

# Groundwater Fee Study

San Joaquin Valley Cosumnes Subbasin

DRAFT REPORT

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# Acronyms

CSD .....	Community Services District
CWD.....	Clay Water District
DoC .....	California Department of Conservation
DWR .....	California Department of Water Resources
GID .....	Galt Irrigation District
GSA.....	Groundwater Sustainability Agency
GSP.....	Groundwater Sustainability Plan
MAR .....	Managed Aquifer Recharge
OHWD .....	Omochumne-Hartnell Water District
PMA .....	Projects and Management Actions
SAFCA .....	Sacramento Area Flood Control District
SGMA.....	Sustainable Groundwater Management Act
SGMO .....	Sustainable Groundwater Management Office
SRCD .....	Sloughouse Resource Conservation District
SWRCB .....	State Water Resource Control Board

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## Introduction

Sacramento County (County) retained HDR Engineering Inc, to develop the San Joaquin Valley Cosumnes Subbasin (Cosumnes Subbasin) Groundwater Fee Study (Study). The Study develops a fee program that will support the implementation of the Groundwater Sustainability Plan (GSP) in the Cosumnes Subbasin, fund associated groundwater management activities, and meet the requirements of the Sustainable Groundwater Management Act (SGMA). As a point of reference, the costs of GSP development and preparation have been funded separately. This study provides cost-based, equitable, and proportional groundwater fees for groundwater users in the Cosumnes Subbasin service area. This report documents the process and technical analyses used to develop these fees.

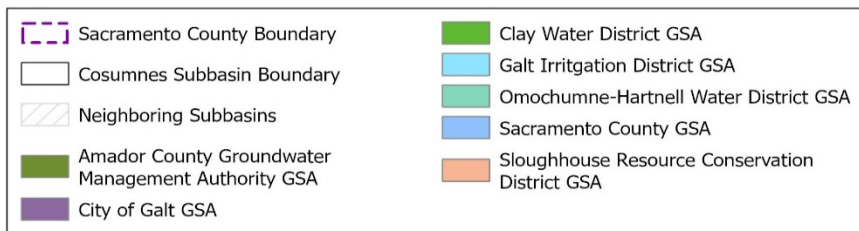
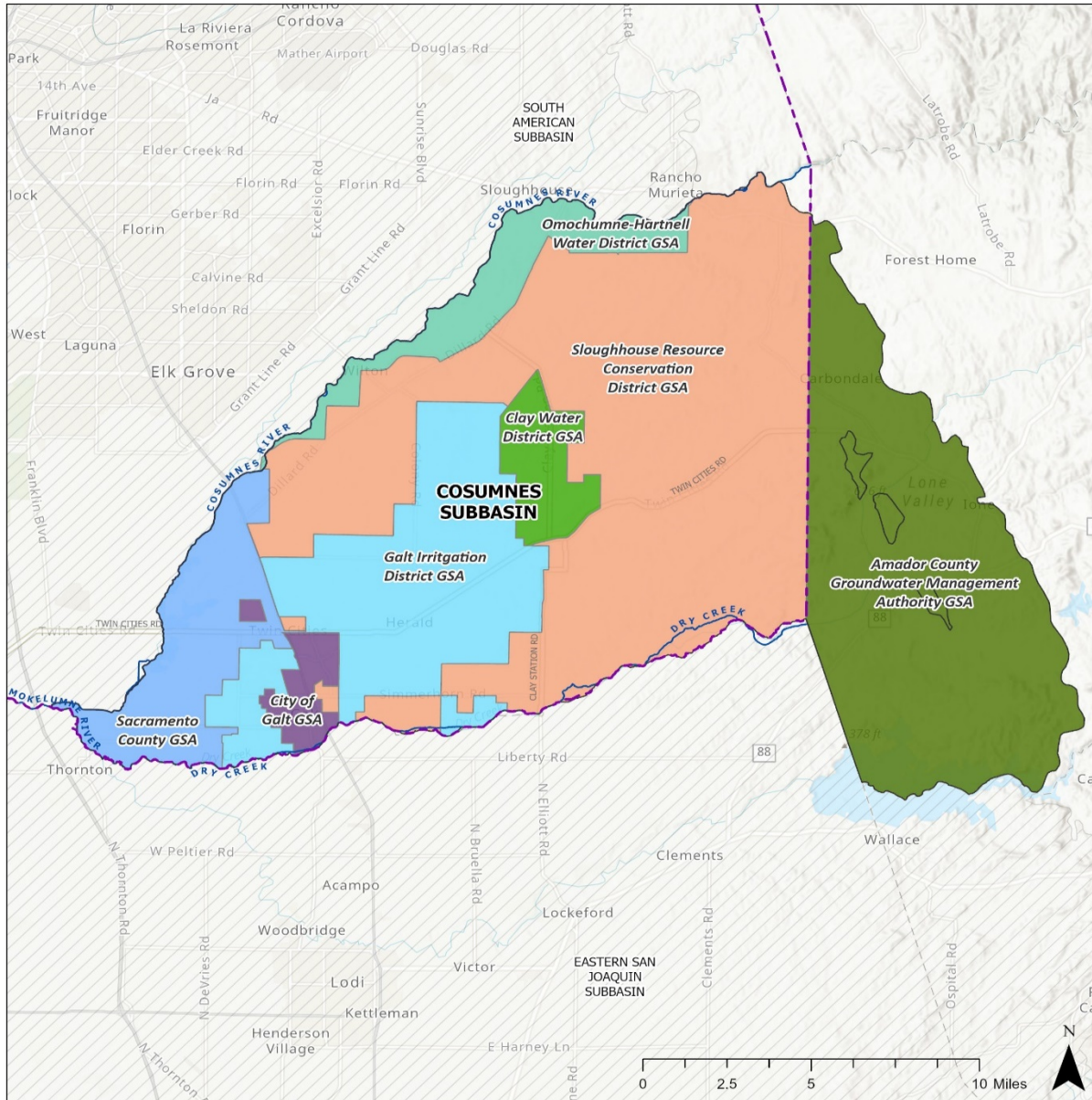
## Overview of the Cosumnes Subbasin Working Group

