



Cosumnes Groundwater Authority

Rate and Fee Study

April 2024



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I. Executive Summary

Background

The California Legislature enacted the Sustainable Groundwater Management Act (“SGMA”) in 2014, marking the first Statewide effort to manage its groundwater basins. The goal of this historical legislation is to ensure that groundwater is sustainably managed and protected for all beneficial users, both now and in the future. Although it was enacted at the State level, SGMA was envisioned to be carried out locally. As such, it mandates that local Groundwater Sustainability Agencies (“GSAs”) be formed in medium and high-priority basins in order to develop and implement Groundwater Sustainability Plans (“GSPs”).

The Cosumnes Groundwater Authority (“CGA” or “Authority”) was formed in November 2021 for the purpose of implementing the GSP for the Cosumnes Subbasin (“Subbasin”). The Authority is comprised of seven GSAs (“the GSAs” or “member GSAs”) that manage the entirety of the Subbasin in coordination under a single GSP. The Authority submitted the Cosumnes Subbasin GSP to the Department of Water Resources (“DWR”) in January of 2022. In October 2023, DWR approved the GSP as submitted, but provided guidance for improvement of the plan. The Authority is tasked with implementing the tasks laid out by the GSP immediately.

The Authority is currently funded by member agency contributions. For the majority of those member GSAs, the contribution is funded through a regulatory fee program based on a charge per irrigated agricultural acre.

In the Summer of 2022, the Authority engaged a consultant team led by SCI Consulting Group (“SCI Team”) to develop a model Rate and Fee Study to fund the member GSAs’ future participation in CGA across the Subbasin. This effort has included comprehensive data analysis, review of funding options, evaluation of rate structure alternatives, and the development of rate and fee schedules. The Board, Authority staff, and members of the public are providing input on this process. The scope of work also includes a community meeting, to be held in spring 2024, in order to incorporate community perspective and engagement into the Rate and Fee Study.

This Study outlines the development of a fee model for funding GSA operations through the coming years of GSP implementation. It summarizes the efforts of CGA, the Member Agencies, and consultants in evaluating the financial, legal, and policy components of funding groundwater management in the Cosumnes Subbasin. This summary includes considerations of legal authority and fee methodology in support of the establishment of a new and updated groundwater sustainability fee for the Cosumnes Subbasin.

If approved by the Authority Board of Directors, the Rate and Fee Study would be advanced to the Member Agencies for their use in developing a fee program to fund their participation in CGA. Each Member Agency is responsible for implementing its own fee structure; this fee model is intended to inform that development and provide standardized assumptions across the Subbasin.

Objectives

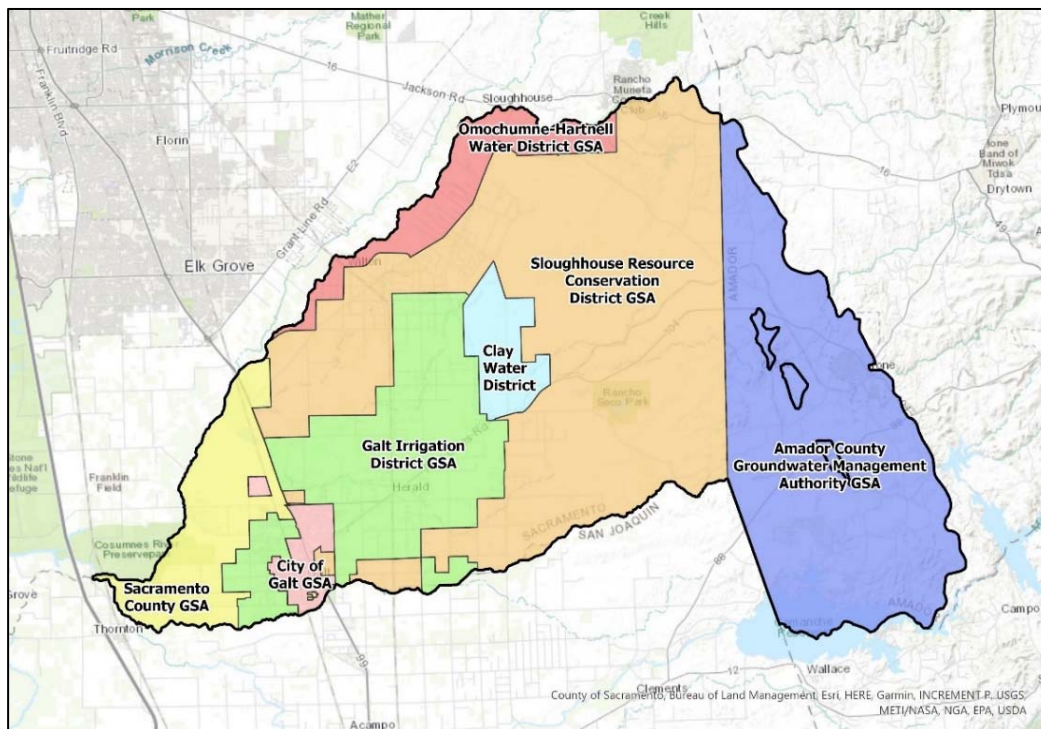
The objectives of this Rate and Fee Study include the following:

- Development of a GSP implementation budget and inflationary mechanism.
- Development and refinement of parcel-scale irrigated acreage data.
- Development and refinement of data related to groundwater-using parcels.
- Development of fee methodology and rates.

Agency Characteristics

The Cosumnes Groundwater Authority is a joint powers authority formed in November of 2021, and is comprised of seven member agencies: 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. CGA is governed by a 14-member Board of Directors (“Board”). There is a designated Board member and an alternate for each of the seven member agencies. The Subbasin boundary, as well as the boundaries of each GSA within the Subbasin is shown below for reference.

Figure 1 – Cosumnes Subbasin and Member GSA Boundaries



Subbasin Characteristics and Approach

The conditions of the Cosumnes Subbasin are discussed in detail in the Cosumnes Subbasin GSP.¹ The Subbasin underlies approximately 210,300 acres within the San Joaquin Valley Basin in Amador and Sacramento Counties, approximately one-quarter of which is irrigated agriculture – including vineyards, pasture, and grain (GSP, 2). Approximately 18,000 acres of the Subbasin comprise cities, communities, agricultural/residential use (“Ag-Res”).

