Napa County
Groundwater Sustainability Agency

Napa Valley Subbasin

Draft Funding Options Technical Memorandum

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Table of Contents

Introduction and Executive Summary 2

Introduction and Goals 2
Executive Summary 3

I. Evaluation of Potential Funding Mechanisms 5

Background of Funding Strategies for NCGSA 5
GSP Implementation Costs 5
Introduction to Available Potential Funding Mechanisms Options in California 7
A. Existing Revenue Sources 8
B. Grant Funding 8
Fee Constitutionality Regarding 10730 and 10730.2 10
C. Water Code § 10730 Fees (Regulatory Fees) 11
D. Water Code § 10730.2 Fees (Property Related Fees) 15
A Final Note on Regulatory and Property Related Fees 20
Portfolio Approach 22
Fee Programs That Incentive Conservation 22
E. Special Taxes 23
F. Benefit Assessments 25

II. Methodology 28

Introduction 28
Parcel-Based Charges 29
Extraction 31
Irrigated Acreage 36

III. Funding Mechanism Review 39

Sonoma County Groundwater Sustainability Agencies 39
Cosumnes Groundwater Authority 43
Sacramento Central Groundwater Authority 46

IV. Community Engagement 50

Engaging Groundwater-Reliant Communities 50

V. Summary 54

List of Tables

Table 1 - Sonoma County Irrigation Demand Estimates 41
Table 2 - Santa Rosa Plain Subbasin Irrigation Demand Estimates 42
Table 3 - Santa Rosa Plain GSA Rate Examples 43
Table 4 - Cosumnes Groundwater Authority Potential Crop Tiers 45
Table 5 - SCGA Basin Prioritization and Allocation of Budget 47
Table 6 - SCGA User Classes and Charges 49
Table 7 - State Water Board Intervention Fees, 2020 53
Table 8 - Funding Options Summary Table 55
Table 9 - Funding Options Advantages and Challenges 56
Table 10 - Methodology Options Advantages and Challenges 57

List of Figures

Figure 1 - GSA Funding Mechanism Legal Defensibility 11
Figure 2 - Rate Determination Equation 28
Figure 3 - Sonoma GSAs Rate Equation 40
Figure 4 - Sonoma County Groundwater Use Estimation Flowchart 40
Figure 5 - Cosumnes Groundwater Authority Rate Equation 44
Figure 6 - Sacramento Central Groundwater Authority Rate Calculation Equations 46

Introduction and Executive Summary

Introduction and Goals

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 historic legislation is to ensure that groundwater is sustainably managed and protected for all beneficial users, now and into the future. Although it was enacted at the State level, SGMA was envisioned to be implemented primarily on the local level by local public agencies. As such, it mandates that local Groundwater Sustainability Agencies ("GSAs") be formed in high-priority and medium-priority basins in order to develop and ultimately implement Groundwater Sustainability Plans ("GSPs").

The Napa County Groundwater Sustainability Agency ("NCGSA" or "Agency") was created by a resolution of the Napa County Board of Supervisors in December of 2019 to serve as the official Groundwater Sustainability Agency for the Napa Valley Subbasin ("Subbasin"), as required by SGMA. The Agency is governed by a Board of Directors ("Board") consisting of the Napa County Board of Supervisors. Additionally, the Agency maintains a Technical Advisory Group ("TAG") for the purpose of providing input and recommendations to the Board.

The Napa Valley Subbasin represents an extremely valuable resource in Napa County ("the County"). Groundwater management efforts in the County have been orchestrated since at least the 1960s, including monitoring of groundwater levels and efforts to conserve water resources. The health of the Napa Valley Subbasin has notable effects on its communities, economy, and culture. Both past and current efforts to achieve sustainability in the Subbasin hold implications for all those who live or work in the County.

In the Winter of 2022, the Agency engaged a consultant team led by SCI Consulting Group ("SCI Team") to develop revenue recommendations, community engagement strategies, and a rate and fee study report to support the NCGSA in its efforts to implement its GSP. This Technical Memorandum incorporates legal, financial, administrative, political, and policy considerations in support of revenue options. The discussion of these subjects within the context of NCGSA's needs and preferences is intended to inform the process of funding mechanism implementation.

The Napa Valley Subbasin GSP[1] was submitted to the California Department of Water Resources ("DWR") in January 2022, and DWR approved the GSP in January 2023. The GSP includes goals and recommendations required for its implementation.

[1] https://sgma.water.ca.gov/portal/gsp/preview/124

NCGSA is required to comply with ongoing regulatory requirements related to groundwater level monitoring and reporting. Projects and management actions related to increasing groundwater storage, reducing groundwater pumping, and other conservation measures are necessary to achieve sustainability. Funding these efforts will be key to the success of the GSP.

It should be noted that SGMA and its associated requirements and goals are relatively new, and there is not a clear, well-tested path forward to fund GSP implementation. Rather, the funding efforts for GSP implementation in the Napa Valley Subbasin need to be carefully crafted according to local conditions, preferences, and politics – as well as being flexible, creative, and responsive.

Executive Summary

The purpose of this Technical Memorandum ("Tech Memo") is to provide a detailed overview of the various funding mechanisms best suited to support groundwater management and GSP implementation in California, and to evaluate these options in the context of the needs of the affected Napa Valley Subbasin community and the NCGSA.

Section I of this Tech Memo provides an overview of the types of funding mechanisms available for local agencies in California. This section describes the two mechanisms explicitly prescribed for GSA use in SGMA:

- California Water Code § 10730 Fees ("10730 Fees") - often interpreted as Regulatory Fees under Proposition 26
- California Water Code § 10730.2 ("10730.2 Fees") - often interpreted as Property Related Fees under Proposition 218

However, alternative options are also included to provide a comprehensive summary of available funding pathways.

Section II describes methodology options, detailing the method by which groundwater users might be charged at the parcel level. This section will focus on parcel-based approaches, producing a charge per parcel or per acre, extraction-based approaches, producing a charge per acre foot ("AF") of groundwater extracted, and irrigated acreage approaches, producing a charge per irrigated acre. There are important considerations in determining the optimal methodology, which will inform the funding program's proportionality. The methodology will also affect the payor pool, the funding mechanism's annual administrative burden, and the approach to community engagement.

Section III reviews funding mechanisms from several other basins in California, providing insight into how certain mechanism types and methodologies interplay with the needs and preferences of a given GSA based on various characteristics.

Section IV outlines approaches to community engagement, which will be key to the successful implementation of the optimal funding mechanism. There are important considerations included in this section regarding outreach to property owners, key stakeholders, and the incorporation of community perspective into the process of funding mechanism implementation.

Funding Approaches and Options for GSP Implementation

There are a variety of funding approaches for groundwater management, each with advantages and challenges. There is also a possibility that a portfolio of various approaches will prove optimal. The likely most optimal funding mechanisms are listed below:

Primary Funding Mechanisms

- Existing Revenue Sources
- Grants and Loans
- Water Code § 10730 Fees (often interpreted as Regulatory Fees under Proposition 26)
    - Allocated to direct groundwater users only.
    - Non-balloted; imposed by ordinance or resolution.
- Water Code § 10730.2 Fees (often interpreted as Property Related Fees under Proposition 218)
    - Allocated to direct groundwater users only.
    - For charges for a "water-related service": non-balloted; requires mailed notice and protest hearing.
    - For charges for other services: mailed balloting may be required.

Alternative Funding Mechanisms

- Special Taxes
    - Likely allocated to all property owners within the subbasin.
    - Regular election.
- Benefit Assessments
    - Likely allocated to direct groundwater users.
    - Proposition 218 Mailed balloting.

Selection of the optimal approach, or portfolio of approaches, requires consideration of the key attributes of each. Each funding mechanism and approach has key attributes - all of which should be considered to select the optimal funding portfolio, including:

- Flexibility of Methodology (per acre, per irrigated acre, per acre foot, per parcel, etc.)
- Costs of Implementation
- Revenue Generation Potential
- Political Viability / Community Acceptance
- Legal Rigor
- Efficiency of Administration

I. Evaluation of Potential Funding Mechanisms

Background of Funding Strategies for NCGSA

Since the inception of the Agency in 2019, leadership has discussed and considered the short term and long-term challenges associated with funding. Funding needs of sustainable groundwater management are often fluid and multifaceted and require a dynamic approach, particularly during the early years of the GSA.

In part, the NCGSA has funded the costs of operations and GSP development with allocations from the Napa County general fund. Like many other GSAs across the State, member agency funding contributions (in this case the County) have allowed agencies to develop goals and priorities to guide development of the GSP. Like GSAs throughout California, as NCGSA has moved into the GSP implementation phase, conversations surrounding funding have gravitated more toward the establishment of a reliable, stand-alone funding mechanism to support its efforts.

The NCGSA has also relied on a grant award from DWR's Sustainable Groundwater Management Proposition 68 Implementation Grant Program. This award contributed greatly to the development of the NCGSA GSP.

GSP Implementation Costs

Groundwater management costs in the Napa Valley Subbasin cover a range of activities required by the State in accordance with SGMA and the NCGSA GSP. These costs range from administrative operations to projects and management actions intended to achieve sustainable yield for the Subbasin. Administrative costs tend to be relatively predictable and stable, with less fluctuation in a given year. Conversely, costs related to projects and management actions often fluctuate based on project status, unforeseen circumstances, and other factors. While these costs vary in terms of the nature of the work they support, together they serve as the means to sustainably manage the Napa Valley Subbasin.

NCGSA Administration

Effective administration of NCGSA is paramount to ensure that regulatory requirements are met, projects and management actions are properly orchestrated, and GSP implementation is achieved. Costs related to GSA administration ensure that these processes are managed in a way that is optimal for all beneficiaries. Efforts to efficiently administer the Agency and its sustainability program contribute to virtually all aspects of the management of the Subbasin. Additionally, these costs contribute to the ability of NCGSA to maintain local control of the Subbasin and avoid State intervention.

NCGSA Projects and Management Actions

The GSP details plans to conduct managed aquifer recharge ("MAR") within the Subbasin. MAR is intended to enhance aquifer replenishment through water supply augmentation. Both active approaches such as recharge ponds and injection wells are referenced, as well as passive approaches such as intentionally inundating riparian corridors or agricultural lands during periods of high streamflow. This will increase groundwater storage, offsetting extraction amounts. MAR has the potential to mitigate undesirable results, particularly during periods of drought.

The GSP also describes efforts to expand the use of recycled water within the Subbasin which would provide an alternative water source for urban and agricultural irrigation, therefore reducing groundwater extraction. A potential indirect benefit of increased recycled water use is a reduction in surface water demand. This would increase the amount of available surface water, lessening the demand for groundwater extraction.

Management actions listed in the GSP related to water conservation and groundwater pumping reductions are intended to decrease groundwater extraction from the aquifer. One example of a conservation method is the implementation of precision irrigation techniques to increase water use efficiency. Conservation measures such as this benefit the agricultural growers and help to achieve the sustainability goals defined in the GSP.

Projects and management actions included in the GSP are necessary to achieve the Subbasin's sustainability goal and serve as the roadmap to sustainability. In addition, the specific project and management actions implemented by the NCGSA are key to maintaining local control of the Subbasin.

Cost Apportionment

It may be optimal to allocate the cost of administration to all beneficiaries of the Subbasin, while allocating the costs of projects and management actions to those who extract larger volumes of groundwater. The argument can be made that some degree of fixed costs related to administration or projects are necessary for all Subbasin beneficiaries, while the need for certain costs related to projects and management actions may derive more from those that extract larger volumes from the aquifer. In determining the correct balance for such an apportionment, the NCGSA budget should be evaluated based on the cause or need of the budget items in question and the beneficiaries of their intended outcomes.

Another key consideration relating to the apportionment of GSP implementation costs revolves around what portion of the NCGSA budget will be allocated to the payor pool in general. There are other revenue sources that could decrease the amount of funding needed from a mechanism imposed upon the Napa Valley Subbasin community. Grant awards would contribute to the overall revenue need and lessen the burden placed on the payor pool. Additionally, any continued contribution from the Napa County general fund would decrease the revenue need allocated to Subbasin residents. The ability to utilize these revenue sources to lessen the costs allocated to the community should be considered.

