SGMA Implementation Round 2 Grant Solicitation

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Proposal Name*	**Cosumnes GSP Project Planning & Monitoring Update**			
Proposal Objective*	Implement aspect of the Groundwater Sustainability Plan			

Component Name	Budget
1 – Grant Administration	Not to exceed 10% of total
2 – Recharge Well Planning Design and Development	$800,000 – $1,500,000
3 – Recharge Pilot Studies Planning	$1,000,000 – $1,500,000
4 – Groundwater Monitoring Improvement Planning	$600,000 - $800,000
5 – Conservation Demonstration Projects	$600,000 – $900,000
6 – GSP 5 Year Update	$500,000 - $600,000
Total	**$3,500,000 - $5,300,000**

COMPONENT 2

APPLICATION WORK PLAN, BUDGET, AND SCHEDULE – RECHARGE WELL DESIGN AND DEVELOPMENT

Grant Proposal Title: Cosumnes GSP Project Planning & Monitoring Update

Applicant: Cosumnes Groundwater Authority

A. General

1. Provide Project or Component Description

Background

Vadose zone recharge wells are an emerging technology that could contribute to ongoing managed aquifer recharge (MAR) throughout the Central Valley. The groundwater sustainability plans (GSPs) for the South American and Cosumnes subbasins identify operation of recharge wells adjacent to the Folsom South Canal (FSC) and natural water conveyance systems as a promising and important approach for achieving sustainable groundwater management in these subbasins (Cosumnes GSP Section 18.2.1 and 18.2.4; SASB GSP Section 4.4.2 and 4.5.1). Such a recharge effort, supplied by winter floodwater captured in Folsom Reservoir and conveyed down the FSC or from other sources not yet identified, could also contribute to the ecological health of the American and Cosumnes Rivers and the South American and Cosumnes Subbasins. Benefits to the ecology of the American River would occur through groundwater substitution for municipal use where a portion of the water recharged during the winter could be extracted in the summer instead of being drawn from the river. Benefits to the ecology of the Cosumnes River would occur from enhanced baseflow where a portion of recharged water could increase the rate and duration of groundwater discharge to the river.

For recharge wells to make a significant contribution to the water budgets in these subbasins and elsewhere in the Central Valley, individual well projects must be scaled up into programs that include a large number of wells in a time-efficient and cost-effective manner. To that end, the Sacramento County Groundwater Authority (SCGA) and the Cosumnes Groundwater Authority (CGA) are coordinating their requests for GSP Implementation grant funding to create an economy of scale and answer the technical questions common to potential recharge well projects in diverse geophysical conditions.

The goal of the recharge well project is to proactively address technical uncertainties and develop a streamlined process for site selection and facility design/construction. The primary drivers of uncertainty and their significance are:

- Hydrogeology of potential recharge well sites: Characteristics key to the viability of recharge operations include sediment type and structure conducive to rapid and deep infiltration as well as space availability for storing recharged water. Such aspects of potential recharge sites must be understood so that time-efficient screening can be conducted regarding 1) the value of installing a well at a particular site and 2) the required well depth for bypassing impediments to downward flow through the unsaturated zone (e.g., laterally extensive clay or hardpan layers).
- Well design for acceptable recharge rates: In addition to depth, well diameter is an important performance and cost driver. The tradeoff between well diameter, available space in the well for head buildup, and infiltration rate must be understood to select the smallest appropriate well diameter for cost-effectively achieving reasonable recharge rates.
- Source water quality characteristics: Understanding characteristics of the water used for recharge (e.g., total suspended solids load, inorganic constituent content including hardness, bacterial load, and potential for contaminants) is essential for the success of any recharge effort. This information relates to the potential need for pretreatment and maintenance requirements/frequency that drive costs.

We propose to develop guidance on these issues that will inform future work in the South American and Cosumnes subbasins. This information will make it possible to achieve recharge at scale in these subbasins and will likely be beneficial to other GSAs working to develop recharge well projects in other subbasins.

Recent Work Contributing to the Proposed Planning Component

Initial steps have been taken during the last two years to address the information needs discussed above. This recently collected information forms the foundation of the proposed work in this grant application.