Basin Prioritization

The Department of Water Resources assigns each of California’s 515 groundwater basins a prioritization rating. The Basin Prioritization rating dictates whether a basin is designated very low, low, medium, or high priority as shown below.

¹ <https://sgma.water.ca.gov/portal/gsp/preview/106>

Table 1 – SGMA Priority Ranking Criteria

Priority	Total Priority Point Ranges			
Very Low	over	zero	up to	7
Low	over	7	up to	14
Medium	over	14	up to	21
High	over	21	up to	42

Medium and high priority basins are required to establish a groundwater sustainability agency and develop a groundwater sustainability plan. With a priority ranking score of 19.5, the Cosumnes Subbasin is classified by DWR as a medium-priority basin. The Subbasin’s priority point allocation is illustrated in Table 2.

Table 2 - Cosumnes Subbasin Priority Points

Criteria	Priority Points
1 Population	1
2 Population Growth	2
3 Public Supply Wells	2
4 Total Wells	3
5 Irrigated Acres	3
6 Groundwater Reliance	4.5
7 Impacts	2
8 Habitat and Other Information	2
Total Priority Points	19.5

Sustainability Indicators

SGMA identifies six sustainability indicators, which are the effects caused by groundwater conditions occurring throughout the Subbasin that, when significant and unreasonable, become undesirable results (California Water Code § 10721). These include chronic lowering of groundwater levels, reduction in groundwater storage, degraded water quality, land subsidence, depletion of interconnected surface water, and seawater intrusion. SGMA requires that each GSA develop criteria defining the parameters of each sustainability indicator, including minimum thresholds triggering a determination that an undesirable result has occurred in the basin (and triggering a responsive action by the GSA), as well as measurable objectives under which the GSA may demonstrate progress toward sustainability. Collectively, these efforts must demonstrate that the basin will be sustainably managed within 40 years of the plan’s implementation per the California Code of Regulations § 354.24.

As detailed in the GSP, it was determined that five out of the six sustainability indicators are potentially applicable to the Cosumnes Subbasin, with seawater intrusion being the exception because the Subbasin is land-locked and hundreds of miles from the Coast. (GSP, 10.) The GSP elaborates on the technical considerations associated with each applicable sustainability indicator in the Cosumnes Subbasin, and these considerations served as the foundation for establishing the criteria for sustainable management.

The GSP identifies chronic lowering of groundwater levels as potentially the most fundamental sustainability indicator, as it influences several other indicators (GSP, 8). Undesirable results related to both chronic lowering of groundwater levels and reduction in groundwater storage are defined in the GSP as negative effects related to “long-term viable access to groundwater for urban, domestic, agricultural, industrial, and other beneficial users and uses within the Basin” (GSP, 9-10). More specifically, these results could lead to well dewatering, increased well maintenance costs, and reduced groundwater supply reliability (GSP 170, 171).

Undesirable results related to degraded water quality are defined in the GSP as results stemming from water quality conditions that “negatively impact the long-term viability of the groundwater resource for beneficial users and uses” (GSP, 10). The GSP also references decreased availability to usable potable water and increased cost to treat groundwater to drinking water standards in relation to degraded water quality (GSP, 174).

Undesirable results related to land subsidence are defined in the GSP as land subsidence due to groundwater level declines that “negatively affects the ability to existing critical or non-critical infrastructure within the Basin” (GSP, 10). The GSP specially references potential damage to gravity-driven water conveyance infrastructure, roadways, bridges, and railroad tracks (GSP, 175).

Depletion of interconnected surface water caused by groundwater extractions has the potential to introduce undesirable results stemming from negative impacts on the “urban, domestic, agricultural, industrial, environmental, and other beneficial users and uses of surface water” (GSP, 10”). The GSP specifically references potential negative impacts to surface water users and environmental users.

SGMA sets out a 50-year planning and implementation over which a GSA must implement a program to achieve sustainability within its subbasin. The GSP forms the basis of that program, which is requires coordinated management of and responses to the sustainability indicators. Those efforts are oriented at the sustainable management of groundwater resources in the Cosumnes Subbasin now and into the future, for the benefit of groundwater users and landowners throughout the Subbasin.

SGMA Compliance

Another aspect of the benefit provided to groundwater users within the Cosumnes Subbasin relates to compliance with SGMA. Compliance with SGMA relates to specific State-mandated requirements assessed by DWR and if found deficient, may result in referral to the State Water Resources Control Board (“SWRCB”) for enforcement. In addition to groundwater level monitoring and reporting, the Authority must implement the actions set forth in the Cosumnes Subbasin GSP and demonstrate consistent progress toward achieving the Subbasin sustainability by year 2042.

In the event the GSAs are unsuccessful in their efforts to implement the GSP, avoid undesirable results, and achieve Subbasin sustainability, the SWRCB may intervene, in a process referred to as “State intervention.” If the SWRCB were to take control of managing the Subbasin, local input into the management of groundwater resources would be severely limited. Groundwater users would be required to register wells, and non-de minimis users would be required to install meters and submit reports to the State regarding their groundwater use. The State Water Board’s adopted schedule states that annual well registration charges are \$100 per de minimis well, \$300 per non-de minimis well, and non-de minimis pumping fees of \$40 - \$55 per AF. The State could potentially restrict pumping and assess penalties for overdraft. All of these costs would be in addition to the continued costs incurred by the Authority to implement the GSP and correct any deficiencies.

Groundwater users and landowners within the Subbasin receive a benefit from the GSAs’ efforts to maintain compliance with SGMA under local direction and control and avoid the outcome of State intervention.

Cosumnes Subbasin Sustainability Goal

The sustainability indicators described in the GSP guide CGA’s efforts to achieve sustainability by 2042. As such, CGA administration and GSP implementation efforts to be funded by the proposed fee program relate directly to addressing conditions within the Cosumnes Subbasin. Page 16 of the GSP describes the Cosumnes Subbasin Sustainability Goal:

The sustainability goal of the Cosumnes Subbasin (Basin) is to ensure that groundwater in the Basin continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural, industrial, environmental and others. This goal will be achieved by managing groundwater within the Basin’s sustainable yield as defined by sustainable groundwater conditions and the absence of undesirable results.