Introduction to Available Potential Funding Mechanisms Options in California

Existing California law provides a relatively finite number of mechanisms for local public agencies to reliably generate revenue to provide services. In some cases, a portfolio approach of several of these mechanisms will be optimal. Also, it is crucial to work closely with legal counsel on the implementation of all funding mechanisms to ensure legal compliance. This section provides a discussion of the mechanisms best suited to provide funding for the groundwater management services recommended in the Agency's GSP. However, prior to the discussion of each potential funding mechanism, the critical issue of "who pays?", the well-owners or the entire property owner community within the Subbasin, is discussed:

Allocation of Funding from Well Owners or Broader Community

One unique challenge, and opportunity, associated with implementation of a funding mechanism for groundwater management is the decision regarding how costs will be allocated between well owners and the overall community of property owners. In some cases, GSAs allocate costs to well owners, with some consideration of de minimis users. However, in other cases GSAs allocate costs more broadly within a basin. There are clear benefits to all properties and residents overlying a basin with managed groundwater resources as discussed in more detail below. It can be argued that a community-wide funding mechanism in which all properties and/or residents pay their fair share is a more optimal approach. However, it should be noted that California law has different requirements depending on the funding mechanism in question and the connection between the benefit or service provided to those who are charged.

Special taxes are a funding mechanism well-suited for an allocation on all Subbasin property owners, but they require two-thirds support of registered voters. The balloting requirement significantly limits the total revenue that may be generated, as it is connected to the political "willingness to pay" of the local voters or property owners. Balloting is also expensive and politically risky. The cost of placing a measure on the ballot and the political capital lost through a failed measure are not easily recouped. For that reason, non-balloted approaches are typically preferable, and do not have the same apparent political limitation on the amount of revenue that can be generated, but political realities and influences are still significant. Both types of approaches are discussed in this Tech Memo.

A. Existing Revenue Sources

If the Agency can fund groundwater management services to some degree with existing revenue sources, that is certainly optimal. However, this may not be sustainable going forward. While County funding and grants have allowed the Agency to achieve its goals to this point, the need for an independent revenue structure is apparent. While GSA member agency funding is still extremely common in California, it is well understood that this is not optimal or sustainable over time, and virtually all GSAs are exploring dedicated funding mechanisms.

Future Allocations from the County

As discussed above, some form of continued direct funding from the County remains a very attractive approach. By determining what costs would be appropriate for the County to continue to fund, an optimal balance could be stuck that lessens the financial burden placed directly on groundwater users or Subbasin residents. The County is of course funded by its constituency, and effective management of the Subbasin has positive implications for all County residents. If possible, the GSA should consider some degree of continued contributions in order to optimize the GSA budget.

B. Grant Funding

Grant funding is highly desirable, as it eliminates or lessens the need to generate revenue directly from well owners and/or the broader community of property owners. Grant funding is typically available for capital projects but can be available for other programmatic activities, including maintenance and operations.

It is worth noting that grants often come with other funding requirements such as matching funds or requirements for post-project maintenance. Additional costs are also worth consideration, including staff time and resources and the costs of preparing applications and executing grant agreements. These costs often must be covered by other revenue sources. These considerations, along with the financial burden of the reimbursement cycle and time frame, underscore the need for an underlying revenue stream to leverage these opportunities.

California has a limited number of State grants and programs which provide funding opportunities for groundwater sustainability. The primary grants in support of SGMA are described below.

SGMA Grant Funding Sources

The Sustainable Groundwater Management grant programs have been a key funding source for GSAs over the first ten years of SGMA. Currently, all Proposition 1 and Proposition 68 funding has been awarded. However, future grant opportunities from the Department of Water Resources may emerge.

State Grant Opportunities

Proposition 4 is set to be placed on the November 2024 ballot and may include opportunities for GSAs. If the measure is successful, it would authorize $10 billion in debt to spend on environmental and climate projects, with $1.9 billion allocated for drinking water improvements. The GSA should track potential opportunities related to this measure.

Federal Grant Opportunities

Infrastructure Investment and Jobs Act

The federal Infrastructure Investment and Jobs Act, passed in 2021, stands to contribute over $45 billion to California over the next 5 years.[2] $14 billion will be distributed by the State, which leaves approximately $31 billion that will pass directly from the federal government to local agencies. NCGSA should continue to track the distribution of these funds as they are made available. The Governor's office has already committed $3.72 billion to improve local water systems, though much of the allocation of this funding is still unknown at this time.

Future bond measures will likely emphasize funding for multi-benefit projects, and NCGSA should also consider coordinating with other affected local agencies to put forth larger and potentially more competitive grant applications.

[2] https://www.gov.ca.gov/2021/11/06/governor-newsom-statement-on-passage-of-1-2-trillion-infrastructure-investment-and-jobs-act-by-congress/

Required Documents for Grants

- Grant applications meeting specific requirements.

Flexibility of Methodology

- Use of grant funding is specified in the grant.

Revenue Generation Potential

- Amount of grant funding is specified in the grant.

Advantages

- Lessens the cost that is allocated to local well owners or property owners.
- Revenue generation can be sufficient to offset significant costs of certain key activities.
- Legally rigorous as long as grants are expended on eligible activities.

Challenges

- Provides funding for a limited time only – difficult for long-term planning.
- Funds are often available only as reimbursement – the need for other revenue is key.
- Awarded through a highly competitive process.
- Often requires matching local funds, tends to be focused on capital expenses, and is often narrowly focused on terms of scope and services.

Fee Constitutionality Regarding 10730 and 10730.2

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. Appropriate sections of the California Water Code provide guidance for GSAs in establishing funding mechanisms, but all charges imposed by government agencies must adhere to the requirements set forth in the California Constitution. Both the appropriate Water Code Section and the appropriate Constitutional Articles must be identified and complied with.

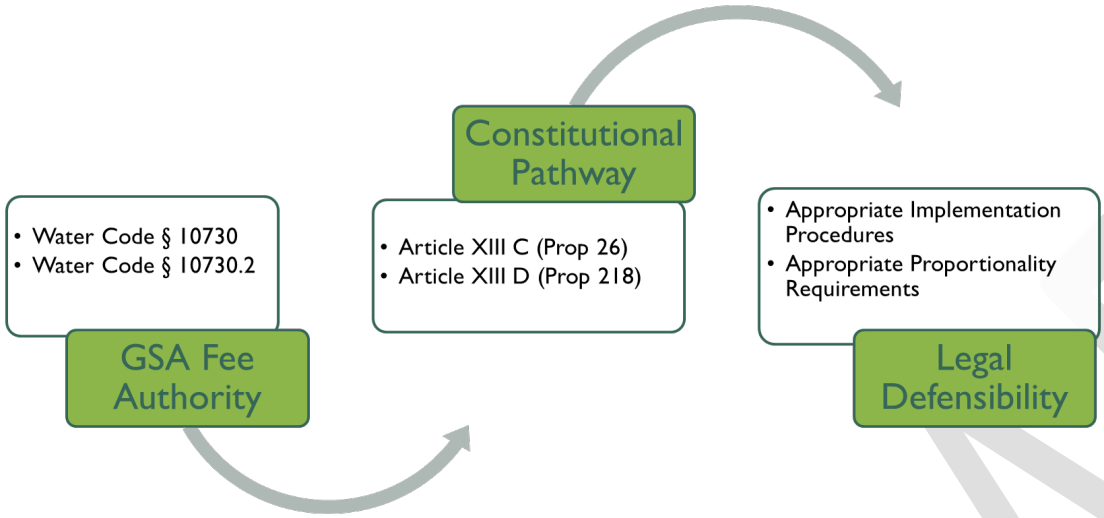
California Water Code

California Water Code § 10730 and § 10730.2 were codified by the passage of SGMA. They are the legal apparatus that provide GSAs with the authority to charge fees. These code sections detail specific requirements related to fee structure and implementation. The descriptions of fees in each of these two sections provide guidance for the constitutional "pathways" that are likely applicable for their respective fee types. While these code sections do not explicitly state that the fees they describe are regulatory fees (§ 10730) or property related fees (§ 10730.2), they are often interpreted as such due to shared characteristics between their descriptions. However, recent case law has determined that § 10730.2 fees must comply with both Proposition 26 and Proposition 218.

California Constitution

The primary constitutional articles relevant for groundwater management fees are included in Article XIII of the California Constitution. Article XIII A and XIII C include Proposition 26 language and set forth general requirements for charges imposed by government agencies. Article XIII C and XIII D were initially added to codify Proposition 218, and they set forth requirements for property related fees and benefit assessments. The relationship between these constitutional articles and their associated Water Code Sections are shown in the figure below.

Figure 1 - GSA Funding Mechanism Legal Defensibility



C. Water Code § 10730 Fees (Regulatory Fees)

Public agencies throughout California often fund the cost of administrative activities, enforcement efforts, site inspections, permits, and similar activities using regulatory fees. It should be noted that regulatory fees utilized by GSAs vary to some degree with the traditional concept of regulatory fee in California; however, any charge imposed by a local government must comply with one of several constitutional descriptions. The fees described in Water Code § 10730 seem to align constitutionally with regulatory fee language.

Proposition 26, approved by California voters in 2010, tightened the definition of regulatory fees. It defined a special tax to be "any levy, charge, or exaction of any kind imposed by a local government" with certain exceptions. Pursuant to law, all special taxes must be approved by a two-thirds vote of the electorate.

Regulatory fees are thus defined through the cited exceptions. The two most pertinent exceptions are listed below:

> *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.*
>
> *A charge imposed for a specific government service or product provided 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 providing the service or product.*

The other pertinent exception is, "assessments and property related fees imposed in accordance with the provisions of Article XIIID." This exception refers to property related fees and benefit assessments, which are discussed in more detail in their respective sections below.

Proposition 26 language continues to state that,

> *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.*

Proposition 26 provides the primary guidance for the funding of an agency's administrative costs through regulatory fees. Moreover, § 10730 of the California Water Code, (which as described above, corresponds well with Proposition 26 guidance) describes specific activities that can be funded by fees in accordance with this Code Section.

Water Code § 10730 includes several unique requirements that should be carefully followed when implementing regulatory fees for GSP implementation. More detail is provided below.

§ 10730 Fee (Regulatory Fee) Adoption Process

§ 10730 Fees are relatively easy and straightforward to adopt. Traditionally, neither a public noticing nor a balloting is required; however, Water Code § 10730 provides the additional requirements of a 20-day posted notice and corresponding public meeting. Typically, a public agency will engage a specialized consultant to conduct a Fee Study. This Study will present findings to meet the procedural requirements of Proposition 26, which require analysis and support that:

- The levy, charge, or other exaction is not a tax; and
- The amount is not more than necessary to cover the reasonable cost of the governmental activity; and
- The way those costs are allocated to a payor bears a fair or reasonable relationship to the payor's burden on, or benefits received from, the governmental activity.
- The governmental activity funded by the fee is not provided to those not charged.

Additionally, case law has provided further clarification of these substantive requirements, that:

- The costs need not be "finely calibrated to the precise benefit each individual fee payor might derive."

- The payor's burden or benefit from the program is not measured on an individual basis. Rather, it is measured collectively, considering all fee payors.
- That the amount collected is no more than is necessary to cover the reasonable costs of the program is satisfied by estimating the approximate cost of the activity and demonstrating that this cost is equal to or greater than the fee revenue to be received. Reasonable costs associated with the creation of the regulatory program may be recovered by the regulatory fee.

Another consideration of regulatory fee adoption relates to the collection of the fee on property tax bills. While § 10730 states that GSAs may request collection of these fees in the same manner as "ordinary municipal ad valorem taxes," further discussion with the Napa County Assessor's Office would be required.

Payor Pool

A 10730 Fee would likely be placed only on groundwater users. Relating to the requirements of Proposition 26, the fee study would need to establish the benefit conferred to those charged. A regulatory fee would likely be based on direct groundwater use, which would align with a methodology based on groundwater extraction or irrigated acreage. For these reasons, a 10730 regulatory fee would most likely be imposed upon a payor pool of direct groundwater users.

- Direct groundwater users.

Required Documents for Regulatory Fees

- A Fee Study, reviewed by legal counsel and adopted by the governing authority.
- Ordinance or Resolution Adopting Fees.

Flexibility of Methodology

Section 10730 also specifies that "a groundwater sustainability agency may impose fees, including, but not limited to, permit fees and fees on groundwater extraction or other regulated activity."

While groundwater extraction is listed here as a potential methodology, this section does not expressly prohibit other approaches. However, a methodology based on property characteristics, such as an acreage fee or a parcel fee, aligns more closely with a property related fee under Proposition 218 .

Other ideas to consider include:

- Well permit fee.
- Remediation Fee for over-pumping.

De Minimis Users

Another relevant consideration regarding Water Code § 10730 fees is whether NCGSA should charge de minimis extractors. De minimis extractors are defined by Water Code § 10721 (a) as those who extract, for domestic purposes, two acre feet or less of groundwater per year. Generally speaking, the consideration of charging these users revolves around several factors, including what percentage of groundwater pumping this user class represents and the methodological approach the Agency selects.

Water Code § 10730 (a) provides an additional requirement when charging de minimis users this type of fee. Currently the NCGSA does not recognize a class of de minimis extractors that pump 2 AF per year or less; however, this amount of groundwater use for domestic purposes represents the threshold related to the requirement below:

> *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 requirement is relatively vague, and there are differing opinions on what constitutes the regulation of de minimis users pursuant to a GSA's GSP. In some cases, registration of these users through ordinance, along with an exchange of data regarding these parcels, has been used as a means to comply with this code section.

