructed facilities to supply and distribute surface water to users in the Subbasin. Despite the dry start to the GSP implementation period and through the actions and infrastructure improvements performed in accordance with the initial Agreement, more than 25,000 AF of surface water has been delivered to participating landowners in the Subbasin since 2018. Annual volumes are reported in Section 4.6.4 (*of the 2025 Revised Subbasin GSP*). This surface water has provided direct benefits to participating landowners for irrigation and groundwater recharge in an area that has historically relied solely on groundwater pumping, resulting in reduced pumping and helping to mitigate subsidence.

Landowners in the Subbasin that are party to the Agreement have also consistently fulfilled their obligation to report, under penalty of perjury, the amounts of groundwater pumped, the source of that groundwater (Upper Aquifer or Lower Aquifer), the amount recharged, the amounts of surface water used for irrigation, and other information about their irrigated acreage and crops. Table 3-11 provides a summary of groundwater pumping, surface water use, and irrigated acreage from the Draft 2022 Expert Panel Report (*Appendix 3.F of the 2025 Revised Subbasin GSP*). Beginning in 2017, participating landowners in the Subbasin have reduced pumping from the Lower Aquifer, including shifting considerable pumping from the Lower Aquifer to the Upper Aquifer. Each year since signing the initial Agreement, the participating landowners have collectively reported pumping between 0.13 and 0.50 AF/ac from the Lower Aquifer, less than the specified limits for Lower Aquifer pumping in the initial Agreement. Use of surface water during years it has been available has also provided between 0.66 and 1.76 AF/ac of benefit to those irrigated lands, providing direct recharge to the Upper Aquifer and offsetting demand for groundwater.

Efforts under the initial Agreement have already been successful for mitigating subsidence in the TTWD area of the WMA. Annual vertical displacement rates in the Subbasin, as reported from InSAR data, indicate a relative decrease in the rate of subsidence within Triangle T Water District since approximately 2017, as compared with rates of subsidence in surrounding areas (*see Section 2.2.2.4 of the 2025 Revised Subbasin GSP*).

The parties are currently in the process of negotiating an operating agreement consistent with the overall approach to groundwater extraction limits and subsidence mitigation as described in the initial agreement. The operating agreement covers issues including commitments through 2040 related to surface supply, facility operations and expansion, and operations in compliance with the groundwater demand management (GDM) and subsidence mitigation measures memorandum of understanding (MOU), as described in 2025 Revised Subbasin GSP.

**Table 3-11. Reported Groundwater Use, Surface Water Use, and Total Water Use by Chowchilla Subbasin Landowners that are Signatories to the Subsidence Control Measures Agreement.<sup>1</sup>**  
(from the 2025 Revised Subbasin GSP)

Description	2017	2018	2019	2020	2021	2022
Total Groundwater Use (AF)	17,089	27,764	23,988	30,478	34,744	34,851
Lower Aquifer Pumping (AF)	1,777	6,978	1,770	5,355	5,262	6,036
Upper Aquifer Pumping (AF)	15,312	20,786	22,218	25,123	29,482	28,815
Total Surface Water Use (AF)	22,653	10,244	24,798	9,329	0	1,444
Surface Water Purchases (AF)	0	8,279	10,746	9,329	0	1,444
Surface Water Diversions, Fresno River (AF)	15,666	620	11,007	0	0	0
Surface Water Diversions, Eastside Bypass (AF)	6,987	1,345	3,045	0	0	0
Total Water Use (AF)	39,742	38,008	48,786	39,807	34,744	36,295
Total Irrigated Area (ac)	13,911	13,911	14,111	14,111	14,111	14,111
Total Groundwater Use (AF/ac)	1.23	2.00	1.70	2.16	2.46	2.47
Lower Aquifer Pumping (AF/ac)	0.13	0.50	0.13	0.38	0.37	0.43
Upper Aquifer Pumping (AF/ac)	1.10	1.49	1.57	1.78	2.09	2.04
Total Surface Water Use (AF/ac)	1.63	0.74	1.76	0.66	0.00	0.10
Surface Water Purchases (AF/ac)	0.00	0.60	0.76	0.66	0.00	0.10
Surface Water Diversions, Fresno River (AF/ac)	1.13	0.04	0.78	0.00	0.00	0.00
Surface Water Diversions, Eastside Bypass (AF/ac)	0.50	0.10	0.22	0.00	0.00	0.00
Total Water Use (AF/ac)	2.86	2.73	3.46	2.82	2.46	2.57

<sup>1</sup> Source: **Appendix 3.F** (of the 2025 Revised Subbasin GSP). Draft 2022 Expert Panel Report (“2022 Monitoring Data for the Sack Dam-Red Top Area”), **Table S3**-Subsidence Abatement Agreement Summary.

Landowners in the Subbasin that are party to the initial Agreement are committed to fulfilling the obligations under the Agreement. Fulfillment of these obligations is expected to also support sustainable groundwater management in the Subbasin in accordance with the SMC established in this GSP. Actions under the Agreement are expected to help maintain groundwater levels in the Lower Aquifer at or above recent historical levels, thereby avoiding undesirable results related to land subsidence. Compliance with the Agreement will help avoid undesirable results to infrastructure – including Sack Dam, Poso Canal, and other waterways in the WMA – as well as other beneficial uses of land and groundwater in the surrounding region. The initial Agreement has already provided significant and measurable benefits to the Subbasin. The outcomes and effectiveness of the Agreement will continue to be evaluated, and will be reported in subsequent periodic GSP updates and Annual Reports as more is known.