Groundwater Fees

Just as SGMA envisions groundwater basins being locally governed, it also envisions GSAs to be locally funded. The intent of this Fee Study is to provide a model rate and fee schedule for the use of CGA members in the Cosumnes Subbasin, providing a reliable stand-alone revenue source to ensure the Authority’s ability to implement its GSP. While the Authority has received grant funding in the past, and will actively pursue future grant solicitations, the need for independent revenue is apparent.

One unique aspect of the proposed fee program relates to fee implementation. As a policy matter, CGA’s members have historically preferred to implement their own fees and charges, rather than delegate that authority to the larger joint powers authorities. CGA will not be implementing a fee program of its own as a result of this study. Rather, individual GSA member agencies may incorporate the methodology and approach of this Study to impose fees under their statutory authority as GSAs. Alternatively, they may contribute their cost allocation in other ways. Part of the intent of this Study is to provide a foundational methodology and cost allocation across different GSA jurisdictions and across different groundwater user classes. Based on the methodology described in this fee study, total CGA member contributions are shown below in Table 3:

Table 3 – GSA Revenue and Contribution Summary

GSA	Total Revenue	% of Total Revenue	Total Contribution to CGA	Total GSA Reserve Funds Held
Amador GSA	\$11,414.91	2%	\$10,707	\$708.00
City of Galt GSA	\$27,545.09	4%	\$20,445	\$7,099.75
Clay WD GSA	\$23,444.23	4%	\$15,131	\$8,312.74
Galt ID GSA	\$257,496.28	39%	\$191,555	\$65,941.11
Omochumne Hartnell WD GSA	\$42,075.21	6%	\$31,345	\$10,730.68
Sacramento County GSA	\$77,358.03	12%	\$51,776	\$25,581.94
Sloughouse RCD GSA	\$222,905.52	34%	\$166,314	\$56,591.41
Totals:	\$662,239	100%	\$487,274	\$174,966

Following approval by the CGA Board of this methodology, CGA anticipates that its members will enter into funding agreements with CGA memorializing their annual contributions to the Authority’s budget.

Fee Methodology

Currently, each CGA member's annual contribution to the Authority budget is roughly calculated based on a charge of \$10 per irrigated acre within that GSA. The fee methodology described herein expands upon that methodology, providing specific consideration for residential, commercial, and public water system use. This fine-tuning allows CGA to more accurately capture the costs and benefits associated with these users as it works to implement a groundwater management program within the Subbasin.

Over the course of 2022 and 2023, an alternative methodology was developed with the intent of more precisely incorporating the Subbasin's various groundwater user types into the fee program. This methodology includes charges based on irrigated acres, public water system extraction, and groundwater-using parcels.

Rate Components: Revenue Requirements, Irrigated Acreage, Groundwater Extraction, and Groundwater-Using Parcels

In determining the optimal approach to methodology development, the Authority's budget was analyzed to allocate portions of revenue need to various groundwater user types, or "user classes." Three primary charge types were developed that span across these user classes: an "Irrigated Acreage" charge assigned to irrigated agricultural acres, an "Extraction Charge" assigned to public water systems that extract groundwater, and a "Base Charge" assigned to all groundwater-using parcels. The methodology for determining the rates of each of these charges is described in more detail below.

II. Context

An effective fee methodology and successful fee implementation require thorough evaluation and input from various stakeholders. From August 2022 through March 2024, staff and consultants worked together with legal counsel to establish a comprehensive understanding of the applicable legislative and legal factors and the viability of various funding mechanism methodologies. Numerous Board workshops and progress updates were provided in order to solicit feedback and attempt to address various concerns shared by the Board, member GSAs, staff, and the public.

In this case, member agency GSAs will consider and adopt their fee programs individually, and so will carry out additional noticing relevant to those adoptions. Additionally, the Authority is planning a Subbasin-wide community meeting in Spring 2024 to engage groundwater users and provide further opportunity for public input.

Legislative and Legal Understanding

In funding its annual contribution to CGA, member agencies may rely on authority granted through their own authorizing statutes, including California Water District Act, the Government Code, or City charters. Because each member has already been recognized as the exclusive GSA for all or a portion of its jurisdiction, two additional statutory mechanisms (Water Code § 10730 and 10730.2) are also available.

Regardless of what statute a member agency relies upon to authorize the collection of these amounts, each member agency will also need to ensure that its collection complies with relevant procedural and substantive requirements for fees collected by public agencies generally, including Propositions 26 and 218. The particular details of that compliance may vary between member agencies, depending on their approach to fee implementation. Member agencies should consult directly with counsel to ensure that all of these requirements are met prior to implementing their own fee programs.

Fee Considerations Unique to SGMA

Water Code § 10730

Water Code § 10730 authorizes a GSA to implement fees both pre- and post- GSP adoption. Fees under this section may be collected for the following purposes:

A groundwater sustainability agency may impose fees, including, but not limited to, permit fees and fees on groundwater extraction or other regulated activity, to fund the costs of a groundwater sustainability program, including, but not limited to, preparation, adoption, and amendment of a groundwater sustainability plan, and investigations, inspections,

compliance assistance, enforcement, and program administration, including a prudent reserve.

Section 10730 requires that the GSA: (1) make the information supporting the fee available at least 20 days prior to the public meeting at which the fee is adopted; and (2) Provide published notice of that meeting in accordance with the requirements of Government Code § 6066.

Because they fund programs of groundwater regulation, management, and implementation of a State-mandated regulatory program, many GSAs chose to structure levies under Water Code § 10730 as regulatory fees under the provisions of Proposition 26, which is discussed in further detail below. Many of CGA's current members fund their annual contributions to CGA through fees levied under § 10730.

Water Code § 10730.2

Water Code § 10730.2 offers a complementary statutory authority, available to a GSA only *after* a GSP has been adopted. Fees under this section may be levied by a GSA for the following purposes:

A groundwater sustainability agency that adopts a groundwater sustainability plan pursuant to this part may impose fees on the extraction of groundwater from the basin to fund costs of groundwater management, including, but not limited to, the costs of the following:

- (1) Administration, operation, and maintenance, including a prudent reserve.*
- (2) Acquisition of lands or other property, facilities, and services.*
- (3) Supply, production, treatment, or distribution of water.*
- (4) Other activities necessary or convenient to implement the plan.*

Unlike the shorter publication and notice requirements incorporated into section 10730, Section 10730.2 specifically requires that the adopting GSA comply with the procedural requirements of Article XIII D, Section 6(a) and (b), including a mailed 45-day notice to all fee payors prior to adoption. The fee can only be implemented if less than 50 percent of affected property owners submit written protest.