Revenue Generation Potential

Legal requirements and industry practice limit these fees to recovery of costs associated with eligible activities (e.g., regulatory activities, inspections, permits, program administration, etc.) The Agency is advised to work closely with legal counsel and review Proposition 26 and Water Code § 10730 requirements.

Additionally, Water Code § 10730 dictates that fees subject to this section can be used to fund the costs of a groundwater sustainability program, including, but not limited to:

- Preparation, adoption, and amendment of a groundwater sustainability plan
- Investigations, inspections, compliance assistance, enforcement
- Program administration
- A prudent reserve

Hence, it seems that the intent of this section is that the development of the plan can be financed through regulatory fees (and this has been widely agreed upon) as well as some, but not all, GSP implementation activities.

While the framers of SGMA seem to have intended that regulatory fees be used for program administration concurrently with the development of a GSP, Section 10730 of the Water Code does not dictate that this authority is lost once a GSP is submitted to DWR. There are examples of GSAs utilizing regulatory fees for general program administration both before and after GSP submittal. Although there are questions regarding whether the cost of items such as groundwater monitoring and groundwater model maintenance can be paid for by funds from regulatory fees, one can make the argument that they can be included in the cost of "program administration." It is imperative that legal counsel be consulted to ensure that the methodology and implementation of a regulatory fee aligns with California law.

Advantages

- Quick and inexpensive to adopt. No balloting or protest hearing is required.
- Revenue generation is likely sufficient to fund administrative costs.
- Legally rigorous as long as fees are for eligible activities.

Challenges

- Potential for "push back" from affected property owners against fees. The lack of a balloting or protest hearing makes adoption simpler but does not provide as much opportunity for community input.
- Potential for litigation challenging whether fee covers eligible activities.
- Use to fund infrastructure operations and/or capital project costs is not supported by law- this is the primary shortcoming of § 10730 fees.
- Methodology may be limited to extraction-based approaches.
- Implementation, if limited to extraction-based fees, would require considerable time and resources.
- Collection of fees, if NCGSA is unable to place them on tax rolls, may prove challenging. Manually processing and billing house would require additional time and resources. Further analysis is needed to determine if this would be the case.

D. Water Code § 10730.2 Fees (Property Related Fees)

Property related fees were first described in 1996's Proposition 218, (which is manifested as Section 6 of Article XIII D of the California Constitution) and are commonly used today to fund water, sewer, solid waste, and storm drainage. They are commonly referred to as a "water charge", "water rate" or a "sewer charge," but are technically a property related fee. Proposition 218 imposes certain procedural requirements for imposing or increasing property related fees.

A key element of property related fee implementation is defining the service that is being provided. Depending on the service the fee is funding, a balloting may or may not be required. Services which are related to water, sewer, or refuse are exempt from the balloting requirement while other services require a mailed balloting.

When considering the payor pool that would potentially be charged a fee, defining the service provided by NCGSA holds important implications for the procedural requirements of adoption. Proposition 218 requires that the service provided under a property related fee be "actually used by, or immediately available to, the owner of the property in question." For this reason, the clearest path forward under this fee type would be a charge placed on direct groundwater users only. By further defining the service provided by NCGSA's sustainable management of the Napa Valley Subbasin, this approach would become more well-vetted.

In the case of a water-related service, there are two distinct steps: 1) a mailed noticing of all affected property owners and 2) a protest hearing to provide all affected property owners the opportunity to submit written protest. Adoption of the fee program requires less than 50% protest for adoption.

For providing other services determined not to be water-related, there are three distinct steps: 1) a mailed noticing of all affected property owners 2) a protest hearing to provide all affected property owners with the information justifying the fee, and 3) a mailed balloting to all affected property owners. In this case, adoption of the fee program requires greater than 50% support for adoption. An additional consideration of this process is that there are typically two separate mailings, one including the notice and another for the ballot.

It is worth noting that property related fees must still comply with Proposition 26 (as all funding mechanisms do). As noted above, Proposition 26 defines a tax as "any levy, charge, or exaction of any kind imposed by a local government," with certain exceptions. To be exempt from the balloting requirements of a tax, property related fees must qualify as one of these exceptions. One of the listed exemptions to what is defined as a tax within Article XIII C is "assessments and property related fees imposed in accordance with the provisions of Article XIII D," which establishes that these fees are a unique mechanism with their own requirements.

Typically, a public agency will engage a specialized consultant to conduct a Fee Study. This Study will present findings to meet the procedural requirements of Proposition 218, which require analysis and support that:

- The levy, charge, or other exaction is not a tax; and
- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted.

Proposition 218 provides the primary guidance for the funding of an agency's costs through property related fees. Moreover, § 10730.2 of the California Water Code, (which as described above, corresponds well with Proposition 218 guidance) describes specific activities that can be funded by fees in accordance with this Code Section. However, recent case law has provided additional consideration. In City of Buenaventura v. United Water Conservation District, the California Supreme Court held that Proposition 26, not Proposition 218, provides the appropriate framework for groundwater extraction fees.[3] While a fee program under § 10730.2 must adhere to the procedural and substantive requirements of property related fees (as referenced in exception (7), above), it also must satisfy Proposition 26 requirements. While Proposition 218 arguably holds more strenuous proportionality requirements, both must be addressed for these fees.

Property Related Fee Balloting Requirements

Water-Related Services

Proposition 218 exempts fees for water, sewer and refuse collection from the third step – the balloting. Hence, it is logical that a property related fee imposed on well owners' properties would be exempt from the balloting requirement. This is very significant because it reduces costs and political risk and lessens limitations related to a willingness to pay.

Specifically, California Water Code, § 10730.2 (c) states:

> *"Fees imposed pursuant to this section shall be adopted in accordance with subdivisions (a) and (b) of Section 6 of Article XIII D of the California Constitution."*

Section 6 of Article XIII of the California Constitution describes the specific requirements of the implementation of a property related fee, and most importantly, refers to subdivision (a) as the noticing requirement, (b) as the limitations on fees and services, and subdivision (c) as the balloting requirement. Because the legislature did not include (c) balloting as a requirement of SGMA, they intended GSA activities to fit the "water sewer refuse collection exemption." This would mean that balloting is not required for property related fees in support of groundwater sustainability.

[3] https://www.courts.ca.gov/opinions/archive/B312471.DOC

Other Services

As noted above, this balloting exemption does not apply to services unrelated to water, sewer, or refuse collection. In order to be exempt from the balloting requirement, a property related fee program would need to establish that it is supporting a water-related service. For groundwater-using parcels, this the designation of 'water-related' is clear; for parcels not using groundwater, the service provided would be difficult to define. A balloting may increase the political risk of fee implementation, as 50% support would be required (as opposed to less than 50% protest). However, a balloting would also increase the opportunity for public input and may lend itself to political legitimacy. In order to determine whether a balloting would be necessary in this case, the service provided would need to be clearly defined.

Property Related Fee Adoption Process

As described above, only the first two steps of the three-step process *(1. Noticing 2. Protest Hearing*) apply to property related fees in support of water-related services. Once the Agency has determined the fees they wish to impose, they must mail a written notice to each affected property owner at least 45 days prior to the public hearing. During that time, and up until the conclusion of the hearing, any affected property owner may file a written protest opposing the proposed fees If the owners of a majority of the affected parcels file a written protest, the agency cannot impose the fee (known as a "majority protest"). If a majority protest is not formed, the agency may impose the fees.

Property related fees for other services must be balloted. In this case, all three steps *(1. Noticing 2. Protest Hearing 3. Balloting)* would apply. The Agency would determine the fees they wish to impose and mail a written notice to each affected property owner at least 45 days prior to the public hearing. Typically, the ballots are then mailed after the public hearing, requiring an additional 45-day period to vote on the implementation of the fee program. This balloting is unweighted, meaning each affected parcel receives one vote. If greater than 50% of the returned ballots are supportive, the Agency may impose the fees. It should be noted that although the threshold of 50% remains the same, a balloting would alter the dynamics of adoption. A balloting requires the positive action of support, while a protest hearing only requires a lack of the negative action of submitting protest.

Payor Pool

A 10730.2 Fee would likely be placed upon all groundwater-using parcels within the Subbasin. The requirements of Proposition 218 would inform the need to quantify the service provided to those charged. This service would derive from the efforts to achieve Subbasin sustainability, which is directly related to groundwater extraction. Careful consideration of these factors would be needed in order to justify the fee program.

- Direct groundwater-using parcels.

Required Documents for a Property Related Fee

Non-Balloted Property Related Fee (For Water-Related Service)

- Mailed Notices of Rate Proposal/Opportunity to Protest/Public Hearing.
- Fee Report and Presentation for Public Hearing.
- Ordinance or Resolution Adopting Fees (assumes <50% protest).

Balloted Property Related Fee (For Non-Water Related Service)

- Mailed Notices of Rate Proposal/Public Hearing to all affected property owners.
- Fee Report and Presentation for Public Hearing.
- Mailed ballots to all affected property owners.
- Ordinance or Resolution Adopting Fees (assumes >50% support).

Flexibility of Methodology

Long standing use of property related fees for water charges support relatively flexible use of this approach to fund a wide range of GSP implementation activities.

Water Code § 10730.2 specifies that:

> *fees imposed pursuant to this section may include fixed fees and fees charged on a volumetric basis, including, but not limited to, fees that increase based on the quantity of groundwater produced annually, the year in which the production of groundwater commenced from a groundwater extraction facility, and impacts to the basin.*

This language supports the idea of charging based on the amount of water extracted, as well as the idea of fixed fees based on impacts to the Subbasin or other characteristics. While other methods are not explicitly prohibited in § 10730.2, property related fees are traditionally charged according to land-based methodologies, such as a charge per parcel or per acre. While a volumetric fee is listed in § 10730.2, this diverges from the traditional approach to this type of fee. However, a property related fee that utilizes extraction as a means to measure the service provided to properties within the Subbasin may be a viable option.

Other ideas to consider include:

- Acreage Fee.
- Parcel-based Fee.
- Remediation Fee for over-pumping.

De Minimis Users

Unlike § 10730, Water Code § 10730.2 does not establish any additional requirements related to de minimis users. For this reason, the extra consideration of these users required by § 10730 does not apply to these fees.

Revenue Generation Potential

Water Code § 10730.2 (a) dictates that once a GSA adopts a GSP, it "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:"

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

The language in this Code Section provides a more substantial list of legitimate costs, including a "catch-all," of activities necessary or convenient to GSP implementation. The attributes listed here are, in part, why these fees are often interpreted as property related fees, in that they provide flexible revenue that may be applied to capital or administrative costs. Given the flexibility of their use, property related fees align well with near and long-term GSP implementation.

Advantages

- Revenue generation is appropriate to fund all aspects of GSP implementation costs (administrative and capital).
- Legally rigorous. Property related fees are described in the Water Code for funding groundwater sustainability.
- Depending on several factors, the process may be exempt from the costs and political risks of balloting.
- Cost of implementation is relatively low and includes a fee study, a mailing and additional outreach.

Challenges

- Politically challenging. Although a balloting may not be required, property owners may be able to attain a 50% protest, which would prevent the fee program from being implemented.
- If a balloting is required, attaining 50% approval presents a tougher challenge in that it requires broad support.
- Unfamiliar Process. One potential criticism of the property related fee is that property owners are generally unfamiliar with the process, and opponents can exploit this. However, with the recent dramatic increase in voting by mail in California, this is less of a major issue. Nonetheless, political opponents can exploit this unfamiliarity and focus the public's attention on the Proposition 218 process, and away from the proposed groundwater sustainability goals and messaging.

A Final Note on Regulatory and Property Related Fees

As noted in the sections above, regulatory fees and property related fees share some similarities as well as some important distinctions. Overall advantages and disadvantages of each are reviewed below for comparison:

Regulatory Fees

There are more limitations on what regulatory fees can be used to fund. Although many aspects of GSP implementation have not been legally tested under the laws surrounding regulatory fees, there are GSAs currently using them to fund general program administration. However, it is likely that regulatory fees cannot fund capital projects, which may be crucial to GSP implementation. Any need for funding capital expenses should be evaluated.

Regulatory fees may be optimal if NCGSA prefers charges based on groundwater use, such as extraction-based charges or charges based on irrigated acreage. Charges based on general property characteristics are likely more appropriately implemented as property related fees.

Regulatory fee adoption is relatively quick, having no requirement of 45 days' notice or protest hearing. SGMA does require a public meeting for the implementation of regulatory fees, though not an opportunity for protest. It should be noted, however, that the lack of a protest hearing lessens opportunity for community input. It is highly recommended that extensive outreach be deployed during regulatory fee implementation despite the lack of balloting or protest hearing. In terms of justification of their use, the fee report for regulatory fees is slightly less comprehensive, requiring only that a fair and reasonable relationship to use be established.