### **3.3.3.7.3 Other Subsidence Control Measures in the Western Management Area**

Outside of areas managed under the Agreement, the GSAs in the Subbasin plan to couple their GSP projects and implementation efforts with provisions that complement and are consistent with the Agreement.

For example, Madera County GSA and TTWD GSA are developing large, coordinated groundwater recharge projects in the WMA that will enhance groundwater storage in the Upper Aquifer. The GSAs will

be executing agreements with participating landowners as part of these projects. In these agreements the GSAs plan to include provisions that only permit the recovery of project groundwater recharge benefits from wells in the Upper Aquifer, where the recharge from the projects will be occurring. These provisions will effectively reduce groundwater extraction from the Lower Aquifer and shift extraction to the Upper Aquifer, similar to the Agreement, and are anticipated to reduce subsidence rates in parts of the WMA outside of the TTWD GSA. Together, the combined benefit area of these projects and the lands managed under the Subsidence Control Measures Agreement represent the majority of land within the WMA (Figure 3-9).

As an example of the recharge projects described above and recent progress, as of early 2024, the Madera County GSA has developed recharge credit policies (Madera County GSA Resolution No. 2024-030<sup>2</sup>) that credit recharge benefits to the allocation of areas where recharge occurred. Madera County GSA Resolution No. 2024-030 includes two policies: one related to recharge with surface water that is purchased, and one related to recharge with water derived from an approved diversion during a flood event. Both policies have a “floor” of a 75% recharge credit and a “ceiling” of 90% recharge credit depending on data specific to the land on which the recharge occurred.

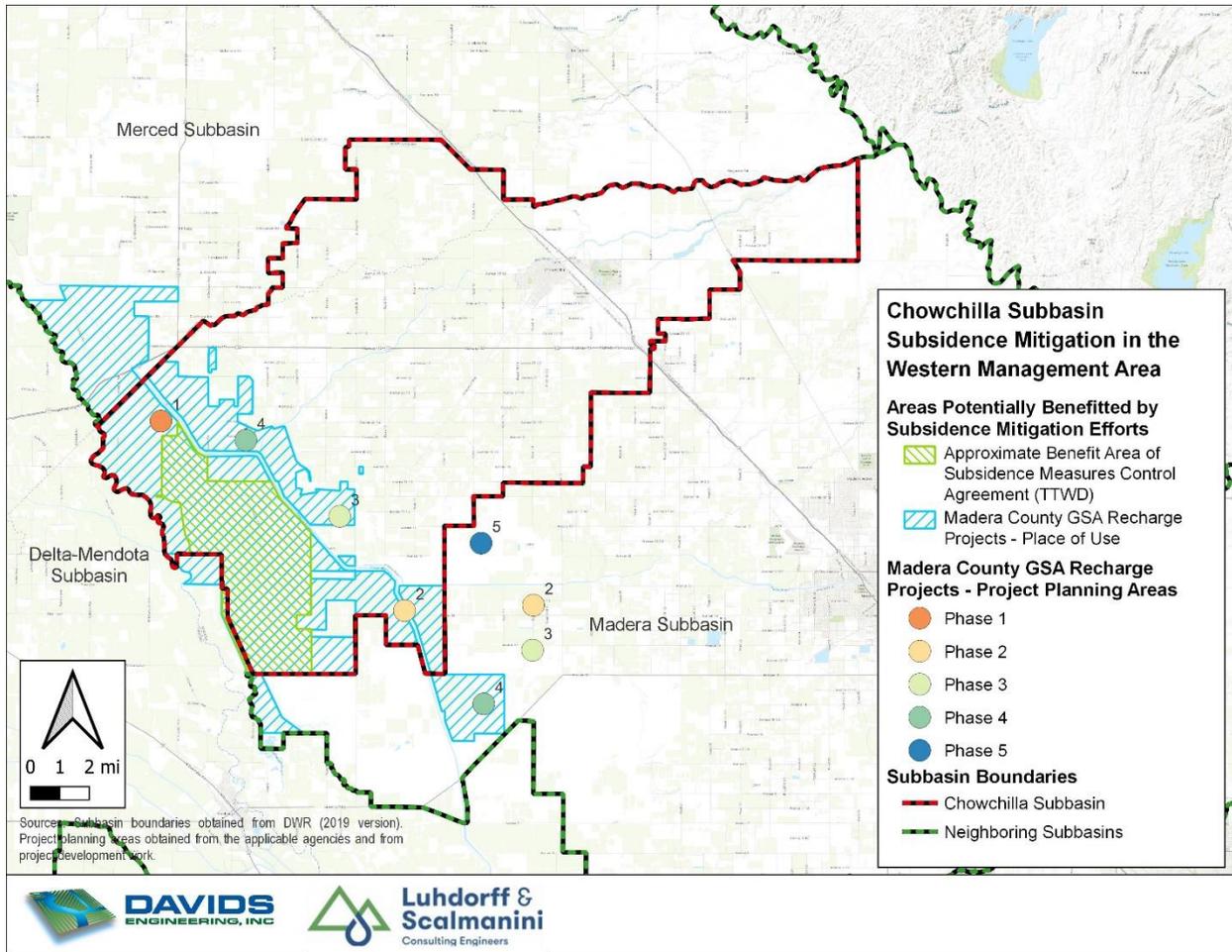
Of specific importance in both policies is term 5. Term 5 was intentionally included such that extraction of the recharge credit shall be limited to the aquifer in which recharge water was percolated. Recognizing the presence of the Corcoran Clay in the Subbasin and subsidence resulting from the extraction of groundwater from below the Corcoran Clay, this is a critically important provision to avoid the proliferation of subsidence in areas where recharge takes place. If recharge took place in the upper aquifer where the Corcoran Clay is present, extraction too must occur in the upper aquifer. Additionally, both policies state that as of January 1, 2025, any well that has been screened both above and below the defined Corcoran Clay layer shall be considered to be extracting from below the Corcoran Clay. Term 5 is consistent with the well documented and successful TTWD Subsidence Control Measures Agreement that is discussed in more detail in Section 3.3.3.7.2 and in Appendix 3.F (*of the 2025 Revised Subbasin GSP*).