De Minimis Extractors

De minimis extractors are defined by Water Code § 10721 as those who extract, for domestic purposes, 2 acre feet ("AF") or less of groundwater per year. An important distinction is made by § 10730 regarding de minimis extractors:

A groundwater sustainability agency shall not impose a fee pursuant to this subdivision on a de minimis extractor unless the agency has regulated the users pursuant to this part.

This indicates that in order to charge de minimis extractors under Water Code § 10730, a GSA must have regulated these users according to their GSP. Water Code § 10730.2 does not list this requirement.

Member agency GSAs will be responsible for compliance with this requirement concurrent with their adoption of any fee program that collects from de minimis users. This might be achieved by registration of de minimis users through ordinance or resolution, by facilitating an exchange of information related to the GSAs' understanding of de minimis users within the Subbasin, or by other means of ensuring regulation of these users pursuant to the GSP is established.

Constitutional Requirements

An essential aspect of understanding the legal requirements of fee programs in support of groundwater management is the way in which various legal obligations interplay with one another.

As discussed above, this Rate and Fee study focuses on CGA's costs to comply with State-mandated requirements, administration and management actions, and project feasibility efforts. These categories fall under the description of "program administration." Additionally, the 5 percent contingency included in the projected budget will be utilized to generate a prudent reserve, as described above.

Propositions 26 and 218

The California Constitution requires that general taxes imposed by a public agency be approved by a majority vote of the electorate, and that special taxes be approved by a two-thirds vote of the electorate. In 1996, Proposition 218 was passed, adding Articles XIII C and XIII D to the State Constitution. While Proposition 218 outlined substantive and procedural rules for the imposition of taxes, benefit assessments, and property related fees, the definition of the term "tax" was not succinctly defined, leaving uncertainty around the sorts of charges that were subject to the general majority approval requirement versus some alternative process.

Proposition 26 followed in 2010, broadly defining a "tax" as "any levy, charge, or exaction of any kind imposed by a local government," and enumerating limited exceptions to that rule. Among these exceptions are:

A charge imposed for a specific benefit conferred or privilege granted directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege to the payor.

A charge imposed for the reasonable regulatory costs to a local government for issuing licenses and permits, performing investigations, inspections, and audits, enforcing agricultural marketing orders, and the administrative enforcement and adjudication thereof.

Assessments and property-related fees imposed in accordance with the provisions of Article XIII D.

The costs described in this model Cost & Fee Study are incurred by CGA and member GSAs as a result of a regulatory program specific to groundwater management in the Cosumnes Subbasin, including adherence to State-mandated requirements, administration, a prudent reserve, non-capital management actions, investigation and updates to groundwater sustainability plans, and project feasibility studies and exploration. The three exceptions listed above provide the basis for classifying most groundwater-related charges (including the proposed fee) as non-tax levies subject to alternative approval requirements rather than the majority electorate vote of general taxes.

Proposition 26 also amended Article XIII C of the California Constitution, imposing on fee-levying entities the following requirement:

The local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from, the governmental activity.

This Fee Study provides the rationale for how the proposed fee program will comply with these requirements, including a demonstration that the proposed fees meet each of the foregoing requirements.

Financial Context

The Authority is currently funded through direct member agency contributions and grant awards.² The current CGA budget is premised on an estimated revenue of approximately \$10 per acre of irrigated land within each GSA annually. Although the Authority has made great strides in its efforts to implement a GSP and comply with SGMA in the subbasin, it has operated under a deficit budget in recent years. The current funding stream is not sufficient to support GSP implementation efforts into the future.

Implementation of the Cosumnes GSP will require more resources, and as such, the Authority will see an increased need for revenue in the coming years. While the Agency has received grant funding in the past, and will actively pursue future grant solicitations, the need for reliable and independent revenue is apparent. An increase in total member contributions, informed by this proposed Fee Study, would generate more revenue and allow member agencies to distribute the costs of SGMA implementation across various groundwater user classes.

² Development of the GSP was largely funded by a grant award from DWR's Sustainable Groundwater Management ("SGM") Program in the amount of \$1.75 million. The Authority applied for the most recent SGM grant round but was not awarded any funding.

The annual budget to be funded by the fee program is intended to ensure that the Authority's revenue needs will be met in fiscal year 2024-25 and beyond. This will support the Authority's efforts to implement the Cosumnes Subbasin GSP and maintain compliance with SGMA.

II. Revenue Requirements

The revenue requirements of the Authority stem from the cost of implementing the Cosumnes Subbasin GSP and complying with SGMA. This budget is split into three categories based on the nature of the funding needs addressed by each budget line item.

Costs related to state mandated requirements, including annual report development, data management system maintenance, GSP updates, and collection of monitoring network data, are grouped together as they all relate to requirements set forth by the State. While the Authority makes every effort to reduce costs when possible, these expenses will likely be necessary over the long-term effort to achieve Subbasin sustainability by year 2042.

Costs related to Authority administration, such as personnel, technical support services, legal services, outreach and engagement, and financial audits are categorized as administrative costs as they support the operational capacity of the Authority as it relates to all aspects of GSP implementation and SGMA compliance.

At this stage, costs related to projects and management actions are limited to planning costs, including efforts to explore project feasibility, determine optimal project approach, and identify applicability of various projects and management actions intended to achieve sustainability. These costs are intended to support implementation of management actions and future project implementation.

Note that GSA Reserve has been incorporated into the budget in the amount of \$175,000. This revenue will be held by individual GSAs, based on the methodology described in this Fee Study, in support of GSA-level administration and project feasibility exploration.