- Cosumnes Subbasin: The Omochumne-Hartnell Water District (OHWD), one of three agencies acting as a GSA in both the Cosumnes and South American subbasins, has partnered with Sacramento Area Flood Control Agency (SAFCA) to conduct a recharge well pilot project on a portion of the Laguna Del Sol Resort (LDSR) located in the Cosumnes Subbasin along the FSC near its confluence with the Cosumnes River. The well site and depth was determined based on a land surface based, electrical resistivity tomography (ERT) geophysical survey. The 48-inch diameter recharge well is supplied recharge water from a nearby, previously-existing supply well. After some initial testing, the recharge well began operating on a continuous basis in mid-October and has proved capable of sustaining an inflow of between 200 and 375 gallons per minute (gpm) over a 5-day period. A long-term, 30-day test is currently being developed. As discussed below, these initial data and the well will be used to 1) characterize hydrogeologic conditions in the FSC corridor and 2) evaluate appropriate well diameters for future well design.
- South American Subbasin: Several miles to the north at the publicly-owned Mather South property along the FSC, the SCGA has partnered with the SAFCA and the Department of Water Resources (DWR) Sustainable Groundwater Management Office, Technical Support Services to collect subsurface data for evaluating hydrogeologic conditions related to potential recharge operations. The data consists of a land surface based, towed time-domain electromagnetic (t-TEM) geophysical survey as well as continuous sediment coring at two locations. As discussed below, these data will be used to characterize hydrogeologic conditions in the FSC corridor.

Proposed Planning Component

The proposed planning component includes two elements. First, recharge well design and siting guidance will be developed by furthering ongoing work at the LDSR site. Second, this guidance will be tested and refined by deploying two recharge wells at sites near the FSC along its lower reach north of Laguna Creek.

Work at the LDSR Site

A range of site selection and recharge well design investigations will be performed at the LDSR site as follows:

- With respect to site selection, the investigative work will focus on developing and testing a method to interpret the geophysical surveys. Developing the interpretive method will include correlating geophysical survey data and continuous sediment core data from the LDSR and Mather South sites; using available drilling logs from the United States Bureau of Reclamation (USBR) construction planning for the FSC and other readily-available information on the local geology to further refine interpretation of the geophysical survey results; and developing a framework for interpreting sediment type and structure from ERT and t-TEM geophysical surveys.
- Testing the interpretive method will entail constructing new wells at the LDSR site at a location selected based on geophysical survey data and comparing well performance with expectations from the interpretation of the geophysical data. With respect to well design, the new recharge wells installed at the LDSR site will include a combination of large- and small-diameter wells (approximately 48 and 4 inches, respectively). The small-diameter wells will be constructed at the existing recharge location. Construction of recharge wells at a second LDSR location will be based upon data collected from the proposed small-diameter wells and the existing large-diameter well. The performance of these wells will be compared based on sustained infiltration rate and water level increase in the wells over the one-year testing period to determine whether lower cost small-diameter wells could serve as an alternative to the standard large-diameter recharge well design.

Recharge Well Deployment Outside the LDSR Site

Based on the results of the investigative work at the LDSR site, two sites for recharge well pilot testing will be identified in the lower 9 mile reach of the FSC corridor south of the Cosumnes River and north of Laguna Creek. Outreach will be conducted so site selection can focus on landowners who have an interest in collaboration, land available for well construction, and supply wells with sufficient capacity (e.g., production rates exceeding 300 gpm) to provide temporary sources of water for recharge well testing. Several potential sites have already been identified and outreach to the landowners will occur in the first year while the well configuration research occurs at the LDSR site. An airborne electromagnetic (AEM) survey of a portion of this reach of the FSC corridor (approximately 2 miles) was conducted in 2022 as part of DWR's AEM Survey Project in the Central Valley. We propose to conduct a follow-on AEM survey of the remaining 7 miles to add an additional layer of geophysical data to the site screening approach developed through the process described above. Based on this screening approach, well site locations will be selected and depths specified for recharge well installation at two locations. The design of these wells will be modified, as appropriate, to improve hydraulic performance and cost-effectiveness based on observations from the first year of operations at the LDSR site. Well piping and instrumentation will be temporary and easily removable to accommodate management practices of the landowner. The constructed recharge wells will be pilot tested during the winter period (November to March).

Collaborative Contribution to Grant Funded Work

In addition to work accomplished with the requested grant funds, the proposed planning project will take advantage of in-kind services provided by the U.S. Department of Agriculture, Agricultural Research Service, Sustainable Agricultural Water Systems (SAWS) Unit in Davis, California. SAWS conducts field and modeling studies on the use of unsaturated zone wells to enhance infiltration and groundwater recharge at sites in the southwestern United States including several locations in the Central Valley. Modeling results indicate that small-diameter wells (approximately 4 to 8 inches) can be a cost-effective alternative to the large-diameter wells (approximately 48 inches) more commonly in use. The unit is particularly interested in field testing small-diameter recharge well designs that can be economically deployed in agricultural settings adjacent to irrigation canals. In combination with the above-described grant-funded activity, SAWS will perform the geophysical surveys (t-TEM or ERT as appropriate based on site features and potential sources of interference) for initial site screening and well placement. Existing literature on recharge well design and siting will be reviewed. In addition, a set of research activities at the LDSR site will focus on characterizing the hydraulic properties of the sediments (e.g., hydraulic conductivity and porosity) at each well location; creating resistivity maps to track water migration through the unsaturated zone; correlating the hydraulic properties with the resistivity map to estimate the spatial distribution of saturated hydraulic conductivity; and using the resulting saturated hydraulic conductivity estimates to model infiltration and recharge scenarios at the site.