Under California law, SGMA requires the Cosumnes Subbasin Groundwater Sustainability Agencies (GSAs) to have one or more GSPs in place by January 31, 2022.

The following agencies are the GSAs responsible for groundwater management within the Cosumnes Subbasin in accordance with the requirements of SGMA:

- Omochumne-Hartnell Water District (OHWD) GSA;
- Sloughhouse Resource Conservation District (SRCD) GSA;
- Galt Irrigation District (GID) GSA;
- Clay Water District (CWD) GSA;
- City of Galt GSA;
- Amador County Groundwater Management Authority (Amador County GSA); and
- Sacramento County GSA.

The GSAs have established the Cosumnes Subbasin SGMA Working Group (Working Group) with the goal of developing a single, integrated, SGMA-compliant GSP to foster plan effectiveness, coordination, and efficiencies. A map of the subbasin and each GSA area is shown in Figure 1.



*Note: The Cosumnes Subbasin extends beyond Sacramento County.*

**Figure 1. Cosumnes Subbasin Groundwater Sustainability Agencies**

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# Overview of the Need for the Groundwater Fee Study

In September 2014, a three-bill legislative package, collectively known as SGMA, was signed into law. SGMA provides a framework for sustainable groundwater management and provides for the “management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.”<sup>1</sup> SGMA requires governments and water agencies in high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of groundwater use and recharge. The passage of this law requires the planning, implementation, and development of a GSP that includes projects and other management actions to accomplish these objectives. This Study is intended to address issues regarding the approach for a groundwater fee program following the adoption of the GSP by each of the GSAs.

## Overview of the Approach and Methodology

The goal of this Study is to establish cost-based, equitable, and proportional fees for groundwater users in the Cosumnes Subbasin. The groundwater fee study process includes the development of a projection of operating expenses, identifying the various customer types and classes of service, determining a method of allocating expenses, and developing the groundwater fee structure.

Based on the approach approved by the Working Group, the proposed groundwater fee for the Cosumnes Subbasin would be made up of two parts; a fee for irrigated acreage and a fee levied on each parcel within the subbasin. Both fees are related to various combinations of groundwater use, land use and area, and number of parcels. This Study addresses the fee for irrigated acreage for the initial implementation. For subsequent years, this Study will be updated and modified to add the fee component which covers all parcels.

The following is a summary of the assumptions and methodology developed and approved by the Working Group’s Long-term Governance Committee. The Long-term Governance Committee is made up of representatives from each of the GSAs and are responsible for making recommendations to the Working Group on issues such as funding.