Two measures have been implemented to address the potential for costs to increase in the coming years. First, a five percent contingency has been applied to the budget subtotal. This will be calculated each year as a percentage of the budget and will be held as a prudent reserve in support of the Authority's GSP implementation efforts. Second, an inflationary mechanism may be used to adjust costs on an annual basis. As needed, the budget may be increased each year according to the Consumer Price Index ("CPI"), for the San Francisco Bay Area as of December of each succeeding year. In order to prevent large increases based on inflation, a five percent cap will be placed in the annual increase to the budget. With this cap in place, the budget may be increased each year by the San Francisco Bay Area CPI as published by the U.S. Bureau of Labor Statistics ("BLS"), or 5 percent, whichever is less. Any increase in budget will increase the associated rates applied in this fee program.

The projected annual costs and revenue requirement is shown below in Table 4. A more detailed budget including notes on each line item is also included in Appendix A.

Table 4 - Annual Costs and Revenue Requirement

Budget Category / Task	Year 1
	FY 2024-25
<i>State-Mandated Requirements</i>	
Annual Report Development	\$ 35,000
Data Management System Maintenance	\$ 10,000
GSP Period Update (5-Year Update)	\$ 50,000
Collection of Monitoring Network Data	\$ 25,000
<i>Administration and Management Actions</i>	
Personnel	\$ 175,000
Technical Support Services	\$ 50,000
Legal Services	\$ 30,000
Outreach and Engagement Supplies	\$ 10,000
Financial Audits	\$ 15,000
Miscellaneous Operating Expenses	\$ 5,000
Data Gap Filling Projects	\$ 50,000
<i>Projects</i>	
GSA Reserves	\$ 175,000
<i>Subtotal</i>	\$ 630,000
Contingency / 5% of Budget	\$ 31,500
Total Expenses	\$ 661,500

III. Fee Structure and Methodology

Funding mechanism methodology is the basis by which beneficiaries are charged a fee. The methodology and associated proportionality of a funding mechanism are key aspects of its character and hold implications for its implementation, annual administration, corresponding outreach, and other aspects of how a funding program is rolled out.

Essentially, a funding program’s rate is determined by a simple equation. However, the work that goes into developing the inputs to this equation can be quite complex. The revenue requirement, informed by the budget, is divided by the methodological unit (irrigated acres, acre feet extracted etc.) which produces the rate. A general rate determination equation is shown below for reference:

Figure 2 - Rate Determination Equation

$$\frac{\text{Revenue Requirement (\$\$)}}{\text{Methodology Unit}} = \text{Rate}$$

(AF, Irr. Acres, Parcels etc.)

Depending upon the entity in question, a charge per acre foot (“AF”), charge per irrigated acre, or charge per groundwater-using parcel can be produced by this equation.

Cosumnes Subbasin Fee Methodology

After months of discussion, a multi-faceted approach to fee structure was deemed appropriate for the Cosumnes Subbasin. Over the course of the last year, a fee structure has been developed that utilizes three types of charges: a “Base Charge” that charges all groundwater-using parcels and generates a portion of the Authority’s operational revenue needs; a Public Water System Fee that charges public water systems based on groundwater extraction; and an Irrigated Acreage Fee that charges agricultural irrigators based on the number of irrigated acres they maintain. This structure allows for a more particularized treatment of costs and fees across different classes of groundwater users.

Groundwater User Classes

In order to optimally structure groundwater fees, groundwater users are grouped into three user classes in the Subbasin. Different approaches were used to estimate fees for each user type.

Agricultural and Other Irrigation Groundwater Users

Crop irrigation use represents a substantial portion of the total groundwater extraction in the Subbasin. Data from the best available crop map (from the California Department of Water Resources, 2019)³ has been used to assign crop-specific acreage to each parcel. This data was refined based on input from member agency GSAs.

Residential and Commercial Groundwater Users

Residential and commercial groundwater users includes all parcels that utilize groundwater for residential or commercial purposes. In light of the limited data available to support parcel-scale understanding of groundwater use in these instances, these parcels are charged a Base Charge, which acknowledges that they are provided a benefit stemming from the costs of sustainably managing the Subbasin.

Municipal and Other Public Service Providers Using Groundwater

Public water supply systems are the only user class in the Subbasin for which reported data is available regarding groundwater extraction. The Division of Drinking Water (“DDW”) collects and reports annual surface and groundwater extraction for public water systems, which is made available through the California State Water Resources Control Board (“SWRCB”)⁴. This data, summarized in Table 8 below, was obtained and analyzed to obtain groundwater extraction from the period from 2018-2022 per water system.

Base Charge Fee

The Base Charge fee is a parcel-based fee charged only to groundwater-using parcels. This fee brings residential and commercial groundwater users into the fee structure, incorporating all parcels that directly utilize groundwater throughout the Subbasin. This includes residential parcels, commercial parcels, and agricultural parcels.

As the methodology was refined, the development of the Base Charge was influenced by discussions surrounding the idea of costs that will be relatively consistent in the coming years regardless of changes in groundwater use or land use. This concept relates to the idea that some degree of costs related to the Authority’s obligations under SGMA are shared by all direct users, regardless of user class or amount of water use. These costs were determined to be those directly to State-mandated requirements, as well as twenty percent of the Administration and Management Action Budget.

³ <https://data.cnra.ca.gov/dataset/statewide-crop-mapping>

⁴ <https://ear.waterboards.ca.gov/>

Costs stemming from annual report development, data management system maintenance, GSP updates, collection of monitoring network data, and twenty percent of the Administration and Management Action budget were identified as those that should be shared by all direct groundwater users in the Subbasin. A summary of this analysis is shown below in Table 5.

Table 5 - Summary of State-Mandated Requirement Costs

SGMA Compliance Activities	
Annual Report Development	\$ 35,000
Data Management System Maintenance	\$ 10,000
GSP Period Update (5-Year Update)	\$ 50,000
Collection of Monitoring Network Data	\$ 25,000
20% of Administration and Management Action Budget	\$ 67,000
<i>Budget to Base Charge:</i>	
	\$ 187,000

In order to determine which parcels within the Subbasin utilize groundwater directly, parcels served by public water systems were removed from the Base Charge calculation. This was initially completed using spatial analysis of the DDW database on water system boundaries, though further analysis was undertaken that included obtaining data from GSA member agencies. Identification of vacant parcels, open space parcels, or other parcels that do not utilize water was also necessary. Using a combination of County use codes and aerial imagery, these parcels were removed from the Base Charge calculation. The total number of parcels identified as using groundwater directly is 5,272.