While development of these groundwater recharge projects is ongoing, the GSAs will continue to monitor the progress and subsidence mitigation benefits of the initial Agreement. These findings will be used to inform development of Lower Aquifer groundwater pumping restrictions or other efforts to mitigate subsidence in the Madera County GSA area. Limitations on groundwater pumping from the Lower Aquifer may also be achieved through well permitting provisions in response to Executive Order N-7-22 or by other means determined by the GSAs. Based on the results of the “Projected, With Projects” water budget scenario simulated in the Madera-Chowchilla Groundwater-Surface Water Simulation (MCSim)<sup>3</sup>, it is expected that shifts in pumping practices, paired with implementation of the planned PMAs, will help to achieve sustainable groundwater conditions in the Subbasin. Updates and outcomes of other subsidence mitigation measures will be reported in future GSP updates and Annual Reports. Together, landowners and GSAs are making consistent efforts to achieve and maintain groundwater sustainability in the WMA.

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<sup>2</sup> For more details the full Madera County GSA Resolution No. 2024-030 can be found online at: <https://www.maderacountywater.com/wp-content/uploads/2024/03/RES-NO.-2024-030.pdf>

<sup>3</sup> See **Appendix 6.D, Section 3.5.3.2**. In the MCSim projected model, approximately 90 percent of groundwater pumping was simulated from the Upper Aquifer and approximately 10 was simulated from the Lower Aquifer.



**Figure 3-9. Subsidence Mitigation Efforts in the Western Management Area.**  
*(from the 2025 Revised Subbasin GSP)*



Committee Members  
Jordan Wamhoff  
Robert Macaulay

ITEM 4.g

Date: March 3, 2026

To: Madera County Groundwater Sustainability Agency (GSA) Committee  
Robert Macaulay, Jordan Wamhoff

From: Stephanie Anagnoson, Director of Water and Natural Resources

Subject: Action Item: Consideration and recommendation of entering into an Agreement among the Delta-Mendota Subbasin Groundwater Sustainability Agencies listed in Exhibit "A"

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### **DISCUSSION:**

The Sustainable Groundwater Management Act (SGMA) was signed into law on September 16, 2014. SGMA requires local agencies to form Groundwater Sustainability Agencies (GSAs), with the intent to create local control of groundwater management for the Subbasins. Furthermore, through the implementation of Groundwater Sustainability Plans (GSPs), the GSAs are required to meet sustainability goals for groundwater.

On May 13, 2017, Madera County became the GSA for the portion of the Delta-Mendota Subbasin, within the County of Madera, not already covered by another agency (County of Madera GSA-Delta-Mendota).

In 2024, the Delta-Mendota Subbasin GSAs adopted a subbasin wide, single, GSP to coordinate efforts to meet groundwater sustainability goals. On February 6, 2024, the County of Madera GSA-Delta-Mendota signed a Memorandum of Agreement (MOA) to implement the single GSP.

Under the MOA, the Subbasin GSAs had agreements with the San Luis & Delta-Mendota Water Authority (SLDMWA) whereby SLDMWA provided fiscal, contracting and administrative services for the Subbasin. SLDMWA's Board directed that SLDMWA consolidate its mission to core objectives and therefore transition away from providing these services by the start of the next fiscal year (March 1, 2026). As a result, the Subbasin GSAs executed a Joint Powers Agreement to establish a Joint Powers Authority in January 2026.





Committee Members  
Jordan Wamhoff  
Robert Macaulay

ITEM 4.g

## Revised and Restated MOA

With the establishment of the Delta-Mendota Subbasin GSAs Joint Powers Authority (DM Authority), the SLDMWA will no longer have a role in the management of the GSAs, and therefore, the revised MOA removes the role of SLDWMA in Article III and replaces it with the DM Authority. Additionally, in the revised MOA, the Board of Directors of the DM Authority supersedes and replaces the Coordination Committee identified in Article IV of the Original MOA. Lastly, since Widren Water District and Oro Loma Water District recently joined the Central Delta-Mendota GSA Joint Powers Authority, the MOA signatories reflect this change from 23 to 21 GSAs.

On February 4, 2026, the Delta-Mendota Joint Powers Authority Board of Directors was established and held a Special Joint Meeting with the Coordination Committee. During the meeting, the Revised and Restated MOA was presented by legal counsel. The Board directed legal counsel to modify Section 7.1 of the Agreement to state that the Parties agree to “coordinate to develop and maintain a monitoring network at the Subbasin level.” Please note that this is a non-substantive revision and does not change the terms or Party responsibilities of the Agreement.

Staff presented an overview to the GSA Committee on March 3, 2026, and recommends entering the MOA.