## Groundwater Use and Parcel Data

As stated previously, the Cosumnes Subbasin contains seven GSAs. However, to further analyze the groundwater fee by groundwater use and parcel data, the basin has been divided into four subareas. These subareas include Amador County (Amador County GSA), Sacramento County (Sacramento County GSA, OHWD GSA, SRCD GSA [excluding Rancho Murieta Community Services District (CSD)], GID GSA, and CWD GSA), City of Galt (City of Galt GSA), and Ranch Murieta CSD (portion of SRCD GSA). Recent groundwater use estimates as outlined in the GSP show the average annual groundwater use is around 128,670

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<sup>1</sup> California Department of Water Resources; <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management>

ac-ft/year with 53,729 acres of irrigated land in the subbasin. There are approximately 19,109 total parcels in the proposed fee area.

Subarea	Groundwater Use (AF) <sup>2</sup>	Area (Acres)	Number of Parcels	Irrigated Acres <sup>1</sup>
Amador Co.	1,270	52,500	4,240	4,975
Sacramento Co.	123,400	152,888	6,063	48,754
City of Galt	4,000	4,612	8,000	-
Rancho Murieta CSD	0	-	806	-
<b>Totals</b>	<b>128,670</b>	<b>210,000</b>	<b>19,109</b>	<b>53,729</b>

1. Irrigated acres from the California Department of Water Resources Land Use Data, 2018.

Irrigated acreage was determined from 2018 published Statewide Crop Mapping data provided by the California Department of Water Resources (DWR)<sup>3</sup>. The 2018 data set includes classifications of land by crop type requiring irrigation. Any urban classifications in the 2018 data set are not included in this fee study. Historically, DWR has collected land use data throughout the state and uses this information to develop water use estimates for statewide and regional planning efforts, including water use projections, water use efficiency evaluation, groundwater model development, and water transfers. Increased availability of digital satellite imagery, aerial photography, and new analytical tools make remote sensing land use surveys possible at a field scale. Current technologies allow accurate, large-scale crop and land use identification to be performed at time increments as desired, and make possible more frequent, comprehensive statewide land use information, which can be analyzed at a local level.

A spatial mapping base layer is essential for effective decision-making. Therefore, understanding the impacts of land use, crop location, acreage, and management practices on environmental attributes and resource management will be an integral step in the ability of GSAs to produce GSPs and implement projects to attain sustainability. In response to this need for information, Land IQ was contracted by DWR to develop a comprehensive and accurate spatial land use database for Water Year 2018, covering over 9.4 million acres of irrigable agriculture on a field scale and additional areas of urban extent. The primary objective of this effort was to produce a comprehensive and accurate spatial land use database with overall accuracies exceeding 95% using remote sensing, statistical, and temporal analysis methods. DWR reviewed and revised the data in some cases. Detailed reviews and revisions of individual fields were determined by State DWR Land Use staff and the Regional Office contacts are available for understanding local details. This data and information were utilized in the development of the groundwater fee study to identify irrigated acreage.

The data from DWR was analyzed by the County to determine its applicability to parcels utilizing groundwater within the Sacramento County portion of the subbasin. The County then provided a

<sup>2</sup> May 3, 2021, Draft Technical Memorandum #8 – Water Budget Information Cosumnes Subbasin, Sacramento County, CA, Table WB-8. Estimated Sustainable Yield for Selected Time Periods, Pg. 27, [http://cosumnes.waterforum.org/wp-content/uploads/2021/05/GSP-Draft\\_TM8-Water-Budget-w-Figures\\_05-03-2021.pdf](http://cosumnes.waterforum.org/wp-content/uploads/2021/05/GSP-Draft_TM8-Water-Budget-w-Figures_05-03-2021.pdf)