By utilizing the total projected amount of fixed costs and the total number of groundwater-using parcels, a rate per parcel can be calculated. This calculation is shown below for reference.

Figure 3 - Base Charge Calculation

$$\frac{\$187,000}{5,272 \text{ Parcels}} = \$35.47$$

Agricultural parcels are charged the Base Charge and the Irrigated Acreage Fee. Aquaculture parcels, or parcels that maintain fish farms, are currently included in the commercial category, but are also charged the Irrigated Acreage Fee based on the acreage of their ponds, as determined through a review of aerial imagery.

All public water systems using groundwater are also charged the base charge for one parcel; this assumes that these systems maintain at least one parcel on which they operate a well. In some cases, small public water systems are already identified as having a groundwater-using parcel and are charged accordingly. In cases where a specific parcel cannot be identified for a water system, they are charged the base charge in addition to their extraction charge. A summary of Base Charges is provided below in Table 6.

Table 6 - Base Charge Summary

All Direct Groundwater-Using Parcels - Base Charge				
Property Type	Rates Per Parcel	Total GW-Using Parcels	% of Parcels	Revenue
Residential Parcels				
<i>Base Charge:</i>	\$35.47	4,286	81%	\$152,026
Commercial / Industrial Parcels				
<i>Base Charge:</i>	\$35.47	94	2%	\$3,334
Agricultural Parcels				
<i>Base Charge</i>	\$35.47	618	17%	\$31,640
<i>Base Charge With Residence</i>	\$35.47	274		
Subtotal, Agricultural Parcels:		892		
Totals				
All GW-Using Parcels:		5,272	100%	\$187,000

Public Water System Fee

The Public Water System Fee assigns a charge per acre foot to water purveyors who extract groundwater within the Subbasin. Because extraction data is available for this user class, a charge per AF was determined to be the optimal method of charging these systems.

By utilizing the total annual revenue requirement and an average groundwater extraction for the Subbasin, the appropriate rate for public water systems is determined. A five-year average (2017-2021) of groundwater use derived from the Cosumnes-South American-North American Groundwater Model (“CoSANA”), was utilized to determine the appropriate total extraction estimate to be used in this calculation. The equation below provides the calculation for the charge assigned to water purveyors, based on the amount of AF extracted.

Figure 4 - Public Water System Charge Calculation

$$\frac{\$661,500}{110,625 \text{ Acre Feet}} = \$5.98$$

Extraction data for public water systems is available through the State Water Resources Control Board (“SWRCB”) in the form of Electronic Annual Reports (“EAR”). In determining how to charge water systems for their groundwater extraction, a five-year average of groundwater use by each system was selected as the optimal method for allocating charges.

There are two primary benefits to this approach. First, using an average creates more uniform charges so that public water service suppliers do not incur large charges relative to previous years. Second, this contributes to revenue stability for the GSA, as changes in the cost allocation for this user class would not change as drastically from year to year as they would if a shorter range were used. As of March 2024, the most recent available EAR data is for 2022. As such, the five-year period being used ranges from 2018-2022. A summary of the average groundwater extraction and associated charges by public water systems on the Subbasin is provided below in Table 7. A more detailed table, including year-specific reported extraction amounts for each system, is included in Appendix B.

Note that all public water systems using groundwater are also charged the Base Charge for one parcel. This is based on the assumption that these systems maintain at least one parcel on which they operate a well. These charges are incorporated into the Base Charge Table above (Table 6) and are not shown in the extraction table below (Table 7).

Table 7 - Groundwater Extraction and Revenue of Public Water Systems

Groundwater Extraction of Public Water Systems in the Cosumnes Subbasin				
Data Obtained Through Electronic Annual Reports (SWRCB)		Average Extraction (AF)	Revenue	
Name	PWS ID	5-Year Rolling Average	Rate Per AF	Revenue
Hope Foundation/Moriah Heights	CA0300062	34.14	\$5.98	\$204.15
Ione Band of Miwok Indians	CA0300078	6.77	\$5.98	\$40.51
MP Associates, Inc.	CA0300524	0.11	\$5.98	\$0.65
Camanche North Shore Inc	CA0310008	54.88	\$5.98	\$328.18
AWA - Camanche Village	CA0310021	249.80	\$5.98	\$1,493.821
Laguna Del Sol Inc	CA3400181	9.51	\$5.98	\$56.84
Rancho Seco NGS (SMUD)	CA3400232	0.51	\$5.98	\$3.08
Dillard Elementary School	CA3400254	6.42	\$5.98	\$38.37
Arcohe Elem School - Main Campus	CA3400271	0.26	\$5.98	\$1.55
Wilton Bible Church	CA3400273	0.12	\$5.98	\$0.70
Rancho Seco Park	CA3400302	7.49	\$5.98	\$44.78
Cosumnes River Preserve Visitor	CA3400432	0.25	\$5.98	\$1.48
Church of Latter Day Saints, Galt	CA3400460	0.77	\$5.98	\$4.59
River City Recovery Center, Inc	CA3400464	0.01	\$5.98	\$0.09
City of Galt	CA3410011	4,492.74	\$5.98	\$26,866.60
RANCHO DEL ORO MHP	CA0300053	7.46	\$5.98	\$44.63
Richard A. Mcgee Training Center	CA3410802	33.22	\$5.98	\$198.64
		4,904		\$29,329

Throughout the fee development process, the possibility of directly charging parcels served by public water systems that utilize groundwater was discussed. Questions surrounding the legal process for implementing such charges remain an issue with this approach. Should this type of charge be considered, there are both policy and legal questions that would need further exploration. At this time, this approach has not been deemed viable. Consideration is also being given to charging public water systems an additional amount based on the number of parcels they serve. This would also require further evaluation.

Irrigated Acreage Fee

The Irrigated Acreage Fee assigns a charge per irrigated acre to all irrigated lands within the Cosumnes Subbasin. This portion of the fee methodology currently being considered is quite similar to the Authority’s current fee program, implemented in 2021.

DWR crop maps from 2019 were used to establish irrigated acreage totals and assign those irrigated acres to specific parcels. As of March 2024, the 2020 and 2021 crop maps were still listed as provisional, and have not been finalized. Extensive analysis has been conducted to identify potential inaccuracies in this data, largely utilizing aerial imagery and County use codes. Modifications to irrigated acreage that have been incorporated into the Authority’s current fee program were also brought into this analysis.