Property Related Fees

Property related fees are far less limited in what they can fund. Virtually all aspects of GSP implementation would be eligible. There is ample case law supporting the use of property related fees for activities related to water management including operations, maintenance, and capital improvements.

Property related fees are likely optimal if NCGSA prefers charges based on general property characteristics, such as parcel fees or fees based on overall acreage. However, Water Code § 10730.2 references both "fixed fees" and fees based on a "volumetric basis" as valid options, which provides guidance that these fees may be more flexible in terms of methodology.

Property related fee adoption requires a 45-day notice and protest hearing, which adds more time to the process. It should be noted that the protest hearing provides more opportunity for community input. If a balloting is required due to providing services unrelated to water, this would require more consideration of timing and provide more opportunity for community input. Although the threshold of 50% remains the same, a balloting would require the positive action of voting support as opposed to simply the lack of negative action of submitting protest. In terms of justification of their use, property related fees require a more comprehensive fee report, one that establishes a nexus between the fee and its use.

Portfolio Approach

It is possible that the optimal approach for the Napa Valley Subbasin may be a portfolio approach to fee implementation. Different funding mechanism types and methodologies are often better suited to different situations within the same Subbasin.

For example, a 10730 fee (regulatory fee) is well suited to address administrative costs but cannot fund capital costs. Additionally, this type of fee is less restrictive in terms of establishing a connection between the charge and the service provided, only requiring a "fair and reasonable relationship." A 10730.2 Fee (property related fee) is relatively flexible in that it can fund both administrative and capital costs. However, it is more restrictive in terms of establishing a connection between the charge and the service provided. This type of fee requires that a nexus be established between the charge and the service provided and requires that the service provided be actually used by or immediately available to the owner of the property in question. A combination of these two fee types could be considered.

The use of multiple methodologies could also be optimal. A parcel fee spread out amongst a larger payor pool could be used in tandem with an extraction-based fee or irrigated acreage-based fee placed on agricultural extractors.

The use of multiple fee types or multiple methodologies could potentially address the needs of NCGSA in a manner that utilizes the advantages of each while minimizing the challenges associated with their use. However, this may also complicate implementation, administration, and community engagement. Consideration of a portfolio approach would require analysis of these advantages and challenges.

Fee Programs That Incentive Conservation

Another consideration in evaluating potential fee programs for NCGSA is the concept of incentivizing conservation. A fee program that offers tiered rates based on the application of conservation measures could provide numerous benefits for the Napa Valley Subbasin. Apart from encouraging conservation of groundwater, incentivizing a voluntary conservation program could build trust between the Agency and groundwater users, spread awareness of NCGSA's efforts, and help to disseminate best practices in terms of irrigation methods.

The proportionality requirements of Proposition 26 and Proposition 218 hold notable implications for an incentive program. Proposition 26 requires that the costs funded by a fee program must bear a "fair and reasonable relationship to the payor's burdens on, or benefits received from, the governmental activity." Similarly, Proposition 218 requires that "the amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel."

These requirements indicate the need to develop analysis in support of an incentive program. In order to justify the variability of tiered rates, NCGSA would need to define, quantify, and allocate the benefits of conservation in a manner that establishes the financial or cost-saving benefits provided to NCGSA through conservation measures. These efforts could inform a proportionally tiered conservation incentive element of a fee program. It should be noted that such a program would require more resources during implementation and during the annual administration of the fee.

E. Special Taxes

Special taxes are decided by registered voters and almost always require a two-thirds majority for approval. Traditionally, special taxes have been decided at polling places corresponding with general and special elections. Special taxes are well known to Californians but are not as common as property related fees for funding of water-related services and infrastructure activities.

Parcel based taxes (as opposed to sales taxes, etc.) are the most viable type of special tax for funding water-related activities. As such, most discussion of special taxes in this report will focus on parcel taxes.

Special Tax Adoption Process

Public agencies typically work with special consultants familiar with the administrative and political aspects of proposing a special tax to a community. Special tax elections held at polling places are conducted on statutorily designated dates (typically in November for the general election and either March or June for the primary).

Typically, extensive outreach is employed in implementing a special tax. As specified by California Government Code § 54964, public agencies are prohibited from contributing funds or resources to support the approval or rejection of a ballot measure. However, this Code Section provides explicit guidance that informational outreach which focuses on the potential effects of a ballot measure is permissible. Due to these constraints, any outreach conducted by the GSA for a potential ballot measure would need to be informational in nature.

An agency wishing to place a measure on a given ballot would work with the applicable county offices (typically the elections department) in order to determine the specific processes and costs associated with this endeavor. These costs can vary greatly, depending on the county, whether the desired election is a primary or general election, and how many measures are on the ballot.

Payor Pool

A special tax would likely be imposed upon all Subbasin residents. One of the benefits of a special tax is its ability to spread costs widely to a large payor pool. The cost and time required for the implementation of a tax would align well with charging all Subbasin parcels.

- All Subbasin parcels

Required Documents for a Parcel Based Special Tax

- Ordinance or Resolution stating tax type, tax rates, collection method, election date and services provided.
- Notice to the Registrar of Voters of measure submitted to voters.
- Measure Text including:
- Ballot question (75 words or less).
- Full ballot text (300 words or less) including rate structure.
- Arguments in favor or against and independent analysis.
- Tax Report filed annually beginning after the implementation year.

Flexibility of Methodology

There is considerable flexibility in tax methodology. Many special taxes are conducted on a parcel basis with a uniform "flat" rate across all parcels, or varied rates based upon property attributes such as use and/or size. Parcel taxes based upon the assessed value of a property are not allowed. The Agency could propose a flat tax rate in which all parcels are charged the same or a "tiered approach" where for example larger and/or agricultural or commercial parcels may be taxed more than residential properties.

Advantages

- Revenue generation is likely sufficient to fund all GSP implementation costs if voter-approved.
- Legally rigorous. Special taxes, if approved by two-thirds of the registered voters within a community, are very reliable and rarely legally challenged successfully.
- Well known. Most property owners are aware and comfortable with (but not necessarily supportive of) special taxes and the special tax process.
- Efficient administration

Challenges

- Political support at the required rate and revenue may be difficult. Generally speaking, the two-thirds majority threshold for approval is very politically challenging. Special taxes are subject to significant outside influence from media and opposition groups during voting and are more vulnerable to other measures and candidates that share the ballot. This is the primary weakness of special taxes.
- High implementation cost; money not recouped if measure fails.
- Extensive process. Placing a measure on the ballot would likely take 1-2 years.

F. Benefit Assessments

Along with property related fees, the other funding mechanism outlined by Prop 218 is a benefit assessment. Benefit assessments are commonly used in California to fund fire districts, mosquito districts, and reclamation districts. While there are limited precedents for their use in groundwater management, likely given the difficulty of making the requisite findings, a benefit assessment would assign specific benefits to each parcel from the management of Napa Valley Subbasin resources, allocating cost accordingly.

Benefit assessments are a balloted mechanism; however, the procedures provided by Prop 218 describe an all-mail balloting of property owners, not registered voters. This method provides two key differences to consider: 1) the all-mail balloting would likely be less expensive than balloting at the polls, and 2) property owners, as opposed to registered voters, are the deciding electorate. Additionally, benefit assessments require a 50% majority for approval as opposed to two-thirds.

Another potential challenge associated with the use of benefit assessments in support of groundwater management is that there is no clear underlying act to justify their use. While California Water Code § 10730 and § 10730.2 provide this justification for fee programs, they do not mention benefit assessments.

A key consideration of this option is that the proportionality requirements associated with benefit assessments are more stringent than other funding mechanisms. Several additional factors must be established, detailed below.

Benefit Assessment Adoption Process

The process of adopting a benefit assessment is substantial, with several key procedural requirements. See summary below (From Article XIII D, section 4, California Constitution):

- Identify all parcels which will have a specific benefit conferred upon them for which an assessment will be imposed.
- Determine proportionate special benefit in relationship to the entirety of the capital cost of a public improvement, O&M of public improvement, and/or cost of service.
- Establish “reasonable cost” of the “proportional special benefit” allocated to each parcel.
- Establish distinction between “special” and “general” benefit.
- Mail ballot and notification of all affected property owners of the total assessment amount, proposed assessment to their parcel(s), reason for assessment, and the basis on which this was calculated.
- Conduct a Public Hearing not less than 45 days after the mailing of notice and ballot for consideration of protest and ballot tabulation.
- If the election is successful, the Governing Body may impose the assessment through resolution.

Payor Pool

A benefit assessment would likely be imposed upon direct groundwater users. The strict proportionality requirements of this mechanism inform the need to precisely quantify the benefit received from each parcel. However, there are GSAs that have used benefit assessments to fund the cost of groundwater management.

- Likely direct groundwater using parcels.

Required Documents for a Benefit Assessment

- Mailed notices of rate and public hearing and mailed ballot to all affected property owners.
- Engineers Report, signed by a licensed California civil engineer.

Flexibility of Methodology

California law requires strict methodology and apportionment regarding the use of benefit assessments. Rates must be assessed based on the specific benefit received by each parcel, relative to the overall cost of its funding purpose.

As noted above, the distinction between "special" and "general" benefit must be established by the Engineer's Report. Special benefit refers to the benefit granted to each individual parcel by the service or improvements to be funded. General benefit refers to the benefits granted to the general public or passers-by within a jurisdiction. The general benefit must be funded through another source outside of the assessment. For many assessments, the general benefit is determined to be less than 5%.

Due to constraints surrounding the determination of special benefits allotted to each parcel, a benefit assessment would likely be placed only on direct groundwater users. Unlike a tax, which could allocate costs to all residents within the Subbasin, an assessment would need to quantify any benefit allocated to non-groundwater users. This would likely prove difficult to justify for those parcels not extracting groundwater.

Revenue Generation Potential

Similar to property related fees, benefit assessments are eligible to fund a wide range of improvements and services. If approved by voters, a benefit assessment could likely fund all aspects of GSP implementation, including administrative and capital costs. While there is no guidance provided by the Water Code in regard to benefit assessments, they are commonly used by other types of special districts to fund both administrative and capital costs. In comparison with a 10730 or 10730.2 Fee program, with similar revenue needs and payor pool, similar rates would likely generate comparable revenue.

Advantages

- All-mail balloting is often less expensive than balloting at the polls.
- Flexible revenue. Funds generated by a benefit assessment can be used to support both administrative and capital costs.

Challenges

- Strict proportionality requirements would demand precise quantification of benefits across all groundwater users.
- Political support at the required rate and revenue may be difficult. The 50% majority threshold for approval, while less than the two-thirds required by special taxes, may still be subject to significant outside influence from media and opposition groups during voting.
- Unfamiliar process. Many property owners may not be aware of the process and requirements of an all-mail assessment balloting.

II. Methodology

Introduction

Funding mechanism methodology is essentially the basis by which beneficiaries are charged a fee, tax, or assessment. 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 (acre feet extracted, irrigated acres, etc.) which produces the rate. This rate determination equation is shown below for reference:

Figure 2 - Rate Determination Equation

$$\frac{\textit{Revenue Requirement (\$\$)}}{\textit{Methodology Unit (Parcels, AF, Acreage, etc.)}} = \textit{Rate}$$

One of the key challenges of funding groundwater sustainability in California relates to the lack of readily available metered data from wells in basins across the state. While some wells in the Napa Valley Subbasin are required to report metered usage data, many do not have this requirement. Additionally, many wells likely have no meter in place. The question of how to proportionally charge groundwater users without knowing the exact amount of water they extract from the ground has led to several trends that attempt to apportion charges fairly based on various factors adjacent to actual groundwater use.

The primary methodologies used by many GSAs in California include charges based on parcels, charges based on extraction (often utilizing estimates), and charges based on irrigated acreage. These options are sometimes used together as a part of a larger fee program that employs multiple approaches.

A key consideration of methodology is the spectrum of "granularity" or the appropriate level of precision. A more granular methodology presents a double-edged sword. The more granular the methodology, the more accurately proportional the funding mechanism will be. However, granularity also introduces more opportunity for argument, challenges, exceptions and appeals. NCGSA should evaluate where on this spectrum is the appropriate balance for the Subbasin.

Parcel-Based Charges

A parcel-based charge would assign a rate to parcels within the Subbasin, either with a charge per parcel or a charge per acre. This approach would lend itself to the allocation of a portion of GSP implementation costs across all groundwater users. All groundwater-using parcels within the Subbasin benefit from SGMA compliance, and a fee structure could be developed that allocates some degree of costs across all groundwater users, while allocating other costs based on extraction, irrigated acreage, or another approach.