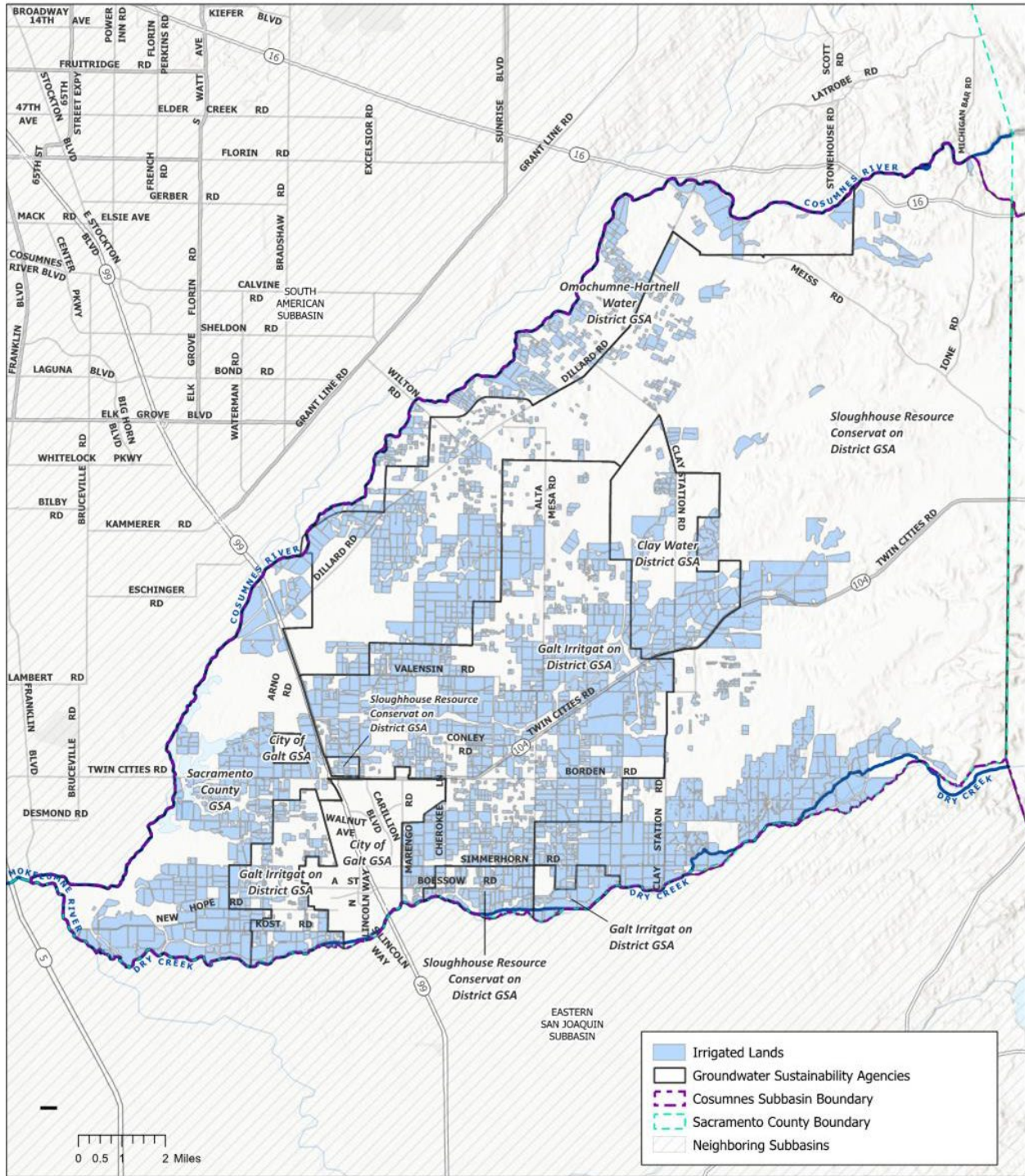
<sup>3</sup> 2018 California Department of Water Resources Statewide Crop Mapping, <https://data.cnra.ca.gov/dataset/statewide-crop-mapping>

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summary of the parcel data and irrigated acreage to support development of this Study. For the initial fee program (i.e., Year 1), a review of the data was undertaken to include only those parcels with a crop type class code for agriculture (e.g. grain and hay crops, rice, pasture, truck, nursery, and berry crops, deciduous fruits and nuts, etc.). Based on the land use code, and the DWR irrigated acreage, the GIS data was reviewed, and the irrigable acreage determined. Aligning DWR irrigated acres with Sacramento County parcel data sometimes resulted in irrigated acreage being associated with parcels as greater than the acreage identified in the Sacramento County Assessor Parcel Viewer database<sup>4</sup>. When this occurred, County staff and HDR reviewed the data to determine the applicable irrigated acreage to apply to the parcel. This resulted in the total irrigated acreage in the Cosumnes Subbasin and within Sacramento County. This irrigable acreage, as noted in the table above, provides the basis for the initial fee program for Year 1. Provided in Figure 2 is a summary of the agriculture irrigated acreage lands used within this study.

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<sup>4</sup> Sacramento County Assessor Office, <https://assessorparcelviewer.saccounty.net/jsviewer/assessor.html>



**Irrigated Lands in the Cosumnes Subbasin**  
 More than 48,000 acres of irrigated land covering over 1,600 parcels

SACRAMENTO COUNTY  
 Jun 2021 GR-14645

**Figure 2. Sacramento County GSA Irrigated Lands**



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## Development of Operating Expenses

While the purpose of this Study is to develop the fee program for Year 1 (FY 21/22) of the fee program, it also describes how costs and revenues will be projected beyond Year 1. While an overview of these costs and revenues have been provided in this Study they will be more completely developed and discussed in a future update to develop and refine the fee program in subsequent years.