Link to the final Delta-Mendota Subbasin Groundwater Sustainability Plan  
<https://deltamendota.org/final-gsp-documents/>

## FISCAL IMPACT:

There is no fiscal impact on the general fund

## ATTACHMENTS:

Delta-Mendota Subbasin Revised Restated MOA

JC



**REVISED AND RESTATED  
MEMORANDUM OF AGREEMENT  
AMONG THE DELTA-MENDOTA SUBBASIN  
GROUNDWATER SUSTAINABILITY AGENCIES**

THIS REVISED AND RESTATED MEMORANDUM OF AGREEMENT (this “**MOA**”) is entered into and shall be effective as of March 1, 2026 (the “**Effective Date**”), by and among the groundwater sustainability agencies within the Delta-Mendota Subbasin listed in Exhibit “A” (each a “**Party**” and collectively the “**Parties**”) and is made with reference to the following facts:

**RECITALS**

A. On September 16, 2014, Governor Jerry Brown signed into law Senate Bills 1168 and 1319 and Assembly Bill 1739, known collectively as the Sustainable Groundwater Management Act (“**SGMA**”).

B. SGMA requires all groundwater subbasins designated as high- or medium-priority by the California Department of Water Resources (“**DWR**”) to manage groundwater in a sustainable manner.

C. The Delta-Mendota Subbasin (Basin Number 5-22.07, DWR Bulletin 118) within the San Joaquin Valley Groundwater Basin (“**Subbasin**”), has been designated as a high-priority, critically overdrafted basin by DWR.

D. The Subbasin includes multiple groundwater sustainability agencies (each a “**GSA**” and collectively, the “**GSAs**”) that initially managed the Subbasin through the development and implementation of six (6) different groundwater sustainability plans.

E. Pursuant to the requirements of SGMA (Wat. Code, §§ 10720, *et seq.*) and DWR’s SGMA regulations (23 Cal. Code Regs., §§ 350, *et seq.*), and in recognition of the need to sustainably manage the groundwater within the Subbasin, the Parties entered into that certain Delta-Mendota Subbasin Coordination Agreement effective December 12, 2018 (“**Coordination Agreement**”), to outline the Parties’ obligations and responsibilities regarding SGMA coordination in the Subbasin among the multiple GSAs and multiple groundwater sustainability plans.

F. In 2024, the Parties adopted a single groundwater sustainability plan (“**GSP**”) to cover the entire Subbasin to comply with SGMA.

G. If there is only one (1) GSP for the Subbasin, then the GSAs no longer need the Coordination Agreement, as defined by SGMA.

H. As part of the development of a single GSP, the Parties adopted a Memorandum of Agreement Among the Delta-Mendota Subbasin Groundwater Sustainability Agencies and San Luis & Delta-Mendota Water Authority, effective September 12, 2024 (the “**Original MOA**”).

I. Through the Original MOA, the GSAs desired to coordinate the work and management of the Subbasin and clarify responsibilities of the respective GSAs, in accordance with SGMA, and develop a “Coordination Committee” to assist with said efforts.

J. As of December 1, 2025, the Parties entered into that certain “Delta-Mendota Subbasin GSAs Joint Powers Authority Agreement” to create a separate entity known as the Delta-Mendota Subbasin GSAs Joint Powers Authority (the “**Authority**”).

K. The responsibilities of the Coordination Committee created by the Original MOA have been superseded by the Board of Directors of the Authority, rendering the Coordination Committee unnecessary.

L. With the creation of the Authority, the San Luis & Delta-Mendota Water Authority is no longer involved in the coordination of the GSAs in the Subbasin and is therefore no longer a signatory to this MOA.

M. The Parties desire to revise and restate the Original MOA as outlined in this MOA, and it is the intent of the Parties that this MOA supersede and replace the Original MOA.

**NOW, THEREFORE**, in consideration of the Recitals, which are deemed true and correct and incorporated herein, and of the covenants, terms, and conditions set forth herein, the Parties hereto agree as follows:

## **ARTICLE I– DEFINITIONS**

1.1 “**Authority**” shall mean the Delta-Mendota Subbasin GSAs Joint Powers Authority.

1.2 “**Coordinated Plan Expenses**” are those Subbasin-wide Activities expenses incurred by the Authority, the Secretary, and the Plan Manager, at the direction of the Board of Directors, within approved annual cost estimates for purposes described in this MOA and in implementing this MOA, including actual expenses incurred in executing obligations under this MOA for intrabasin and interbasin coordination, which are shared equally amongst the seven (7) representative seats of the Board of Directors, in accordance with the Participation Percentages.

1.3 “**DWR**” shall mean the California Department of Water Resources.

1.4 “**Effective Date**” shall be March 1, 2026.

1.5 “**GSA**” shall mean a groundwater sustainability agency established in accordance with SGMA and its associated regulations, and “**GSAs**” shall mean more than one (1) such groundwater sustainability agency. Each Party is a GSA.

1.6 “**GSP**” shall mean the single Delta-Mendota Subbasin Groundwater Sustainability Plan.

1.7 “**MOA**” shall mean this Revised and Restated Memorandum of Agreement by and among the Parties.

1.8 “**Participation Percentages**” shall mean that percentage of Coordinated Plan Expenses allocated to each GSA or GSA Group as described on Exhibit “B” to this MOA, which is attached and incorporated by reference herein, as updated from time to time, but not more frequently than annually.

1.9 “**Party**” or “**Parties**” shall mean a GSA or in the plural, two (2) or more GSAs within the Subbasin, who are signatories to this MOA.

1.10 “**Plan Manager**” shall mean an entity or individual appointed at the pleasure of the Board of Directors of the Authority to perform the role of the Plan Manager and to serve as the point of contact to DWR and/or the State Water Board.

1.11 “**SGMA**” shall mean the Sustainable Groundwater Management Act, as amended from time to time, commencing at Water Code section 10720, together with its implementing regulations applicable to groundwater sustainability plans, set forth at California Code of Regulations, Title 23, Division 2, Chapter 1.5, Subchapter 2.