Due to the nature of parcel-based rates, it is imperative to prove that such a charge would be compliant with Proposition 26 or 218. As noted above, all charges implemented by public agencies are defined as a tax, other than those that fall within the listed exceptions. The burden of proving that a fee is not a tax is on the agency imposing the charges. A parcel-based rate that does not fluctuate based on water use would require definitively establishing a relationship between the charge and the cost of managing the Subbasin. There are GSAs that have implemented a parcel fee that is charged to all groundwater-using parcels within its jurisdiction. Careful consideration of the appropriate legal requirements of Propositions 26 and 218 would be necessary in order to establish legal defensibility.

Parcel-Based Fee Structures

A parcel fee could be developed that charges either a flat fee per parcel or a flat fee per acre. The use of a tiered structure based on size or land use could also be considered. Consideration of land use could inform such a structure by assigning different rates based on undeveloped or developed land, irrigated land or dry land, as well as other factors.

One of the drawbacks of this approach is that any charge unrelated to groundwater use could introduce proportionality issues. In this case, parcels using minimal groundwater might pay the same amount as those extracting water for agricultural or commercial purposes. To address this, a tiered structure could be used that assigns a different rate depending on the type or amount of groundwater use taking place on a parcel. While this would add complexity to this approach, it could potentially produce a more equitable fee program.

One consideration is the concept of using a portion of the budget to determine this fee, which could yield a palatable rate. As discussed above, certain GSP implementation costs are likely appropriate to spread more widely across all beneficiaries. For example, a broad allocation of a subset of administrative costs to groundwater-using parcels may be reasonable. The concept of allocating budget costs to different payor groups is discussed in more detail below.

DWR Basin Prioritization Criteria

One unique approach to developing a parcel fee relates to the DWR basin prioritization criteria. These criteria are based on various factors, some of which are related to groundwater extraction, some of which are not necessarily related to groundwater, and some of which are a blend of the two. For example, population and population growth are not directly related to groundwater extraction, but rather to the general population of the Subbasin. Conversely, criteria such as number of irrigated acres and reliance on groundwater are directly related to groundwater extraction. These criteria are the basis for whether a groundwater basin is subject to SGMA, and in turn, whether a GSP must be developed and implemented. Because some of these criteria relate to the general population and not only groundwater users, the Napa Valley Subbasin priority point allocation may be used to establish a degree of benefit to a broader base on parcels. However, charging parcels that do not directly use groundwater would likely create issues related to the proportionality requirements of Proposition 26 and 218.

Hybrid Approach

A parcel fee can also be developed as a part of a larger fee program that utilizes multiple methodologies. Costs can be allocated differently to parcels depending on their land use or groundwater use. For example, a flat parcel fee might be charged to all groundwater using parcels, while an extraction fee or irrigated acreage fee is charged to parcels using significant amounts of groundwater.

One method of allocating costs between different parcel categories relates to the DWR prioritization criteria, as described above. The Napa Valley Subbasin prioritization points for each criterion can be allocated to either general groundwater users, significant groundwater users, or a blend of both. The points in each category can be totaled, and the annual revenue requirement can then be prorated between the two categories and the fees are allocated based on the proration. These two user categories can be charged differently depending on the desired approach. In this approach, costs related to general groundwater use can be allocated to a larger pool of parcels within the Subbasin. This would produce a charge per parcel, which could be a flat fee, or based on other factors such as acreage or land use. Conversely, parcels using groundwater for agricultural or commercial purposes might be charged an additional parcel fee, acreage fee, or extraction fee.

A key piece of this approach relates to the requirements of Propositions 26 and 218. Although the argument can be made that some of the criteria used by DWR to prioritize the Subbasin are tied to all groundwater users, regardless of how much they extract, the requirement to illustrate a direct benefit to these parcels remains in place. A fee study would need to clearly establish a direct benefit or service to all parcels included in such a structure.

An example of this approach, along with more detail, is provided below in Section III.

Required Datasets

- Napa County parcel database.
- Other datasets may be required to establish tiered rates.

Payor Pool

A parcel fee could be charged to all groundwater-using parcels. While there are examples of GSAs charging parcels that do not directly use groundwater, this approach raises important legal considerations.

- Direct groundwater users.

Efficiency of Administration

The administration of a parcel-based approach would be relatively simple and efficient. The Napa County parcel database is updated each year, incorporating changes in parcels, ownership, and use. These changes would need to be identified and the fees would be adjusted accordingly. However, this represents a significantly less complex administration than other approaches. The efficient administration of this approach is perhaps its greatest advantage.

Advantages

- Simple; easier to convey to the public.
- Stable; less fluctuation of underlying data.
- Less granular; efficient administration.
- Utilizes a broad payor pool; accounts for the benefit received by all parcels.
- Less granularity provides less likelihood of appeals or challenges.

Challenges

- Less granular; potentially less equitable.
- Benefit or service provided must be definitively established.

Extraction

Perhaps the most equitable and straightforward method of charging groundwater users for the sustainable management of their aquifer would be charging on an acre foot ("AF") basis for the amount of water extracted by each well. As noted above, the challenge associated with extraction-based charges revolves around a lack of readily available metered data. The alternative approaches discussed below can be used to determine the proportionality of an extraction-based methodology despite these data gaps.

Estimated Extraction

One solution to the challenges associated with a lack of extraction data is to estimate the amount of groundwater used by each parcel based on characteristics indicative of groundwater use. It should be noted that a combination of estimation and metered data can be used in cases where there is some degree of metered data available. It would be relatively simple to change a parcel's determination if metered data becomes available for a parcel that was estimated.

An additional consideration of this approach in the Napa Valley Subbasin is the Napa County Well Permit Standards and Water Availability Analysis ("WAA") Requirements. These regulations implement a limitation on new wells permitted by the County, with input from the NCGSA. A limitation of 0.3 AF per acre is currently in place on newly constructed wells, which would simultaneously inform and constrain the approach to estimation of groundwater extraction in the Subbasin. While new wells subject to these limitations would have to be estimated within this framework, older wells not subject to these limitations may be estimated differently based on factors indicative of groundwater use. Further discussion of this aspect of estimating groundwater use would be needed to fully develop an approach.

Determination of water use based on parcel characteristics provides the baseline number; use of other water sources, such as public water system deliveries, surface water, or recycled water are then subtracted from this estimate. The estimation of groundwater use varies based on the type of parcel in question. More detail is provided below.

Agricultural Parcels

Groundwater use of agricultural parcels can be estimated by establishing water use estimates for crop types. Applied water or consumptive water use of various crop types can inform this determination in order to identify average extraction amounts per crop. Once these averages have been developed and vetted, they can be applied per crop, per acre across each parcel. For example, if a crop is determined to require one AF per acre per year, then that acre alone would be charged for this amount of water, based on a dollar rate per AF.

Applied water refers to the total amount of water delivered by a user for a particular application. For agricultural purposes, this refers to the amount of water applied through irrigation methods. In addition to water directly consumed by the crop, applied water includes water that may naturally percolate back into the aquifer or water that may runoff the field as surface water.

Consumptive use refers to the amount of water that is consumed by a crop or lost through evapotranspiration. Evapotranspiration is the sum of all water that moves from land surfaces to the atmosphere, either by evaporation or transpiration. Consumptive use does not include water that may naturally percolate back into the aquifer and is instead the total amount of water that moves from the land surface to the atmosphere.

Both applied water and consumptive use can be used to determine a proportional estimate of groundwater use. Estimates of applied water and consumed water are developed based on local conditions. Input from local growers and University of California Cooperative Extension Farm Advisors is extremely valuable to the process, as irrigation practices can vary drastically within the same basin. This input helps to shape and verify the estimates throughout the development process.

Geospatial datasets of crop type are used to estimate the type and amount of crops grown. Crop mapping data is available from DWR and is an excellent starting point. However, this data can be flawed, and it is imperative that any potential need for corrections be identified during the development process.

Residential and Commercial Parcels

Estimated water use for residential and commercial parcels can be determined based on local water use patterns. Input from local public water systems ("PWS") can be extremely beneficial to this process, as they likely have readily available data for a number of residential and commercial properties. This data could be used to determine typical water use amounts for various parcel types.

Once determinations have been made of the estimation of groundwater use by various parcel types, county use codes then identify specific parcels and their corresponding charges. While it is true that use codes can be outdated or inaccurate, they remain an attractive option for determining groundwater use systematically. Errors and outliers can be identified during the development process and later during the appeals process.

Public Water Systems

Public water systems using groundwater are required to report their extraction each year to the State Water Resources Control Board ("SWRCB"). The SWRCB then publishes this information as a part of their Electronic Annual Reports ("EARs"). EAR data is typically readily available, which can be used to determine charges for these entities. The use of a five-year rolling average for extraction in this case is often beneficial to both the GSA and the PWS; this helps to smooth out any drastic changes in groundwater extraction so that they have a less extreme effect on charges and on revenue.

Offsetting Other Water Sources

One of the advantageous yet also challenging aspects of using estimated extraction to determine funding program proportionality is the ability to offset water sources other than groundwater. This task introduces challenges relating to the underlying data regarding each water source. The primary alternative water sources that would be included in this process are public water system deliveries, surface water, and recycled water.

While this process presents unique challenges, it also provides an opportunity to accurately apportion charges in a manner that takes all water use into consideration. The granular approach required to achieve an accurate estimation of groundwater use in this way represents a comprehensive effort to charge groundwater users proportionally.

Required Datasets

The amount of underlying data used in the estimation of groundwater extraction is substantial. Given the number of factors that can drive this estimation, a well-rounded collection of source data is necessary to establish this approach. A list of potential datasets is listed below for reference:

- Napa County parcel database.
- Crop mapping / land use.
- Applied water rates.
- Surface water allocations.
- Recycled water deliveries .
- Napa County Well Permit Standards and WAA Requirements.

Data Limitations

The primary difficulty in estimating groundwater extraction stems from the large number of variables that impact the quantity of groundwater. This represents a significant challenge in developing an accurate, proportional fee program. A rate structure that attempts to establish a proportional relationship between groundwater use and the cost of GSP implementation is desirable. However, the lack of readily available extraction data necessitates the use of estimates based on average groundwater use. As noted above, this would be handled differently depending on the type of parcel in question.

Inevitably, groundwater use will vary depending on many factors. Agricultural groundwater use is affected by variables such as crop variety, soil composition, irrigation method, precipitation, and the availability of other water sources. Residential and commercial groundwater use will vary based on the number of household members or customers, as well as personal lifestyle or business patterns. While this approach is imperfect, it attempts to identify reasonable averages that can be used to determine proportionality and can be standardized across the basin.

Public water systems generally maintain data sets of the parcels they serve, which can be used to identify parcels that likely do not use groundwater. The SWRCB also provides spatial tools that can be used to identify parcels with a PWS. Surface water allocations can be particularly difficult to identify on a parcel scale because surface water is often shared beyond known diversion points. Recycled water purveyors sometimes do not identify their customers by parcel numbers, which can make allocating them to specific parcels challenging. However, this data can be used to synthesize consistent workable approaches to the allocation of other water sources to groundwater-using parcels.

In evaluating the advantages and challenges of this type of methodology, NCGSA should consider the degree of granularity that is not only possible, but also appropriate for the Subbasin. The availability of data, use of estimation, and the corresponding assumptions necessary to formulate the estimation approach, introduce the possibility that discrepancies at the parcel scale may occur. For this reason, methodology based on estimation requires a thorough approach that vets the supporting data, as well as the assumptions this data supports.

Payor Pool

The use of estimated extraction provides the ability to charge all types of groundwater users within a relatively concise framework. A charge per AF extracted can be applied to all types of groundwater use and does not require any additional approaches. Typical user classes for estimated extraction are listed below:

- Agricultural users.
- Residential users.
- Commercial users.
- Public Water Systems.

Efficiency of Administration

The annual administration of an estimated extraction methodology often requires thorough updates related to changes in the underlying datasets. While some of these datasets may not be updated each year, others will require an annual administration of changes. Issues related to County use code changes, deleted parcels, and added parcels will need to be addressed each summer leading up to the new fiscal year. Other datasets, such as crop maps, will likely only be updated periodically. The GSA would need to monitor these periodic updates to determine if changes need to be made to the fee program based on updated crop data.

Because the underlying data used to estimate groundwater use can be flawed, and certain assumptions are necessary to synthesize estimation, the development of an appeals process would likely be advantageous for NCGSA and the groundwater community. Such a process could help to identify issues in the estimation of use, identify outliers where groundwater use is incorrectly attributed, and provide an avenue for correspondence between the Agency and its constituency. However, this process would also add to the annual administration of the funding program.