There are two expense categories that are identified to fund the implementation of the GSP by the GSAs. These are administrative expenses and expenses associated with Projects and Management Actions (PMAs). Administrative expenses include items such as the annual report, data management, public outreach, GSA coordination, legal resources, annual financial audit, general administration, addressing data gaps and state comments. Total administrative expenses for FY 21/22 are estimated to be \$407,500 for the initial implementation of the GSP. These expenses are projected to increase to \$465,000 in FY 22/23 (Table 1) and increase after this time period at an annual inflationary rate of approximately 2.0%. Total administrative expenses are projected to increase to approximately \$495,000 by FY 25/26.

PMA related costs in FY 21/22 include the Post-GSP Fee Process, Following Program Development/Outreach, Ag-Managed Aquifer Recharge (MAR)/Dry Well Feasibility Studies, funds to pursue Groundwater Banking, and unidentified future projects. These projects are estimated to be approximately \$330,000 in FY 21/22. Estimated PMA costs through FY 25/26 were provided by the Working Group and are shown in Table 1.

Total expenses, administrative and PMAs, for FY 21/22 are estimated to be \$737,500, increasing through FY 25/26 to approximately \$1.17 million based on inflationary impacts and projected PMA costs (Table 1). The total expenses for FY 21/22 will only be incurred for half a fiscal year, after the GSP is adopted in January 2022, but represent a full year of expenses.

**Table 1**  
**Summary of the Projected Operating Expenses**

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
<b>Administrative Expenses</b>					
Establish Governance					
Structure	\$25,000	\$0	\$0	\$0	\$0
Prepare DWR Grant	40,000	0	0	40,000	0
Monitoring	30,000	30,000	30,645	31,290	31,935
Data Management System	15,000	25,000	25,538	26,075	26,613
Public Outreach	10,000	20,000	20,430	20,860	21,290
GSA Coordination	20,000	30,000	30,645	31,290	31,935
Legal	30,000	20,000	20,430	20,860	21,290
Financial Audit	20,000	20,000	20,430	20,860	21,290
Personnel incl Recruit	90,000	150,000	153,226	156,452	159,677
Address Data Gaps	25,000	45,000	45,968	46,935	47,903
Address State Comments	25,000	0	0	0	0
Annual Report	45,000	45,000	45,968	46,935	47,903
Contingency	32,500	40,000	40,860	41,720	42,581
5-year GSP Update	0	40,000	40,860	41,720	42,581
<b>Total Administrative Expenses</b>	<b>\$407,500</b>	<b>\$465,000</b>	<b>\$475,000</b>	<b>\$525,000</b>	<b>\$495,000</b>
<b>PMA Expenses</b>					
Post-GSP Fee Process	\$100,000	\$20,000	\$0	\$0	\$0
Following Program					
Dev./Outreach	40,000	80,000	155,000	30,000	30,000
Ag-MAR/Dry Well Feasibility					
Studies	160,000	280,000	280,000	140,000	140,000
Pursue GW Banking	30,000	110,000	110,000	0	0
Implement Voluntary Following	0	0	0	505,000	505,000
Implement GW Banking	0	0	0	0	0
SAFCA Program	0	0	0	0	0
Future GSP Identified Projects	0	195,000	120,000	0	0
<b>Total PMA Expenses</b>	<b>\$330,000</b>	<b>\$685,000</b>	<b>\$665,000</b>	<b>\$675,000</b>	<b>\$675,000</b>
<b>Total Expenses</b>	<b>\$737,500</b>	<b>\$1,150,000</b>	<b>\$1,140,000</b>	<b>\$1,200,000</b>	<b>\$1,170,000</b>

For many of the PMA expenses shown in Table 1, the GSA's will target grant funding opportunities to fund these projects through programs such as the Sacramento Area Flood Control Agency (SAFCA), California Department of Conservation (DoC) grants, and Sustainable Groundwater Management Office (SGMO) services grant. Provided in Table 2 is a summary of these funding source for PMA expenses as well as the contribution from the City of Galt GSA, Amador County GSA, and Rancho Murieta CSD.