1.12 “**SGMA Definitions**” shall mean those SGMA-specific definitions provided by statute or regulation; in the event of any inconsistency between a term defined in this MOA and a SGMA-specific definition, the definition contained in this MOA shall prevail.

1.13 “**State Water Board**” shall mean the California State Water Resources Control Board.

1.14 “**Subbasin**” shall mean the Delta-Mendota Subbasin (Basin Number 5-22.07, DWR Bulletin 118) within the San Joaquin Valley Groundwater Basin.

1.15 “**Subbasin-wide Activities**” shall mean those activities or actions that affect the Subbasin as a whole or are otherwise required by SGMA to be determined at the Subbasin level and as defined by a unanimous vote of the Board of Directors of the Authority. An initial list of Subbasin-wide Activities is identified in Exhibit “D”.

1.16 “**Water Year**” shall mean the period from October 1 through the following September 30.

## **ARTICLE II– PURPOSE & KEY PRINCIPLES**

2.1 **Purpose.** The Parties shall continue to work together in mutual cooperation to implement and update the GSP in compliance with SGMA for the sustainable management of the Subbasin. Each Party hereto shall implement the terms and conditions of the GSP within their respective GSA territories.

2.2 **Collaboration.** The Parties intend to mutually cooperate to implement the GSP within their respective GSA territories.

2.3 **Each Party’s Rights.** This MOA shall not limit or interfere with any Party’s rights or authorities over its own internal matters, including, but not limited to, a Party’s legal rights to surface water supplies and assets, groundwater supplies and assets, facilities, billing and collection

procedures, GSA powers and implementation or exercise of such powers, operations, and water management and water supply matters. Nothing in this MOA is intended to modify or limit a Party's police powers, land use authorities, or any other authority, including the authority to pursue a comprehensive groundwater adjudication or other alternative SGMA compliance strategy, should the Party deem it to be in its best interest to do so.

2.4 **Management and GSP Implementation.** It is the responsibility and obligation of each Party to this MOA, and any applicable separate agreements, to manage its own GSA and implement the GSP within its GSA's boundaries. It is further the responsibility and obligation of each Party to pay its proportionate share of the Participation Percentage and other payments required as part of implementation of SGMA Subbasin-wide Activities, as may arise from time to time.

### **ARTICLE III – JOINT POWERS AUTHORITY**

3.1 **Delta-Mendota Subbasin GSAs Joint Powers Authority.** The Parties entered into that certain Delta-Mendota Subbasin GSAs Joint Powers Authority Agreement effective December 1, 2025, to form the Delta-Mendota Subbasin GSAs Joint Powers Authority (the "Authority"). The Board of Directors of the Authority superseded and replaced the Coordination Committee identified in the Original MOA. All of the Parties to this MOA are Members of the Authority.

### **ARTICLE IV – APPROVAL BY INDIVIDUAL PARTIES**

4.1 Where law or this MOA requires separate written approval by each of the Parties, such approval shall be evidenced in writing by providing the adopted resolution or minutes of the respective GSA's Board of Directors' meeting to the Secretary of the Authority.

### **ARTICLE V – POWERS RESERVED TO PARTIES**

5.1 Nothing in this MOA shall be interpreted to deprive any Party of its right to:

- (a) Act as a GSA within its boundaries;
- (b) Exercise authorities granted to each of the Parties as a GSA under SGMA in a manner consistent with the adopted GSP;
- (c) Exercise authority to implement SGMA and any GSP adopted pursuant to this MOA consistent with the terms and conditions set forth therein; and
- (d) Defend, with legal counsel of its own choosing, any challenge to the adoption or implementation of a GSP developed pursuant to this MOA.

### **ARTICLE VI – EXCHANGE OF DATA AND INFORMATION**

6.1 **Exchange of Data and Information.** The Parties acknowledge and recognize pursuant to this MOA that the Parties will need to exchange data and information among and

between the Parties. Procedures for exchanging of such data and information are outlined in Article XI of the Delta-Mendota Subbasin GSAs Joint Powers Authority Agreement.

## **ARTICLE VII – MONITORING NETWORK**

7.1 In accordance with SGMA, the Parties hereby agree to coordinate to develop and maintain a monitoring network at a Subbasin level. The Subbasin monitoring network description shall include monitoring objectives, protocols, and data reporting requirements specific to enumerated sustainability indicators. Each GSA is responsible for the following:

- (a) Operating and maintaining the representative monitoring network within its boundary;
- (b) Filling data gaps in its GSA on a defined schedule;
- (c) Collecting data per the approved Subbasin-wide monitoring protocol;
- (d) Considering developing and maintaining a supplementary network for collecting data in excess of the minimum need, for the purposes of supporting local management decisions (since the level of detail necessary may not be sufficient in a Subbasin level network); and
- (e) Each GSA shall have a minimum of one (1) representative monitoring wells (measuring water level and water quality) from each aquifer (above the Corcoran Clay layer – shallow aquifer, or below the Corcoran Clay layer – deep aquifer) in which it has groundwater pumping either within its GSA boundaries or within the area of influence of the pumping that is occurring, sufficient to meet the recommendations of the Subbasin-wide GSP consultant.