While the administration of an estimated extraction methodology is not as efficient as other options, it does provide the most comprehensive approach to charging groundwater users as accurately as possible given the lack of metered data. Additionally, extractors may be inclined to share metered data with the Agency to correct any false assumptions. While this approach is not without its drawbacks, it offers the most comprehensive path available.

Advantages

- Accounts for all groundwater users.
- Crop dependent for agricultural users.
- More granularity provides a more thorough attempt to identify groundwater use.

Challenges

- Requires multiple datasets; availability of updated data varies with each type.
- Annual administration requires comprehensive updates.
- More granularity provides more likelihood of appeals and challenges to estimates.
- More complex; more difficult to convey to the public.
- Greater fluctuation in annual revenue.

Irrigated Acreage

Another common methodology implemented in groundwater funding programs utilizes the number of irrigated acres a parcel maintains as an indicator of groundwater use. This approach is simpler than other options but does have constraints surrounding its ability to accurately apportion the costs of GSP Implementation to all groundwater users. Because of these constraints, an irrigated acreage approach could be considered that also uses additional methods of charging non-agricultural parcels.

As with estimated extraction, geospatial datasets of crop type are used to estimate the type and amount of crops grown for an irrigated acreage fee. Crop mapping data is available from DWR and is an excellent starting point. However, this data can be flawed, and it is imperative that any potential need for corrections be identified during the development process.

Flat Irrigated Acreage Fee

A flat irrigated acreage fee simply applies a rate per irrigated acre to all agricultural parcels. This relatively simple approach requires fewer supporting datasets but fails to account for variance in water use by crop type, as well as non-agricultural users in general. This approach is more effective in basins where agriculture represents the vast majority of groundwater use.

Tiered Irrigated Acreage Fee

Borrowing an element of the estimated extraction approach, a tiered irrigated acreage methodology would assign crop types to two or more tiers based on applied or consumptive water use. These tiers would pay different rates based on the average water use of their assigned tier, based upon the estimated water use for that grouping of crops (e.g., vineyards vs row crops vs orchards, etc.). This approach helps to account for variance in water use by charging a lower rate to crops that use less water.

Offsetting Other Water Sources

Because an irrigated acreage approach is not based on units of water measurement such as AF, it is difficult to offset other water sources. Typically, consideration is given to parcels that likely use *only* other water sources and do not use groundwater at all, in which case they would not be charged. However, proportionally offsetting other water sources from an irrigated acreage fee would be challenging due to this mismatch in units of measurement. In developing an approach that attempts to offset other water sources, an irrigated acreage methodology would become more complex, losing some of the simplicity that makes it an attractive option.

Required Datasets

- Napa County parcel database.
- Crop mapping / land use.
- Surface water allocations (to determine parcels that do not use groundwater).
- Recycled water deliveries (to determine parcels that do not use groundwater).
- Applied or consumptive water use (only required if using a tiered irrigated acreage rate).

Payor Pool

Due to the nature of this approach, irrigated acreage methodologies typically only charge agricultural parcels. Residential, commercial, and other types of users that maintain no irrigated acreage are not easily included within this methodology. Other options may be used in tandem with an irrigated acreage methodology in order to charge non-agricultural parcels, such as a parcel fee or acreage fee.

Efficiency of Administration

The administration of an irrigated acreage funding program tends to be a relatively simple process. Any changes in crop mapping would require attention, as would changes in land use overall. However, these changes would likely be minimal in comparison to an estimated extraction approach. One of the attractive characteristics of an irrigated acreage approach is a relatively efficient and inexpensive administration.

Advantages

- Simpler; easier to convey to the public.
- Revenue would likely see less fluctuation.
- Efficient administration.

Challenges

- Charging non-agricultural parcels would require additional methodology.
- Use of a tiered irrigated acreage fee would require slightly more intensive datasets.
- Potentially less inclusive of all users than other approaches.

III. Funding Mechanism Review

This section provides a review of funding mechanisms implemented in other GSAs in order to illustrate the funding pathways discussed in this Tech Memo. While these examples have been selected to provide a range of different options, it is important to keep in mind that certain elements of each may be beneficial for NCGSA.

Sonoma County Groundwater Sustainability Agencies

In July 2022, the three GSAs in Sonoma County implemented fee programs to fund the cost of agency administration and GSP implementation. Santa Rosa Plain GSA, Petaluma Valley GSA, and Sonoma Valley GSA, while separate agencies in neighboring basins, maintained communication and collaborated on the development of their respective fee studies. While each GSA considered their options separately, all three determined that they would proceed with 10730 Regulatory Fees based on an estimated extraction approach.

General Characteristics

- Fee type: Water Code § 10730 (Regulatory Fee)
- Methodology: Estimated extraction
- Payor pool: All groundwater users, including de minimis
- Santa Rosa Plain GSA Rate: $40 per AF
- Petaluma Valley GSA Rate: $229 per AF (subsidized by Sonoma County down to $40/AF)
- Sonoma Valley GSA Rate: $123 per AF (subsidized by Sonoma County down to $40/AF)

The decision to use a 10730 Fee was largely made due to the fact that the GSAs did not expect to have any capital costs in the first five years of GSP implementation. The use of estimated extraction was identified as the best option to attempt to accurately apportion charges based on groundwater use.

As shown above, the rates for Petaluma Valley GSA and Sonoma Valley GSA were much higher than in the Santa Rosa Plain GSA. This is due to all three Agencies having similar budgetary needs, but two Basins having far less groundwater extraction. To avoid the adverse economic effects of having different rates for Basins within the same county, Sonoma County decided to subsidize the Sonoma Valley and Petaluma Valley rates for at least one year.

In order to address the requirement of § 10730 regarding regulation of de minimis users, each GSA registered all groundwater users through ordinance and provided an interactive database that allowed well owners to view the data and assumptions about their groundwater use.

With a methodology of estimated extraction, these rates were calculated by dividing the revenue requirement by the total estimated extraction, as shown below.

Figure 3 - Sonoma GSAs Rate Equation

Revenue Requirement ($$) / Acre Feet Extracted	=	Rate	*Parcels Charged Based on Allocated AF*

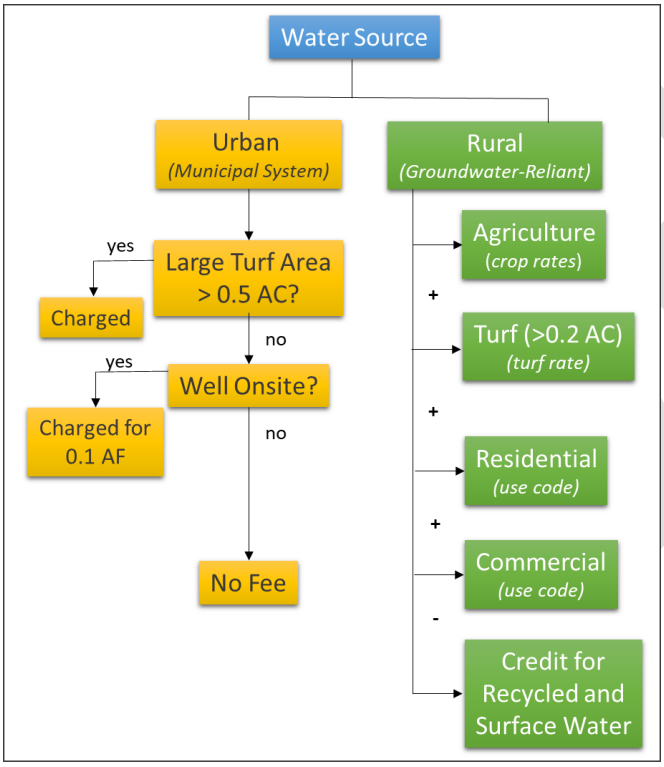
Methodology

Working with member agencies and consultants, The Sonoma County GSAs developed a comprehensive estimated extraction approach for their respective fee programs. Determinations of various types of groundwater use were handled differently depending on several factors.

Most "urban" parcels connected to a municipal water system were not charged. Two factors determined whether there would still be a charge for groundwater in these cases: whether a parcel had a turf area greater than 0.5 acres, and whether a parcel had a well on site in addition to a PWS connection. These "urban" wells were identified by the presence of a backflow device on their water connection to prevent groundwater from backflowing into the PWS infrastructure.

Groundwater use for all parcels not connected to a PWS was estimated based on their respective attributes. Estimation of Groundwater use for various types of parcels is shown below.

Figure 4 - Sonoma County Groundwater Use Estimation Flowchart



Agricultural Parcels

As detailed in Section II, agricultural parcels were charged based on the amount of each type of crop they cultivate. Applied water estimates for each type of crop were determined based on local conditions, providing the primary basis for charging per AF of groundwater used. A summary of crop types and applied water use is shown below.

Table 1 - Sonoma County Irrigation Demand Estimates

Crop Classifications	DWR Definition	Sonoma Average Applied Water (AF / Acre)
Citrus & Subtropical	Grapefruit, lemons, oranges, dates, avocados, olives, kiwis, jojoba, eucalyptus and miscellaneous subtropical fruit	1.85
Deciduous Fruits & Nuts	Apples, apricots, cherries, peaches, nectarines, pears, plums, prunes, figs, walnuts and miscellaneous deciduous	1.83
Grain	Wheat, barley, oats, mescellaneous grain and hay, and mixed grain and hay	0
Pasture	Clover, mixed pasture, native pastures, induced high water table native pasture, miscellaneous grasses, turf farms, bermuda grass, rye grass and klein grass	0.04[A]
Truck Nursery & Berry Crops	Artichokes, asparagus, beans (green), carrots, celery, lettuce, peas, spinach, flowers nursery and tree farms, bush berries, strawberries, peppers, broccoli, cabbage, cauliflower and brussel spouts	1.78
Vinyard	Table grapes, wine grapes and raisin grapes	0.60[B]
Cannabis Outdoor[C]		2.00
Cannabis Indoor[C]		4.00

These applied water use amounts per acre were then multiplied by the number of acres cultivated on each parcel to calculate charges. DWR land mapping data was used to determine the amount and type of crop present in each case. It should be noted that revisions to this map data were required to obtain an accurate database of crop types and amount. The applied water amounts based on crop type and acreage were then applied to specific parcels, multiplied by the rate per AF in each Basin.

The final step in determining agricultural water demand was subtracting surface water allocations and recycled water deliveries from each parcel's groundwater demand. This data was obtained from the SWRCB and local recycled water purveyors.

A summary of applied water, irrigated acreage, and alternative water source offsets is shown below for the Santa Rosa Plain Subbasin.

Table 2 - Santa Rosa Plain Subbasin Irrigation Demand Estimates

CROP TYPE	Acres	Irrig Rate (AF/acre)	Irrig Demand (AF)	Offset (AF)	Net GW Demand (AF)
Citrus & Subtropical	15.6	1.85	28.8	0.0	28.8
Deciduous Fruits & Nuts	146.5	1.83	268.0	0.0	268.0
Grain	957.7	0.00	0.0	0.0	0.0
Pasture	5,465.3	0.04	218.6	(23.2)	195.4
Truck Nursery & Berry	582.4	1.78	1,036.7	0.0	1,036.7
Vinyard	9,090.9	0.60	5,454.5	(460.2)	4,994.3
Cannabis (outdoor)	3.6	2.00	7.2	0.0	7.2
Cannabis (indoor)	0.0	4.00	0.0	0.0	0.0
Idle or Unknown	462.7	0.00	0.0	0.0	0.0
Multi-Crop Parcels	*(included above)*			(139.1)	(139.1)
Turf Irrigation	642.9	3.50	2,250.3	0.0	2,250.3
IRRIGATION TOTALS	17,367.7		9,264.1	(622.5)	8,641.6

Residential and Commercial Parcels

Residential and commercial water demand was determined by analyzing all unique Assessor Use Codes in the Sonoma County parcel database and assigning reasonable water uses. These determinations were made by Permit Sonoma agency staff and informed by prior studies.

For residential uses, the primary assumption is that a single residence has a demand of 0.5 AF per year. In cases where a parcel contained more than one residential unit, additional units were assigned 0.25 AF per year. Examples of commercial uses range from warehouses at 0.5 AF per year, to churches at 2.0 AF per year, dairies at 5.0 AF per year and hospitals at 10.0 AF per year. Similar assignments were made for all residential and commercial use codes and applied across the parcel database.

It is assumed that parcels connected to a water system meet their demand via the water system. For parcels not connected to a water system, water demand for commercial and residential water use is assumed to be provided by a private water well. Note, unlike water demand for agricultural irrigation, surface water diversions or recycled water deliveries are not assumed to offset residential and commercial water use.

Public Water Systems

Public water Systems within each Basin were charged according to the exact amount of groundwater extraction they reported to the SWRCB. These charges were based on a five-year rolling average in order to smooth out any instances of drastic change in extraction each year. This average groundwater use was multiplied by the rate per AF to determine each PWS' annual charge.