**Table 2**  
**Summary of the Estimated Contributions and Funding Assistance**

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
<b>Outside Funding Assistance</b>					
SAFCA Contribution	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
DoC Grant	60,000	60,000	60,000	0	0
SGMO Services Grant	<u>70,000</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Outside Funding Assistance</b>	<b>\$230,000</b>	<b>\$160,000</b>	<b>\$160,000</b>	<b>\$100,000</b>	<b>\$100,000</b>
<b>Contributions</b>					
City of Galt GSA	\$15,000	\$100,000	\$102,000	\$104,040	\$106,121
Amador County GSA	5,000	40,000	40,800	41,616	42,448
Rancho Murieta CSD	<u>0</u>	<u>10,000</u>	<u>10,200</u>	<u>10,404</u>	<u>10,612</u>
<b>Total Contributions</b>	<b>\$20,000</b>	<b>\$150,000</b>	<b>\$153,000</b>	<b>\$156,060</b>	<b>\$159,181</b>
<b>Total Funding and Contributions</b>	<b>\$250,000</b>	<b>\$310,000</b>	<b>\$313,000</b>	<b>\$256,060</b>	<b>\$259,181</b>

The estimated operating expenses contained in Table 1 (less the estimated outside funding sources in Table 2) provides the cost-basis for the development of the fee program discussed below. As the Cosumnes Subbasin begins to implement the GSP and develop additional specific needs, the budget will change and potentially increase to reflect future identified projects and actions necessary to meet the requirements of SGMA and implementation of the GSP.

### Method of Allocating Expenses and Projected Fees

The Working Group outlined an approach to recover the identified costs necessary to fund implementation of the GSP and meet SGMA requirements. The approach the Working Group developed include a fee for irrigated acreage and a fee for each parcel in the subbasin over the identified five-year period (FY 21/22 – FY 25/26). At the April 21, 2021 Working Group meeting, GSA representatives agreed to pursue a phased fee approach beginning in FY 21/22 with a fee based on irrigated acreage only for Year 1 of the fee program. Starting in Year 2 (FY 22/23), it is anticipated that a parcel-based fee will be added to the irrigated acreage fee. The development of the fee program for subsequent years will be developed in the future in collaboration with the Working Group. This will allow all participating GSAs to implement the program consistently across the various GSAs and parcels within the County area of the Cosumnes Subbasin.

Amador County GSA and the City of Galt GSA plan to include groundwater management costs in their broader fee program and provide an annual contribution to the Subbasin. As a result, their final fee structure will be different than other areas in the subbasin.

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## **Fiscal Year 2021/2022 (Year 1) Program**

The first year of the program reflects costs associated with implementation of the GSP and includes only those parcels that are irrigating with groundwater. For Year 1 implementation, the Working Group recommended the use of irrigated agriculture acreage data as the basis of the fee. The use of this data provides a nexus between the reason the costs were incurred (i.e., GSP implementation) and the benefit provided to parcels irrigated with groundwater. In this way, the costs of managing the groundwater resource in the subbasin are entirely funded by those utilizing groundwater for agriculture irrigation purposes. The annual fee is based on total Year 1 costs (\$737,500) less revenues from other sources of \$250,000 (i.e., SAFCA Contribution, DoC Grant and SGMO Services Grant, and Contributions) divided by the total number of irrigated acres. According to the DWR data referenced above, there are 48,754 irrigated acres in the Cosumnes Subbasin within Sacramento County for those parcels with a cropping code designating a type of irrigated agriculture, excluding parcels that are urban or not irrigated. As a note, this would exclude ag-res, and residential parcels in the County within the Cosumnes Subbasin along with irrigated agriculture parcels in Amador County, parcels within the City of Galt, and parcels within Rancho Murieta CSD. In Year 1, the total cost of service is \$487,500 (\$737,500 minus \$250,000). As noted, in Year 1, Amador County GSA and City of Galt GSA will make a contribution of \$5,000 and \$15,000 respectively.

The Year 1 fee for the irrigated acres is calculated as follows:

$$(\$737,500 - (\$230,000 + \$20,000))/48,754 \text{ irrigated acres} = \$10.00/\text{irrigated acre}$$

The revenue generated through this program will fund the costs through the first year of GSP implementation by agriculture parcels only and based on the DWR irrigated acreage data.

The use of irrigated acreage provides the relationship between the Year 1 costs of implementing the GSP and managing the groundwater resource for those customers using groundwater in Year 1 as parcels reliant on groundwater are recognized as receiving the direct benefits of GSP related actions to maintain groundwater sustainability and SGMA compliance. As a result, each acre of irrigated land, or fraction thereof, receives a proportional cost of providing management of the groundwater resource.<sup>5</sup> This provides the equity between customers in Year 1 of the fee program given that the costs will be proportioned based on the use of groundwater, on an irrigated acre basis, between customers of different irrigated areas to reflect the use of groundwater. In this way, parcels with less irrigable acreage will have a lower groundwater charge than larger irrigable parcels which on average reflects the differences in groundwater use. As a point of reference, the use of groundwater is not metered or reported to the County or other agencies that would allow the development of a fee program based on actual groundwater use. It should also be noted that the irrigated acres are rounded to the nearest tenth (0.0) of an acre for purposes of this analysis.