7.2 The minimum monitoring network shall be based on the evaluation performed by the Subbasin-wide GSP consultant and may change from time to time. The Subbasin-wide GSP consultant shall evaluate the monitoring network to ensure:

- (a) There is a proper spatial and temporal coverage to inform a groundwater model;
- (b) The level of monitoring is commensurate with the use in an area (e.g., limited monitoring well(s) in areas that do not pump or higher density of survey benchmarks in areas that have numerous deep wells); and
- (c) The network is balanced, so that should an exceedance occur, it is not biased or weighted as a function of a poorly distributed monitoring network.

## **ARTICLE VIII – COORDINATED DATA MANAGEMENT SYSTEM**

8.1 The Parties developed and currently maintain a coordinated data management system that is capable of storing and reporting information relevant to the reporting requirements and/or implementation of the GSP and monitoring network of the Subbasin. After providing the

Board of Directors of the Authority with data from the individual GSAs, the Plan Manager will ensure the data is stored and managed in a coordinated manner throughout the Subbasin and reported to DWR annually as required.

## **ARTICLE IX – ADAPTIVE MANAGEMENT FRAMEWORK**

9.1 The Parties previously established an “Adaptive Management Framework” applicable to all GSAs in the Subbasin, which is attached hereto as Exhibit “C” and incorporated herein by this reference. This Adaptive Management Framework shall be further refined as part of the GSP development and implementation.

9.2 If and when required pursuant to Exhibit “C,” each Party to this Agreement shall participate in the procedures discussed therein without regard to whether the Party is represented by another entity on the Authority’s Board of Directors.

9.3 As part of the Adaptive Management Framework, each Party commits to continue to evaluate and implement projects and management actions (“**P&MAs**”) within its boundaries to reach sustainability in compliance with SGMA.

## **ARTICLE X – MODIFICATION OF THIS MOA**

10.1 **Addition of a Party.** A Party may be added to this MOA only upon the unanimous vote of the Board of Directors of the Authority at a regular or special meeting, the Party’s execution of a counterpart of this MOA, and its provision of any additional documentation required by this MOA. No Party may be added that is not a GSA within the Subbasin or that fails to share in Coordinated Plan Expenses.

10.2 **Modification or Amendment of this MOA.** The Parties hereby agree that this MOA may be supplemented, amended, or modified only by a writing signed by all Parties.

10.3 **Amendment for Compliance with Law.** Should any provision of this MOA be determined to not be in compliance with legal requirements under circumstances where amendment of the MOA to include a provision addressing the legal requirement will cure the non-compliance, the Parties agree to promptly prepare and shall not unreasonably withhold approval of such amendment.

## **ARTICLE XI – WITHDRAWAL, TERM, AND TERMINATION**

11.1 **Withdrawal.** A Party may unilaterally withdraw from this MOA without causing or requiring termination of this MOA, effective upon one (1) year written notice to the Authority’s Secretary and all other Parties. The Plan Manager shall report any such withdrawal to DWR and/or the State Water Board within five (5) days of receipt of the written notice.

Any Party who withdraws shall remain obligated for Coordinated Plan Expenses. The withdrawing Party is obligated to pay its share of all debts, liabilities, and obligations the Party incurred or accrued under the MOA prior to the effective date of such withdrawal, which is one (1) year after providing written notice to the Secretary and all other Parties, and as also may be

established under its separate GSA Group agreement, as applicable, concerning such share of obligations.

Upon withdrawal, a Party agrees that it has a continuing obligation to comply with SGMA and any coordination guidelines and regulations issued by DWR, which require a coordination agreement if there are multiple groundwater sustainability plans in the Subbasin. This obligation shall survive the withdrawal from this MOA and is for the express benefit of the remaining Parties.

11.2 **Termination**. This MOA may be terminated or rescinded by the unanimous written consent of all Parties. Nothing in this MOA shall prevent the Parties from entering into a coordination agreement for coordination with any other subbasin.

11.3 **Indemnification**. No Party, nor any director, officer or employee of a Party, shall be responsible for any damage or liability occurring by reason of anything done or omitted to be done by another Party under or in connection with this MOA. Each Party shall fully indemnify and hold harmless each other Party and its agents, directors, officers, employees, and contractors from and against all claims, damages, losses, judgments, liabilities, expenses, and other costs, including litigation costs and attorney fees, arising out of, resulting from, or in connection with any work delegated to or action taken or omitted to be taken by such Party pursuant to this MOA.

## **ARTICLE XII – PROCEDURES FOR RESOLVING CONFLICTS**

12.1 In the event of any dispute arising from or relating to this MOA, the procedures for resolving conflicts described in Article XIII of the Delta-Mendota Subbasin GSAs Joint Powers Authority Agreement shall control.

## **ARTICLE XIII – GENERAL PROVISIONS**

13.1 **Authority of Signers**. The individuals executing this MOA represent and warrant that they have the authority to enter into this MOA and to legally bind the Party for whom they are signing to the terms and conditions of this MOA.

13.2 **Governing Law**. The validity and interpretation of this MOA will be governed by the laws of the State of California without giving effect to the principles of conflict of laws, with venue for all purposes to be proper only in the County of Merced, State of California.

13.3 **Severability**. Except as provided for cure by amendment in Articles 10.2 and 10.3, if any term, provision, covenant, or condition of this MOA is determined to be unenforceable by a court of competent jurisdiction, it is the Parties' intent that the remaining provisions of this MOA will remain in full force and effect and will not be affected, impaired, or invalidated by such a determination.

13.4 **Counterparts**. This MOA may be executed in any number of counterparts, each of which will be an original, but all of which will constitute one (1) and the same agreement.

13.5 **Good Faith**. The Parties agree to exercise their best efforts and utmost good faith to effectuate all the terms and conditions of this MOA and to execute such further instruments and

documents as are reasonably necessary, appropriate, expedient, or proper to carry out the intent and purposes of this MOA.