Example rates for the Santa Rosa Plain Subbasin are shown below, calculated using the $40 per AF rate.

Table 3 - Santa Rosa Plain GSA Rate Examples

Annual Rate Examples				
50-Acre Vineyard	*30*	*AF*	=	*$1,200*
100-Acre Pasture	*4*	*AF*	=	*$160*
100-Acre Grain	*0.0*	*AF*	=	*$0*
5-Acre Food Crop (Truck)	*8.9*	*AF*	=	*$356*
Rural Residential	*0.5*	*AF*	=	*$20*

GUIDE Program

As a part of the development of this methodology, the Sonoma County GSAs developed an interactive online database for all parcels within the boundaries of their Basins. The Groundwater Users Information Data Exchange ("GUIDE") program provided the opportunity for well owners to view the data and assumptions held by the GSAs regarding their property. Well owners were provided the option to submit a survey if they deemed these assumptions were incorrect, which helped to shape the development of estimates and guide the corrections process.

While the management of this process required considerable time and resources, it helped to engage all groundwater users within each basin, identify errors and outliers, and refine the approach to estimation. The GUIDE program also acted as a means to regulate de minimis users pursuant to the SGMA. This was meant to fulfill the legal requirement provided by Water Code § 10730 regarding de minimis users.

Cosumnes Groundwater Authority

The Cosumnes Groundwater Authority ("CGA" or "Authority") is a joint powers authority consisting of seven GSAs within the Cosumnes Subbasin in Sacramento and Amador Counties. In July 2021 the Authority implemented a fee program to fund the costs of GSP development, GSP implementation, and Agency administration. While the Authority established its fee program as a joint powers authority, its implementation was handled by each of the respective GSAs.

General Characteristics

- Fee type: Water Code § 10730 Regulatory Fee
- Methodology: Irrigated Acreage
- Payor pool: Agricultural groundwater users only
- Agricultural Rate: $10 per irrigated acre
- City of Galt GSA contribution: $15,000
- Amador County GSA contribution: $5,000

Because the Authority did not project any capital costs within the first five years of the fee program, they elected to implement a 10730 Fee. As a heavily agricultural basin, CGA determined that a fee per irrigated acre fit their initial funding needs. This fee program does not include charges for residential or commercial use.

City of Galt GSA and Amador County GSA, each member agencies of the Authority, agreed to contribute dollar amounts separately from the irrigated acreage methodology. This is largely due to the fact that the City of Galt contains very few irrigated acres, while many parcels within Amador County GSA utilize surface water as their primary water source.

With a methodology of irrigated acreage, these rates were calculated by dividing the revenue requirement by the total irrigated acres, as shown below.

Figure 5 - Cosumnes Groundwater Authority Rate Equation

$$\frac{\text{Revenue Requirement (\$\$)}}{\text{Irrigated Acres}} = \text{Rate}$$ *Parcels Charged Based on Irrigated Acres*

Methodology

This fee program's approach is an excellent example of a simple and straightforward irrigated acreage methodology. The baseline data of locations and amounts of irrigated acres was determined using DWR's land mapping data, with additional ground-truthing and verification to identify errors.

CGA did not incorporate offsets for alternative water sources into this fee program. Recycled water is not prevalent within the Subbasin. Surface water is more prevalent within the Amador County portion, which currently contributes separately from the irrigated acreage methodology.

One of the constraints surrounding this approach is the challenge surrounding any effort to charge users other than agricultural parcels. CGA is currently exploring options to initiate an updated fee program that incorporates charges for residential and commercial users, as well as for public water systems. More detail on these considerations is provided below.

Future Considerations for CGA

The Authority is currently exploring options for an update to its funding mechanism, with implementation expected in the summer of 2024. While maintaining a methodology based on irrigated acreage, CGA is considering adding additional aspects to their approach that incorporate residential and commercial groundwater users. The Authority has also considered implementing a tiered rate that assigns crop types to rate tiers based on applied water use. Another potential change in their updated fee structure is the use of a 10730.2 Fee (property related fee) in order to fund forecasted capital costs in the coming years.

In order to charge residential and commercial users, CGA is considering a parcel-based administrative fee that would contribute about half of the Authority's administrative revenue need. At a rate of about $40 per groundwater using parcel, adding this methodology to their fee program would contribute about half of their annual administrative revenue need.

The Authority has also considered developing a tiered system that incorporates variations in water use into an irrigated acreage methodology. This approach would assign crop types to tiers based on applied water estimates. A draft irrigated acreage tier assignment is shown below for reference. Colors indicate the assigned tier; Tier one is shown in green, and tier two is shown in blue.

Table 4 - Cosumnes Groundwater Authority Potential Crop Tiers

New Crop Grouping	Tier	ET (AF/ac)		Applied Water (AF/ac)		Average AW
		CoSANA	ITRC	CoSANA	ITRC	
Vineyards	1	2.53	2.74	-	2.47	**2.14**
Misc. Truck and Field Crops	1	n/a	2.13	-	2.13	
Grain and Hay	1	1.58	1.57	-	1.59	
Corn, Sorghum or Sudan	1	2.48	2.38	-	2.35	
Almonds	2	3.8	3.28	-	3.16	**3.57**
Young Perennial	2	3.8	3.1	-	2.98	
Walnuts	2	3.8	3.1	-	2.99	
Other Deciduous	2	3.8	3.1	-	2.99	
Alfalfa and alfalfa mixtures	2	3.97	3.72	-	4.63	
Pasture	2	4.15	3.77	-	4.69	

Note: Applied water estimates were developed by Larry Walker Associates in collaboration with the Cal Poly State University San Luis Obispo Irrigation Training and Research Center ("ITRC").

While not as granular as estimated extraction, this would provide additional consideration of how much water is used by various crop types. To calculate parcel charges, the average applied water would be multiplied by a rate per AF and by the amount of crop grown. Additional calculation of a rate per AF would be necessary to incorporate this structure.

As noted above, irrigated acreage methodology does not generally incorporate considerations of water use or of non-agricultural groundwater users. The additional methodologies included here provide context for how an irrigated acreage fee can be altered to incorporate these other considerations.

Sacramento Central Groundwater Authority

The Sacramento Central Groundwater Authority ("SCGA" or "Authority") GSA manages roughly 70% of the South American Subbasin in Sacramento County. In June 2021, SCGA conducted a noticed public hearing to implement a fee program to fund GSP implementation. This program includes both a parcel fee charged to all parcels within the GSA's jurisdiction, as well as a fee based on extraction to all groundwater users. This two-pronged approach is a hybrid of an extraction-based methodology and a parcel-based methodology. Parcels using groundwater directly are referred to here as "groundwater users," while parcels served by PWS are referred to as "Customer Users."

It should be noted that charging parcels that do not use groundwater directly presents certain challenges. This fee methodology directly charges parcels that are served by public water systems that extract groundwater for distribution to their customers. Additionally, this methodology charges parcels that likely use no water, such as vacant land. This approach requires definitively establishing a reasonable relationship between those charged and the benefit received, or a nexus between those charged and the service provided. This is required under Prop 26 and Prop 218, respectively.

General Characteristics

- Fee type: Water Code § 10730.2 Property Related Fee
- Methodology: Hybrid — parcel fee and estimated extraction fee
- Payor pool: All parcels within the GSA jurisdiction
- Parcel fee rate: $2.80 per parcel
- Extraction rate: $3.81 per AF

As noted above, the SCGA parcel fee is charged to all parcels within the Subbasin, including those served by PWS. This fee structure grew from the realization that all parcels in the basin, regardless of groundwater usage, benefit from the GSA's governance and basin management. The approach also recognizes that parcels that are reliant on groundwater receive additional benefits from groundwater management and compliance with SGMA, and thus are charged both the parcel fee and the extraction fee. Within this hybrid methodology, rates are calculated in two ways, as shown below:

Figure 6 - Sacramento Central Groundwater Authority Rate Calculation Equations

$\frac{\text{Non-GW Revenue Requirement (\$\$)}}{\text{Total Number of Parcels}}$	=	Rate	*Parcels Charged Based on Access to GW*
$\frac{\text{GW Revenue Requirement (\$\$)}}{\text{Acre Feet Extracted}}$	=	Rate	*Parcels Charged Based on Allocated AF*

Methodology

In order to allocate benefits between all parcel owners and groundwater users, this approach relies on the eight DWR basin prioritization criteria which identify whether a basin is low, medium, or high priority. These criteria are based on various factors, some of which are related to groundwater extraction ("GW"), some of which are related to non-groundwater factors ("non-GW") and some of which are a blend of the two. The concept is to start with the actual basin prioritization points for each criterion, then allocate those points to either GW or non-GW category (or split between the two). The points in each category are totaled, and the annual revenue requirement is then prorated between the two categories and the fees are allocated based on the proration. The SCGA basin prioritization is shown below, with each criterion labeled as either GW dependent or non-GW dependent.

Table 5 - SCGA Basin Prioritization and Allocation of Budget

	Criteria	DWR Score	All Customer Users	GW Users
1	Population	3	3	0
2	Population Growth	4	4	0
3	# Public Supply Wells	4	0	4
4	Total # Wells	4	0	4
5	Irrigated Acres	3	2	1
6	Reliance on GW	3.5	0	3.5
7	Basin Impacts	2	0.24	1.76
8	Habitat	2	2	0
	TOTALS	25.5	11.24	14.26
	Percentage		**44%**	**56%**

Based on this separation of prioritization criteria, 44% of the budget is allocated to all customer users (charged through the parcel fee) and 56% of the budget is allocated to groundwater users (charged through the extraction fee). Notably, criteria such as population and population growth are not directly linked to groundwater users; rather, these characteristics of the Subbasin are based on all of its residents. The argument here is that all parcels within the Subbasin contributed to the scoring criteria that mandates a GSP be implemented in the first place. This also operates under the assumption that all parcels within the subbasin benefit from a sustainably managed aquifer.

The method of billing in this case has important legal implications. Water customers of a PWS that is a member agency of SCGA are not charged on the property tax rolls; in this case, the PWS is charged. These water purveyors pay their share of SCGA costs, and in turn can charge their customers as they see fit. Parcels served by a PWS that is not a member agency of SCGA are directly assessed through the property tax rolls. While charging the PWS (the actual extractor of groundwater) raises less legal concern, charging parcels on tax bills that do not directly use groundwater may introduce a degree of risk.

Extraction Fee

The Extraction portion of this fee program uses a slightly different approach than described in Section II of this Tech Memo. Agricultural residential parcels (defined as those 2 to 10 acres in size), are allocated two AF per year, similar to how the Sonoma County GSAs assigned a groundwater demand to residential and commercial parcels. This approach is less granular than full estimation based on crop type and amount. This makes for a simpler approach to smaller agricultural parcels, albeit with limitations on accuracy.

Agricultural parcels 10 acres or larger are charged according to an estimation of groundwater extraction. Similar to the Sonoma approach, SCGA determined extraction estimates by assigning an applied water amount to crop types and multiplying this amount by the total acres of a given crop. The Authority also employs a voluntary metering program for agricultural groundwater users. This encourages agricultural well owners to consider submitting metered data, in which case they are charged accordingly.

Another aspect of this fee program worth mentioning is that SCGA charged open space or vacant parcels. While the argument made here is that these parcels also benefit from the management of the Basin, some of these parcels may not use water at all. This also introduces risk under Propositions 26 and 218.

More detail is provided below regarding the user classes charged by SCGA.

Table 6 - SCGA User Classes and Charges

Agricultural Residential Parcels (2-10 acres)	Charged the parcel fee and allocated two AF per year.
Agricultural Parcels (10 acres or more)	Charged the parcel fee and the extraction fee according to crop type and acreage. Metered data used in voluntary instances.
Parcels connected to an SCGA Member PWS	Parcels not charged directly; PWS charged according to a five-year average of groundwater use.
Parcels connected to a non-SCGA member PWS	Parcels charged the parcel fee and allocated one AF per year.
Other urban customers (commercial, industrial, open space, etc.)	Parcels charged the parcel fee and allocated two AF per year.

IV. Community Engagement

Clear, concise, and appropriate community outreach is one of the most important elements for successful implementation of a funding mechanism. The basic message components need to be simple, clear, and transparent, and need to be well supported with detailed and substantive information. Credibility is the most important factor in this outreach.

Engaging Groundwater-Reliant Communities

One of the challenges GSAs face in engaging their communities is the relative nascency of SGMA and its goals, requirements, and constraints. Many communities in California are skeptical of new or expanded governmental authority, which adds to the difficulty in earning the trust of groundwater-reliant residents. Other challenges often include concerns of over-burdening agricultural operators and the manner in which funds are spent.

Groundwater in Napa County is a cornerstone of local identity. Efforts to preserve and improve the health of the Napa Valley Subbasin have been undertaken for more than half a century, which speaks to the importance of groundwater resources as a foundation to the culture and livelihood of all Subbasin residents.