A key element of this process is reviewing surface water use within the Subbasin. Within Amador County GSA, many parcels utilize surface water only for agricultural irrigation. After a thorough review of irrigated acreage conducted in conjunction with Amador Water Agency, the vast majority of agricultural parcels’ irrigated acreage was removed from the fee calculation due to surface water use. The total irrigated acreage within the Subbasin utilized for this fee program is approximately 45,000 irrigated acres. This spans across both Amador and Sacramento Counties.

By subtracting the total revenue estimated to be collected from the Base Charge and the Public Water System Fees, we can determine the total revenue requirement to be assigned to the Irrigated Acreage Fee.

Table 8 - Determination of Irrigated Acreage Revenue Need

Total Budget:	\$ 661,500
Base Charge Revenue:	\$187,000
Public Water System Fee Revenue:	\$29,327
Revenue Assigned to Irrigated Acreage Fee:	\$ 445,173

By utilizing the total annual revenue requirement assigned to the Irrigated Acreage Fee and the total estimated irrigated acreage in the Subbasin, we can determine the appropriate rate per irrigated acre. The equation below provides the calculation for the charge assigned to irrigators.

Figure 5 - Irrigated Acreage Rate Calculation

$$\frac{\$445,173}{44,591 \text{ Irrigated Acres}} = \$10.00$$

The total revenue derived from the Irrigated Acreage Fee is shown below in Table 9.

Table 9 - Irrigated Acreage Fee

Agricultural Irrigators - Irrigated Acreage Charge			
Revenue Type	Rate Per Irrigated Acre	Total Irrigated Acres	Revenue
Irrigated Acreage Fee	\$10.00	44,591	\$445,910

Revenue Summary

A summary of the three elements to the fee structure is provided below in Table 11. This structure assumes an annual revenue need of \$661,500 in Year One.

Ultimately, CGA’s ability to obtain this budgeted revenue will be dependent on contributions by member GSAs. These member contribution commitments should be separately memorialized by CGA and its members concurrent with, or shortly after, the Board approves a proposed fee methodology. A clear commitment to specific contribution amounts from each CGA member will be necessary in order for the entire group to move forward successfully.

Member GSAs are not required to adopt the proposed fee structure and may choose to fund their participation in other ways. Still, this Fee Study is intended to provide a base methodology through which members may allocate fees and understand total costs of CGA participation, both as between members and across all groundwater users.

The budget amounts and rates provided in this Fee Study are scalable in the sense that they may be reduced in a given year based on determined revenue needs. They may only increase from the listed amounts based on the optional use of the CPI adjustment on an annual basis.

Table 10 - Summary, Fee Structure Revenue

All Direct Groundwater-Using Parcels - Base Charge				
Property Type	Rates Per Parcel	Total GW-Using Parcels	% of Parcels	Revenue
Residential Parcels				
<i>Base Charge:</i>	\$35.47	4,286	81%	\$152,026
Commercial / Industrial Parcels				
<i>Base Charge:</i>	\$35.47	94	2%	\$3,334
Agricultural Parcels				
<i>Base Charge</i>	\$35.47	618	17%	\$31,640
<i>Base Charge With Residence</i>	\$35.47	274		
Subtotal, Agricultural Parcels:		892		
Totals				
All GW-Using Parcels:		5,272	100%	\$187,000
Public Water Systems - Extraction Charge				
Revenue Type	Rate Per AF Extracted	Average AF Extracted Annually	Revenue	
Public Water Systems	\$5.98	4,904	\$29,327	
Agricultural Irrigators - Irrigated Acreage Charge				
Revenue Type	Rate Per Irrigated Acre	Total Irrigated Acres	Revenue	
Irrigated Acreage Fee	\$10.00	44,591	\$445,910	
			Total Revenue, All Sources: \$662,237	

GSA Reserves

As noted above, the GSA Reserve budget, in the amount of \$175,000 total, will be held by respective member GSAs annually in support of GSA administration, project planning and management actions. These costs are allocated to public water systems on a charge per AF basis, and to agricultural irrigators on charge per irrigated acre basis. The amount of reserve held by each GSA will be calculated in the same manner of apportionment as other costs, with the number of average AF extracted by public water systems and the number of irrigated acres within each GSA’s jurisdiction determining the amount of reserve generated within each GSA.

For public water systems using groundwater, this amount can be calculated by applying the GSA Reserve budget to the total average extraction in the Subbasin, as shown below:

Figure 6 – GSA Reserve PWS Calculation

$$\frac{\$175,000}{110,625 \text{ Acre Feet}} = \$1.58$$

The amount of \$1.58, applied to the average AF extracted by public water systems, will determine the amount of revenue generated for the GSA Reserve budget for each member GSA. The remainder of the public water system charge will contribute to CGA costs. Essentially, \$1.58 of the total \$5.98 charge per AF extracted by public water systems will be held in reserve to support project planning at the GSA level.

For agricultural irrigators, the amount of GSA Reserve revenue generated as a portion of the \$10.00 charge can be calculated by first determining the budget amount applied to this portion of the fee. Subtracting the public water system revenue allocated to the GSA Reserve (\$7,749) from the total revenue requirement (\$175,000), determines the GSA Reserve budget to be applied to irrigated acres: \$167,251. Dividing this number by the total irrigated acres, the portion of the Irrigated Acreage Fee that is allocated to the GSA Reserve is calculated, as shown below:

Figure 7 – GSA Reserve Irrigated Acre Calculation

$$\frac{\$167,251}{44,591 \text{ Irrigated Acres}} = \$3.75$$

The amount of \$3.75, applied to the irrigated acres within each GSA, will determine the amount of revenue generated for the GSA Reserve budget for each member GSA. The remainder of the irrigated acreage charge will contribute to CGA costs. Essentially, \$3.75 of the total \$10.00 charge per irrigated acre will be held in reserve to support individual GSA efforts.