2. 2B – Planning Project/Components Only: Description of planning project/component is well-coordinated.

Comments on GSP: This component does not address DWR comments on the GSP.

Data Gaps: The data generated in this component will inform the design and implementation of groundwater augmentation from wet year supplies projects identified in the Cosumnes GSP (Section 18.2.1 and Section 18.2.4) to improve groundwater levels and storage volumes and enhance attainment of sustainability goal in GSP Section 2 which is in part "to ensure that groundwater in the Basin continues to be a long term-resources for beneficial users and uses." Flood-MAR is also a Project and Management Action in the SASb GSP. This component is a necessary pilot project for further implementation of managed aquifer recharge projects and is being coordinated between the two subbasins, with entirely separate scopes of work that will complement one another and leverage the results for the most cost-effective results if both SGM proposals are funded. This component will help inform recharge well siting, which information will be directly applicable to the SASb grant proposal if that proposal is funded.

This component will test recharge well infiltration rates and recharge water quality implications. Regional Flood-MAR is in the American River Basin Integrated Regional Water Management Plan and the federally-funded American River Basin Study. Flood-MAR is also compatible with goals of the Central Valley Flood Protection Plan, the state Flood-MAR initiative, the state Water Resilience Portfolio, and Governor Newsom's Executive Order N-10-19.

Feasibility of GSP implementation: This component will assist in implementation of the GSP because implementing and maximizing the benefits of the identified recharge Project and Management Action (PMA) will require the data and guidance this project will develop.

3. Provide a regional and Project/Component map(s).

The Regional Map appears in Attachment 4 page _____ and the Component Map appears in Attachment 4 Page ____.

4. Explain if the proposed Project or Component will benefit an URC, Tribe or SDAC.

The component will benefit Underrepresented Communities (URCs). Attachment 4 Page ___ shows a map of URCs in the subbasin. By land area, __% of the subbasin is designated as high priority for assistance and __% is moderately high.

The component will benefit Severely Disadvantaged Communities (SDACs). A map of Disadvantaged Communities (DACs) and Severely Disadvantaged Communities (SDACs) is presented in Attachment 4 Page ____. By land area, __% of the subbasin is in a SDAC. However, the population is denser in the identified SDACs, so they represent __% of the population in the subbasin, or about ____ people based on the population estimate of ____ in the Cosumnes GSP.

Benefits of the component are expected to be distributed subbasin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, so approximately $_____ of the project budget will benefit the SDACs if calculated on a per-acre basis or $_____ on a population basis.

5. Describe positive impacts to small water systems or private shallow domestic wells.

From Section 2 of the GSP, "The Sustainability Goal of the Cosumnes Subbasin is to ensure that groundwater…continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural, industrial, environmental, and others." Section 14.1 of the GSP states that "Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon." GSP Section 5.1.5 reports that there are 2,258 domestic wells

in the subbasin, far more than the number of production (433) or public (23) wells in the subbasin. Stable water levels ensure groundwater accessibility to existing wells and protects against pump and well failure. Domestic wells are typically the most vulnerable to water level decline below the top of well screen because they are often drilled shallower due to lower water use requirements and financial constraints. Recharge projects such as this Component will make feasible will help stabilize groundwater levels and ensure a reliable water supply for all users.

The component's contribution to the stability of groundwater will also help address the needs of the Safe and Affordable Fund for Equity and Resilience (SAFER) program. SAFER prioritizes funding based on a 2022 Drinking Water Needs Assessment. Maps that accompany the 2022 assessment show that areas around Galt are at-risk for water shortage issues and that areas south of Sloughhouse and near Ione and in the southern portion of Amador County are potentially at risk for water shortage issues, as shown in Attachment 4 Page ____. In addition, areas near Twin Cities, South of Sloughhouse, and north of Ione are at risk for water quality issues.

6. Describe how the proposed Project or Component addresses the Human Right to Water (AB 685 Section 106.3) and supports the established policy of the State that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes.