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<sup>5</sup> It is anticipated that implementing ordinances will calculate the fee down to tenths of an acre, where the data shows partially irrigated acres.

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## **Fiscal Year 2022/2023 (Year 2) Program Overview**

While this Study focuses on the development of the fee program for the initial program and Year 1 expenses, it is also important to consider how costs and revenues will be developed beyond the initial year. As noted, the Year 2 fee program, as currently being developed, is anticipated to include both the previously developed Irrigated Acreage Fee and a Parcel Based fee. To assist in funding PMAs, the analysis has also included assumptions on supplemental support (funding) through grants and other sources of contributions. If this supplemental support is not received, the fee program will need to be modified to meet overall administrative and PMA costs.

The Year 2 parcel-based fee is anticipated to include all parcels, both parcels that use groundwater and those that do not currently use groundwater. For the calculation, Amador GSA, City of Galt GSA, and Rancho Murieta CSD parcels are not included as these GSA's will make contributions to the program in lieu of a charge based on the fee program approach. The parcel-based fee will be calculated on the remaining parcels within Sacramento County excluding those in Amador GSA, Galt GSA, and Rancho Murieta CSD. While an overview of these costs and revenues have been provided in this Study, they will be more completely developed and a recommended fee program developed based on both irrigated acres and a parcel based fee in a future update of this initial study.

### **Fee Summary**

At this time, the Working Group determined that the Year 1 fee will be implemented. After the implementation of the Year 1 fee, the Working Group will focus on the development of the fee program for the subsequent 5 years. As calculated previously, the Year 1 fee will be \$10.00/irrigated acre. This will result in revenue of approximately \$487,500. When supplemented with the contributions from the City of Galt and Amador County, and grant funding, revenues will total approximately \$737,500, the projected level of expenses in Year 1.

The above revenues provide a stable revenue stream to fund the projected expenses in Year 1 of the program. Future analysis and projected fees will be developed to fund the projected administrative and PMA expenses outlined by the Working Group.

## **Fee Program Implementation**

As this study is a joint effort between the GSAs, each governing body (e.g., District/Agency Board, County Board of Supervisors) will be adopting the ground water fee for their respective customers (i.e., parcels). Each GSA/Agency will establish a process, which at this time, the Working Group has agreed to as a Proposition 26 "non-tax fee" process. Under this process, each governing body will accept the fee study report, and hold the necessary public meetings to implement the fee for Year 1. Each GSA will then provide a listing of the parcels, and the fee for each parcel, to Sacramento County for inclusion on the property tax rolls. These funds will be collected and dispersed to the GSAs to fund the implementation of the GSP in Year 1.

## State Intervention

Absent the development and implementation of the GSP and groundwater fee study, the State Water Resource Control Board (SWRCB) could step in to manage the subbasin. This will result in a set of fees that the State has outlined and is provided in Table 3.