*Signatures on following page*

**IN WITNESS WHEREOF**, the Parties have executed this MOA as of the Effective Date.

Dated: \_\_\_\_\_ ALISO WATER DISTRICT GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_ CENTRAL DELTA-MENDOTA GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_ CITY OF DOS PALOS GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_ CITY OF FIREBAUGH GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_ CITY OF GUSTINE GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_ CITY OF LOS BANOS GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

CITY OF MENDOTA GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

CITY OF NEWMAN GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

CITY OF PATTERSON GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

COUNTY OF MADERA GSA – DELTA-MENDOTA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

COUNTY OF MERCED DELTA-MENDOTA GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

DM II GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

FARMERS WATER DISTRICT GSA

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

FRESNO COUNTY MANAGEMENT AREA A  
GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

FRESNO COUNTY MANAGEMENT AREA B  
GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

\_\_\_\_\_

Dated: \_\_\_\_\_

GRASSLAND GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

NORTHWESTERN DELTA-MENDOTA GSA

**STANISLAUS COUNTY**

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

APPROVED AS TO FORM

By: \_\_\_\_\_

\_\_\_\_\_

**MERCED COUNTY**

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

APPROVED AS TO FORM

By: \_\_\_\_\_

\_\_\_\_\_

Dated: \_\_\_\_\_

PATTERSON IRRIGATION DISTRICT GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

SAN JOAQUIN RIVER EXCHANGE  
CONTRACTORS WATER AUTHORITY GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

TURNER ISLAND WATER DISTRICT-2 GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Dated: \_\_\_\_\_

WEST STANISLAUS IRRIGATION DISTRICT  
GSA

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

## **EXHIBIT “A”**

### **Parties to the MOA**

1. Aliso Water District GSA
2. Central Delta-Mendota GSA  
(Includes: County of Fresno, County of Merced, Eagle Field Water District, Fresno Slough Water District, Mercy Springs Water District, Oro Loma Water District, Pacheco Water District, Panoche Water District, San Luis Water District, Santa Nella County Water District, Tranquillity Irrigation District, and Widren Water District GSA)
3. City of Dos Palos GSA
4. City of Firebaugh GSA
5. City of Gustine GSA
6. City of Los Banos GSA
7. City of Mendota GSA
8. City of Newman GSA
9. City of Patterson GSA
10. County of Madera GSA – Delta-Mendota
11. County of Merced Delta-Mendota GSA
12. DM II GSA
13. Farmers Water District GSA
14. Fresno County Management Area A GSA
15. Fresno County Management Area B GSA
16. Grassland GSA
17. Northwestern Delta-Mendota GSA
18. Patterson Irrigation District GSA
19. San Joaquin River Exchange Contractors GSA  
(Includes: Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District, and Columbia Canal Company)

20. Turner Island Water District-2 GSA
21. West Stanislaus Irrigation District GSA

**EXHIBIT B**

**BOARD OF DIRECTORS REPRESENTATIVES & PARTICIPATION PERCENTAGES**

Board of Directors Representatives (alphabetically)		Group Contact Agency	Participation Percentage
1	<b>Aliso Water District GSA</b> Aliso Water District GSA	Aliso Water District GSA	1/7
2	<b>Central Delta-Mendota GSA</b> Central Delta-Mendota GSA	Central Delta-Mendota GSA	1/7
3	<b>Farmers Water District GSA</b> Farmers Water District GSA	Farmers Water District GSA	1/7
4	<b>Fresno County Management Area A and B GSAs Group</b> Fresno County Management Area A GSA Fresno County Management Area B GSA	Fresno County	1/7
5	<b>Grassland GSAs Group</b> Grassland GSA Merced County Delta-Mendota GSA	Grassland Water District	1/7
6	<b>Northern Delta-Mendota GSAs Group</b> City of Patterson GSA DM-II GSA Northwestern Delta-Mendota GSA Patterson Irrigation District GSA West Stanislaus Irrigation District GSA	West Stanislaus Irrigation District	1/7
7	<b>San Joaquin River Exchange Contractors GSAs Group</b> City of Dos Palos GSA City of Firebaugh GSA City of Gustine GSA City of Los Banos GSA City of Mendota GSA City of Newman GSA County of Madera GSA – Delta-Mendota Merced County Delta-Mendota GSA San Joaquin River Exchange Contractors GSA Turner Island Water District-2 GSA	San Joaquin River Exchange Contractors GSA	1/7

## EXHIBIT “C”

### ADAPTIVE MANAGEMENT FRAMEWORK FOR THE SUBBASIN

The Groundwater Sustainability Agencies (“GSAs”) in the Delta-Mendota Subbasin (the “Subbasin”) acknowledge that the Sustainable Groundwater Management Act (“SGMA”) has a long-term horizon to achieve sustainability and that management of the Subbasin will require an iterative process on the part of the GSAs and the Board of Directors of the Authority to review groundwater conditions at least annually and propose revisions to underlying data, methodologies, assumptions, sustainable management criteria, projects, management actions, and other Subbasin-wide coordinated information as necessary to meet changing conditions. Accordingly, the GSAs in the Subbasin establish the following framework for addressing MT exceedances in the SGMA implementation period, as will be further described in the adopted GSP:

1. As a Subbasin-wide Activity, the Subbasin-wide GSP Consultant shall initiate a review of Subbasin-wide data within sixty (60) days after that data is due to be submitted by each GSA (the “Review”). As reporting dates vary based upon the Sustainable Management Criteria (“SMC”), this Review will be done on a regular basis and will be a regular agenda item on the Authority’s Board of Directors agenda.