While SGMA was developed at the State level, local management of groundwater is a cornerstone of its intended approach. This highlights the need to focus on local conditions, needs, preferences, and perspective. As such, one of the key elements of community outreach related to sustainable groundwater management is to focus on the specific characteristics of the Community a GSA serves.

Telling NCGSA's Story

An essential element of the approach to community outreach in the Napa Valley Subbasin should be to tell NCGSA's story. A focus on the history of the Subbasin, the GSA, and GSP, and current and future goals of the Agency, should inform many aspects of community engagement. This is true of NCGSA's efforts to become self-funded, but it is also relevant to all aspects of community outreach. This story, while sharing similarities with other basins, is unique to this Subbasin and its overlying communities. The importance of the Subbasin to local lifestyle, individual livelihood, and regional economic prosperity would be excellent focal points of this story.

A primary part of this story will likely be to clearly explain the need for the Agency, for the GSP, and for the development of a reliable, stand-alone funding mechanism to support these efforts.

Focus on Sustainability Goals

The administration of NCGSA, including day-to-day operations, monitoring, annual reports, etc., are important aspects of the work to ensure a sustainable Subbasin. Compliance with SGMA's regulatory requirements is necessary to avoid State intervention and ensure continued local control. The need to fund these elements of NCGSA activities should be framed as such, that the requirements set forth through SGMA must be fulfilled to implement the GSP according to plan and maintain local governance.

However, focusing on the projects and management actions described in the NCGSA GSP will be a key component of successful community engagement. In many communities, residents are often less interested in supporting the need for ongoing administration and are more engaged in discussions of concrete projects that will be implemented. A common question in community meetings related to GSA funding mechanisms, particularly in rural communities, is what extractors can expect to get for their money. A readiness to answer that question with specific projects and management actions that NCGSA has planned will lend itself to successful community outreach. Projects and management actions described in the Napa Valley Subbasin GSP should be highlighted, including Managed Aquifer Recharge, Expansion of Recycled Water Use, and various conservation programs.

Development of Communication Infrastructure and Messaging

The NCGSA should carefully evaluate and develop potential communication infrastructure, including coordinating with existing communication infrastructure. Stakeholder contacts, print media, website posts, social media, print publications, neighborhood groups, and newsletters, etc. are all viable means to disseminate messaging regarding funding mechanism implementation. The use of e-mail contacts (with HOA, neighborhood and stakeholder groups and leaders, and web-based platforms like nextdoor.com) is also encouraged.

In most cases, the most effective communication mechanisms for this type of infrastructure are small, local, and neighborhood-based, with personal communication or face-to-face discussion (as appropriate in the COVID-19 environment). This approach is not expensive, but it is a significant amount of work. It is also very effective when well executed.

The development of messaging and supporting information is an iterative process with staff, consultants, and community members. The use of social media graphics, newspaper ads, signage, and postcards developed during this process would serve as effective methods of disseminating the Agency's perspective and highlighting its efforts to manage groundwater sustainably.

Broad Community Outreach and Targeted Stakeholder Outreach

Within this process, it is imperative that both broad community-focused outreach, as well as specific stakeholder outreach are given their due attention. Engaging the community as a whole is important in order to achieve buy-in on a large scale. However, specific targeted outreach will likely be a key component of both achieving buy-in from larger-scale groundwater users, as well as obtaining valuable feedback on patterns of groundwater use and preferences of major extractors.

Broad community-wide outreach may include the aforementioned methods of disseminating messaging, as well as the planned community meetings set to take place in early 2024. Targeted stakeholder outreach may include correspondence and discussions with entities such as the Napa County Resource Conservation District, Napa County Farm Bureau, and other community or conservation groups. Engaging specific agricultural producers may also be beneficial.

Consider a Public Opinion Survey

The primary purpose of a public opinion survey is to produce an unbiased, statistically reliable evaluation of voters' and property owners' interest in supporting a local revenue measure. Should the Agency decide to move forward with a revenue measure (especially a property related fee, special tax, or benefit assessment), the survey data would provide guidance as to how to structure the measure so that it is consistent with the community's priorities and expressed needs. A survey that tests specific rates for a funding mechanism could also be helpful to the Agency as it further develops its approach to funding. While a survey can provide the Agency with valuable information, it will also be an opportunity to continue to build the groundwater "brand" in the community – a valuable early step in this process. Specifically, the survey would:

- Identify which aspects of NCGSA's services resonate most with groundwater users.
- Gauge current baseline support for a local revenue measure associated with specific dollar amounts. (How much are well owners/property owners willing to pay?)
- Expose respondents to arguments in favor of—and against—the proposed revenue measure to gauge how information affects support for the measure.
- Identify whether local residents prefer the measure as a fee or a tax.

Consider an Interactive Database

As mentioned above in the review of the Sonoma County GSA fee programs, the use of an interactive online database could be considered by NCGSA. Such a database would provide an opportunity for property owners to view NCGSA's data regarding their specific parcels and submit potential corrections. This would engage property owners and bring them into the process of database development. Such a database could also be developed to allow for reporting of groundwater use by well owners required to submit metered data.

While this process would be time-intensive and require additional resources, it would represent a significant effort to engage the Napa Valley Subbasin community. The cost and benefit of such an endeavor should be evaluated by NCGSA.

Loss of Local Control

SGMA requires that California's high and medium priority basins be managed sustainably. If locals are unable or unwilling to sustainably manage their basin, the State Water Resources Control Board can step in to protect groundwater using a process called state intervention. The loss of local control represents not only a lack of community input in the management of a basin but would also likely mean a higher local cost burden. It is important to share this potential outcome with the community during the outreach process. However, this should be framed carefully, as some groundwater extractors may perceive this as a threat. Rather, it should be presented in a manner conducive to the idea that it is mutually beneficial for the GSA to maintain local control and avoid the process of intervention.

Little is known about how the specific processes of state intervention are implemented. The first six cases of this process began in March 2023. The State's current Intervention Fees are shown below for reference.

Table 7 - State Water Board Intervention Fees, 2020

Fee Category	Fee Amount	Applicable Parties
Base Filing Fee	$300 per well	All extractors required to report (excluding de minimis users)
Unmanaged Area Rate	$10 per AF (metered) $25 per AF (umetered)	Extractors in unmanaged areas (excluding de minimis users)
Probationary Rate	$40 per AF	Extractors in probationary basins (excluding de minimis users)
Interim Plan Rate	$55 per AF	Extractors in probationary basins where an interim plan is required (excludes de minimis extractors).
De Minimis Fee	$100 per well	De minimis extractors in probationary basins
Automatic Late Fee	25% per month	Extractors that do not file reports by the due date

Source: https://www.waterboards.ca.gov/water_issues/programs/sgma/reporting_and_fees.html

V. Summary

Many factors contribute to an effective fee methodology and successful fee implementation. Determination of the optimal funding mechanism and associated methodology is an iterative process that will rely on input from staff, consultants, the Board, Technical Advisory Group, and community members. This Tech Memo is intended to provide a solid foundation on which NCGSA can make informed decisions going forward during the development of a reliable, stand-alone funding mechanism in support of GSP implementation.

As detailed above, each funding mechanism type and methodology produce different implications in terms of various factors. Flexibility of methodology, cost of implementation, revenue generation potential, political viability and community acceptance, legal rigor, and efficiency of administration are all examples of key attributes that should be considered in the context of the needs of the Napa Valley Subbasin community and NCGSA. Tables 9 through 11 below provide a summary of these key attributes, as discussed in detail in this Tech Memo.

Table 8 - Funding Options Summary Table

Funding Mechanism	Revenue Generation Potential	Balloting Requirement	Payor Pool	Methodology Options
Water Code § 10730 Fees (Regulatory Fees) *Legal Apparatus:* • Water Code § 10730 • CA Constitution Articles XIII A and C	Can fund administrative costs, including program administration and a prudent reserve. *Cannot* fund capital projects.	No balloting requirements. Fees imposed by ordinance and resolution.	Likely all groundwater-using parcels only. Charging de minimis wells requires regulation of these users.	Charges based on AF extracted (including estimation), irrigated acres.
Water Code § 10730.2 Fees (Property Related Fees) *Legal Apparatus:* • Water Code § 10730.2 • CA Constitution Articles XIII A, C, D	Can fund *both* capital and administrative costs, including "all activities necessary or convenient" to implement a GSP.	**For water-related services:** Mailed notice of Protest hearing to all affected **property owners**. Fees can only be imposed if **< 50% protest** is submitted. **For non-water-related services:** All-mail balloting of affected property owners. Fees can only be imposed if **> 50% support** is attained.	Likely all groundwater-using parcels only.	Charges based on parcels or acres with the option of tiered fees based on land use or groundwater use. Potential consideration of extraction or irrigated acres.
Special Taxes *Legal Apparatus:* • No reference in the CA Water Code • CA Constitution Articles XIII A and C • CA Government Code § 50075	Can fund *both* capital and administrative costs.	Balloted at the polls. Requires **2/3 support** of **registered voters**.	Flexible. Likely all subbasin parcels.	Parcel-based charges; potential variations for residential, agricultural, and commercial parcels.
Benefit Assessments *Legal Apparatus:* • No reference in the CA Water Code • CA Constitution Articles XIII C and D	Can fund *both* capital and administrative costs.	All-mail Prop 218 balloting. Requires **> 50% support** of **property owners**.	Likely all groundwater-using parcels only.	Charges based on AF extracted or irrigated acres.

Table 9 - Funding Options Advantages and Challenges

Funding Mechanism	Advantages	Challenges
Water Code § 10730 Fees (Regulatory Fees)	• Quick and inexpensive to adopt. No noticing nor balloting is required. • Revenue generation is likely sufficient to fund administrative costs.	• Cannot fund capital projects. • Potential for "push back" from affected well owners against fees. • Potential legal scrutiny if fee covers non-eligible activities. • Payor pool likely limited to direct groundwater users.
Water Code § 10730.2 Fees (Property Related Fees)	• Revenue generation is appropriate to fund all aspects of GSP implementation costs (administrative and capital). • Process is exempt from the costs and political risks of balloting. • Cost of implementation is relatively low and includes a fee study, a mailing, and additional outreach.	• More involved process. The 45-day mailed notice period and potential balloting period require more consideration of timing. • Politically challenging. Failing to attain less than 50% protest, or less than 50% ballot support (depending on the service provided) would prevent the fee program from being implemented. • Unfamiliar Process. Property owners may be generally unfamiliar with the process, and opponents can exploit this. • Payor pool likely limited to direct groundwater users.
Special Taxes	• Revenue generation is appropriate to fund all aspects of GSP implementation costs (administrative and capital). • Flexible payor pool. A special tax could be imposed on all Subbasin parcels.	• Political support at the required rate and revenue may be difficult. The two-thirds majority threshold for approval is very politically challenging. • High implementation cost; money is not recouped if measure fails. • Extensive process; placing a measure on the ballot would likely take 1-2 years.
Benefit Assessments	• Revenue generation is appropriate to fund all aspects of GSP implementation costs (administrative and capital). • All-mail balloting is often less expensive than balloting at the polls.	• Strict proportionality requirements would demand precise quantification of benefits across all groundwater users. • Political support at the required rate and revenue may be difficult. The 50% majority threshold for approval, while less than the two-thirds required by special taxes, still represents a challenge. • Unfamiliar process. Property owners may not be aware of the process and requirements of an all-mail assessment balloting.

Table 10 - Methodology Options Advantages and Challenges

Methodology	Advantages	Challenges
Parcel-Based Charges	• Simpler; easier to convey to the public. • Efficient administration; Easier to update. • Less fluctuation in annual revenue. • Can be used in tandem with other approaches.	• Must be established that fees are not a tax in accordance with Props 26 and 218. • Flat parcel fees or fees based on overall acreage would not be dependent on amount of water use. • Must determine appropriate proportionality requirements.
Extraction (Including Estimated Extraction)	• Accounts for all GW users. • Crop dependent for agricultural users (more pumping would produce a higher fee). • Credits can be applied for surface and recycled water. • More granularity provides a thorough attempt to identify benefit provided (proportional to amount of groundwater used).	• More complex; more difficult to convey to the public. • Annual administration requires comprehensive updates (utilizes multiple datasets; availability of updated data varies). • Limited extraction data available (Extraction must be modeled). • More granularity introduces the possibility of more appeals. • Greater fluctuation in annual revenue.
Irrigated Acreage	• Simpler; easier to convey to public. • Efficient administration; Easier to update. • Less fluctuation in annual revenue. • Can be used in tandem with other approaches.	• Standard methodology does not account for non-agricultural users (additional methodology would be required). • Standard methodology is not crop dependent (additional methodology related to groundwater use would be required).