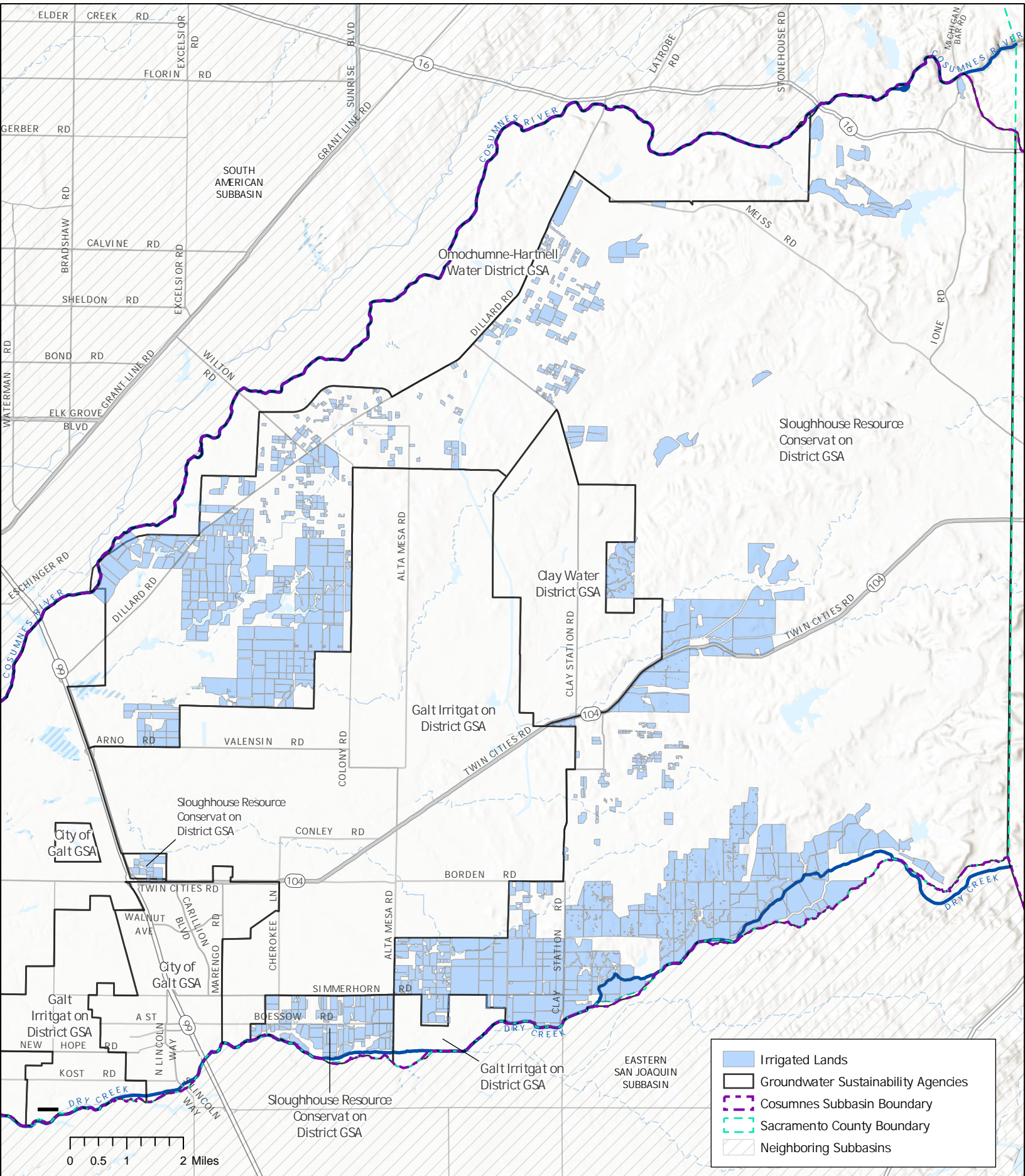
**Table 3. State Intervention Fees**

Fee Category	Annual Fee Amount	Applicable Parties
Base Filing Fee	\$300 per well	All extractors required to report
Unmanaged Area Rate	\$10 per acre-foot, if metered	Extractors in unmanaged areas
	\$25 per acre-foot, if unmetered	
Probationary Basin Rate	\$40 per acre-foot	Extractors in probationary basins
Interim Plan Rate	\$55 per acre-foot	Extractors in probationary basins where the Board determines an interim plan is required.
De minimis Fee	\$100 per well	Parties that extract, for domestic purposes, two acre-feet or less per year from a probationary basin, If the Board decides the extractions will likely be significant.
Late Fee	25% of total fee amount per month late	Extractors that do not file reports by the due date.

As can be seen in Table 3, the State fees are substantially greater than those being proposed by the Cosumnes Subbasin GSAs in Year 1. As a comparison for an agriculture customer that utilizes groundwater, assuming 25 acres of irrigated area at 2.0 AF/acre, the subbasin charge would be \$250/year. This is compared to State intervention of \$2,300/year including the \$300 base filing fee, and probationary basin rate of \$40/acre-foot.

## Summary of the Study

This report has been developed to summarize the approach used by the Cosumnes Subbasin GSAs to establish a groundwater fee program for Year 1. The report provides the current budget estimates, rationale for incurring costs, number of parcels, and irrigated acreage to develop the charges as presented. A cost allocation approach was developed based on consultation with, and decisions by, the Working Group. The allocation approach and resulting fees that reflect the specific characteristics of the Cosumnes Subbasin and the allocation method is designed to reflect cost causation and provide equitable and proportional groundwater charges for the GSA's various customers based on irrigated acreage for Year 1 of the fee program.



# Irrigated Lands in the Sloughouse Resource Conservation District GSA of the Cosumnes Subbasin

More than 17,400 acres of irrigated land covering over 540 parcels