2. The Review shall take into account all matters to be considered in the Annual Report pursuant to the DWR Regulations, section 356.2, including, but not limited to, changes in groundwater elevation, groundwater storage, subsidence, water quality and the status of minimum thresholds (“MTs”) and interim milestones in the Subbasin GSP.

3. Should GSA activities result in either a) a pattern of data showing a downward trend (towards a MT exceedance), or b) a MT exceedance, the Authority (at the recommendation of the Plan Manager, a designated subcommittee, or the Subbasin-wide GSP Consultant) shall immediately notify the GSA and add the downward trend or exceedance information to the next Authority’s Board of Directors agenda packet. That GSA shall also be provided with a checklist to help evaluate possible causes of the MT downward trend or exceedance.

4. The GSA may request the Subbasin-wide GSP Consultant to coordinate such trend or exceedance information with that GSA’s own consultant, as applicable. Within thirty (30) days of said notice, the GSA shall present a plan of action to the Board of Directors of the Authority to address how the GSA will mitigate any downward trend or exceedance and in what timeframe. The intent is for the Board of Directors of the Authority to discuss the mitigation plan in an effort to provide helpful ideas to the GSA. However, the GSA is solely responsible for the management actions within its boundaries and the costs to remedy the cause of the MT exceedance if it is attributed to activities occurring within such GSA’s jurisdictional boundaries and/or that GSA is not operating within its Sustainable Yield (the “Responsible GSA”). At its sole cost and expense, the Responsible GSA may ask the Subbasin-wide GSP Consultant to further determine: (a) what caused the exceedance; (b) whether or not the Responsible GSA has control over the cause of the MT downward trend or exceedance; (c) whether it is an intra-basin impact from another GSA or an inter-basin impact by a neighboring subbasin; and (d) whether or not the MT exceedance caused injury.

5. If there is a determination by the Subbasin-wide GSP Consultant that any MT downward trend or exceedance was caused by intra-basin impacts from another GSA within the Subbasin, such determination will be brought back to the Authority's Board of Directors for further discussion and potential Subbasin-wide action. The Authority's Board of Directors will work with other GSAs to increase existing GSA coordination to remedy the issues causing the downward trend or exceedance and to remedy the responsibility of costs associated with identifying and mitigating the exceedance.

6. If there is a determination that any MT exceedance was caused by a neighboring subbasin, this should be brought back to the Board of Directors of the Authority for further discussion and potential Subbasin-wide action. Costs for initial investigation by the Subbasin-wide GSP Consultant of a MT downward trend or exceedance across Subbasin boundary lines (such as water quality issues, subsidence, or depletion of interconnected surface waters) shall be shared pursuant to the Participation Percentages of the Authority (i.e. 1/7<sup>th</sup> each). The Authority's Board of Directors will work with other subbasins to expand existing inter-basin coordination to remedy the issues causing the downward trends or exceedances.

7. In the event that the GSA is unable to mitigate or avoid future MT exceedances with its existing projects and management actions ("P&MAs") and within the timeframe presented to the Authority's Board of Directors, the GSA may seek assistance from the Authority. The Board of Directors of the Authority may recommend policies or programs to the GSA that the GSA could, in its discretion, adopt to remedy the existence of a MT exceedance and to avoid undesirable results. Furthermore, the Board of Directors of the Authority may consider setting triggers in the GSP for GSAs to implement management actions [e.g., sequencing P&MAs] or work on alternative options.



## **EXHIBIT “D”**

### **SUBBASIN-WIDE ACTIVITIES**

#### **(Initial List)**

- Preparation of and submittal of annual reports
- Preparation of annual estimates of Coordinated Plan Expenses presented by the Secretary and any updates to such estimates, in accordance with the budgetary requirements of the respective Parties
- Plan Manager costs and expenses for the work directed by the Authority’s Board of Directors
- Subbasin-wide Consultant costs and expenses, including, but not limited to, collecting information from the Subbasin GSAs, processing technical data, and those identified in Exhibit “C” for the Adaptive Management Framework for the Subbasin
- Preparation of and submittal of five-year updates to the GSP
- Revisions to this MOA
- Subbasin-wide outreach
- Litigation costs for an attorney coordinating the GSAs for litigation filed against the entire Subbasin
- Costs for initial investigation by the Subbasin-wide GSP Consultant of a MT downward trend or MT exceedance across Subbasin boundary lines

**COUNTY OF MADERA**

Approved as to Legal Form:  
COUNTY COUNSEL

**Jennifer P.  
Thompson**

Digitally signed by: Jennifer P.  
Thompson  
DN: CN = Jennifer P. Thompson  
email = jthompson@lozanosmith.  
com C = US O = LOZANO  
SMITH  
Date: 2026.02.27 09:37:33 -08'00'

By: \_\_\_\_\_

ACCOUNT NUMBERS:

\_\_\_\_\_  
\_\_\_\_\_

CONTRACTING PARTIES:

**Groundwater Sustainability Agencies**  
\_\_\_\_\_  
**within the Delta-Mendota Subbasin**  
\_\_\_\_\_  
\_\_\_\_\_

TITLE OF CONTRACT:

**REVISED AND RESTATED MEMORANDUM OF AGREEMENT**  
\_\_\_\_\_  
**AMONG THE DELTA-MENDOTA SUBBASIN**  
\_\_\_\_\_  
**GROUNDWATER SUSTAINABILITY AGENCIES**  
\_\_\_\_\_  
\_\_\_\_\_