Data Sources

The process of evaluating rate and fee options and developing the preliminary methodology has relied on data from the State, technical studies, and available local data. At this time, using the best available sources to guide allocation of costs is the most optimal path forward for funding the Authority’s efforts to implement its GSP. A variety of data sources were used to develop the preliminary methodology. Below is a complete list of data used, followed by the source of the data in parenthesis, and a brief description of the data.

- Sacramento County parcel spatial database (Sacramento County): GIS-based spatial database of polygons that delineate parcel boundaries in Sacramento County as of February 2024.

- Sacramento County lien roll database (Sacramento County): characteristic database of Sacramento County Assessor’s parcels and related information as of February 2024.
- Amador County parcel spatial database (Amador County): GIS-based spatial database of polygons that delineate parcel boundaries in Amador County as of 2012.
- Amador County lien roll database (Amador County): characteristic database of Amador County Assessor’s parcels and related information as of February 2024.
- Cosumnes Subbasin boundaries (Bulletin 118 Groundwater Basin Boundary Assessment Tool): Basin boundary spatial polygons that delineate boundaries of the Cosumnes Subbasin as of September 2023.
- Crop mapping (CA-DWR): Crop layer polygons from the Department of Water Resources as of 2019.
- Water system boundary information (State Water Resources Control Board): spatial polygons that delineate water system service boundaries as of September 2023.
- Public Water System Use (CA Division of Drinking Water): reported groundwater extraction per PWSID, between 2018-2022.

Appendices

Appendices include the following:

- A. Detailed Public Water System Extraction Table.
- B. Detailed Cosumnes Groundwater Authority Budget.

Appendix A: Detailed Public Water System Extraction Table

Table 11 – Annual Public Extraction in the Cosumnes Subbasin

Groundwater Extraction of Public Water Systems in the Cosumnes Subbasin										
Data Obtained Through Electronic Annual Reports (SWRCB)								Average Extraction (AF)	Revenue	
Name	PWS ID	Estimated Population Served	Reported Annual GW Exarction (AF)					5-Year Rolling Average	Rate Per AF	Revenue
			2018	2019	2020	2021	2022			
Hope Foundation/Moriah Heights	CA0300062	30	27.46		47.60	27.51	33.99	34.14	\$5.98	\$204.15
Ione Band of Miwok Indians	CA0300078	62	5.90		5.93	7.49	7.78	6.77	\$5.98	\$40.51
MP Associates, Inc.	CA0300524	170	0.15	0.14	0.06	0.08	0.12	0.11	\$5.98	\$0.65
Camanche North Shore Inc	CA0310008	255	51.33	52.24	59.18	58.93	52.72	54.88	\$5.98	\$328.18
AWA - Camanche Village	CA0310021	2,384	239.89	244.06	262.31	258.69	244.06	249.80	\$5.98	\$1,493.821
Laguna Del Sol Inc	CA3400181	470	0.00	0.00	0.00	23.92	23.61	9.51	\$5.98	\$56.84
Rancho Seco NGS (SMUD)	CA3400232	27.00	1.00	0.35	0.39	0.23	0.61	0.51	\$5.98	\$3.08
Dillard Elementary School	CA3400254	350	1.74	1.67	1.30	12.83	14.54	6.42	\$5.98	\$38.37
Arcohe Elem School - Main Campus	CA3400271	465	0.00	0.94	0.10	0.00		0.26	\$5.98	\$1.55
Wilton Bible Church	CA3400273	125	0.13	0.13	0.09	0.12	0.12	0.12	\$5.98	\$0.70
Rancho Seco Park	CA3400302	40	4.88	7.18	7.11	8.88	9.39	7.49	\$5.98	\$44.78
Cosumnes River Preserve Visitor	CA3400432	300	0.36	0.31	0.21	0.13	0.22	0.25	\$5.98	\$1.48
Church of Latter Day Saints, Galt	CA3400460	800			0.03	1.14	1.14	0.77	\$5.98	\$4.59
River City Recovery Center, Inc	CA3400464	60			0.01	0.02	0.01	0.01	\$5.98	\$0.09
City of Galt	CA3410011	26,536	4,500.91	4,266.45	4,780.04	4,602.85	4,313.46	4,492.74	\$5.98	\$26,866.60
RANCHO DEL ORO MHP	CA0300053	44	8.50	8.69	7.63	6.84	5.65	7.46	\$5.98	\$44.63
Richard A. Mcgee Training Center	CA3410802	300	42.55	39.54	31.69	33.10	19.21	33.22	\$5.98	\$198.64
Totals:								4,904	\$29,329	

Note: Cells in grey indicate years in which a water system did not report any data.

Appendix B: Detailed Cosumnes Groundwater Authority Budget

Table 12 – Detailed Budget

Budget Category / Task	Year 1	Notes
	FY 2024-25	
<i>State-Mandated Requirements</i>		
Annual Report Development	\$ 35,000	Development of required Water Year Annual Reports (due annually on April 1.)
Data Management System Maintenance	\$ 10,000	Estimated cost to input data and generate semi-annual reports.
GSP Period Update (5-Year Update)	\$ 50,000	Due to DWR by 1-27-27. Assumes \$150,000 for GSP update process.
Collection of Monitoring Network Data	\$ 25,000	Semi-annual collection of groundwater, surface water, and subsidence data.
<i>Administration and Management Actions</i>		
Personnel	\$ 175,000	Staffing for Board and GSA management, DWR coordination, contract management, and outreach.
Technical Support Services	\$ 50,000	On-call support from technical consultants for regular authority work.
Legal Services	\$ 30,000	Legal support for regular business and SGMA implementation.
Outreach and Engagement Supplies	\$ 10,000	Costs associated with public workshops and other outreach efforts.
Financial Audits	\$ 15,000	Yearly financial audits of public funds.
Miscellaneous Operating Expenses	\$ 5,000	Office supplies and other regular operating expenses.
Data Gap Filling Projects	\$ 50,000	Specific projects TBD.
<i>Projects</i>		
GSA Reserves	\$ 175,000	Funds held by member agency GSAs in support of administration and project feasibility exploration.
<i>Subtotal</i>	\$ 630,000	CPI Index Optionally Applied to Subtotal Each Fiscal Year (5% maximum increase).
Contingency / 5% of Budget	\$ 31,500	5% Contingency applied each year to Subtotal.
Total Expenses	\$ 661,500	Revenue Need to be applied to fee program.