As noted in the response to question 5, above, the component will contribute to the sustainability of the groundwater basin and the stabilization of the groundwater table in fulfillment of the GSP sustainability goal. This will in turn meet the state policy expressed in Water Code Section 106.3 that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Furthermore, the State Water Board adopted a resolution in February 2016 stating in part that it would work "to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." The stabilization of the groundwater table will contribute to this goal by helping sustain the estimated 2,258 domestic wells in the subbasin.

PROJECT/COMPONENT DETAILS

B. Scope of Work and Deliverables

7. Include in the Work Plan a complete description of all tasks that will be completed as part of this grant Project or Component. Tasks associated with the Project or Component but not funded by potential grant funds from this

(a) Grant Agreement Administration

[to be added]

(b) Environmental / Engineering / Design

Task 1: Gather Continuous Sediment Core Data: Use sonic drilling methods to obtain one continuous sediment core immediately adjacent to the existing recharge well at the LDSR site.

Deliverable: One continuous core sample obtained at a depth of up to 350 feet.

Task 2: Correlate Sediment Core and Geophysical Survey Data: Correlate the sediment core data from the LDSR site with electromagnetic resistivity tomography (ERT) survey data previously gathered at the site and compare the results to a similar correlation of sediment core and geophysical survey data gathered at the Mather South site in the SASb. Prepare a summary report on interpreting geophysical survey data.

Deliverable: Summary report on interpreting geophysical survey data.

Task 3: Select Locations for Additional Recharge Wells at the LDSR Site: Using the approach outlined in the summary report, conduct a geophysical survey of the area around the irrigation well at the LDSR site, interpret the survey data, and select locations to install one large diameter and one small diameter recharge well.

Deliverable: Map of new recharge well locations at the LDSR site.

Task 4: Design Recharge Wells: Based on the performance of the existing large (48 inch diameter) recharge well at the LDSR site, design the new large recharge well to be installed at the site and coordinate with the SAWS Unit (UC Davis) as they design two small (4 to 8 inch) recharge wells for installation near the existing large (48 inch) recharge well and the new large recharge well. Work by SAWS itself is not a part of the grant scope or budget.

Deliverable: Plans and specifications for the new large recharge well at LDSR.

Task 5: Conduct AEM Survey of FSC Corridor South of the Cosumnes River: Identify the portions of the FSC corridor south of the Cosumnes River that were not covered by DWR's AEM Survey Project; arrange an AEM survey of these areas; and identify the areas that appear suitable for recharge well installation.

Deliverable: Results of AEM survey.

Task 6: Outreach to Landowners: Correlate areas suitable for recharge wells with land ownership and existing groundwater wells in the vicinity of the FSC. Reach out to landowners and identify those willing to make their wells available during the winter season for the project.

Deliverable: Map of suitable sites.

Task 7: Secure Two Sites for Recharge Well Installation Outside LDSR: Secure appropriate rights of entry agreements for access to the selected sites and use of the groundwater wells at these sites.

Deliverable: Rights of entry agreements.

Task 8: Environmental Permitting: Register all new recharge wells as Class V Underground Injection Control Wells with the United States Environmental Protection Agency (EPA). File California Environmental Quality Act (CEQA) Notice of Exemption with the State Clearinghouse.

Deliverable: Well Registrations.

(c) Implementation / Construction

Task 9: Install and Operate Recharge Wells: Issue request for bids to construct the new recharge wells at the LDSR site based on the plans and specifications prepared under Task 4. Award a contract to the lowest qualified bidder. Manage construction contract. Upon completion of construction, operate each recharge well for 90 to 100 consecutive days for two consecutive years during the winter season (November 15 to March 15). Based on the performance of these wells, design two recharge wells for installation at the sites secured for this purpose under Task 7; prepare plans and specifications for these wells; issue a request for bids to construct these wells; and award a construction contract to the lowest qualified bidder. Upon completion of construction, operate each recharge well for 90 to 100 consecutive days for two consecutive years during the winter season (November 15 to March 15).

Deliverable: As-built documents for each recharge well.

(d) Monitoring / Assessment:

Task 10: Monitor Recharge Well Infiltration Capacity: Use flowmeters to measure the volume of water entering each recharge well; pressure transducers to monitor the water level in each well as a function of time; and dataloggers and a cellular phone system to monitor flow rates, water levels and the cumulative volume of water infiltrated into the ground over a 90 to 100-day period.

Deliverable: Estimate of the rate of infiltration of recharge wells over a 90 to 100-day period under different geophysical conditions.

Task 11: Monitor Movement of Infiltrated Water Through the Vadose Zone: Use electrical resistivity tomography (ERT) survey equipment to monitor the movement of the water infiltrated by the recharge wells at each site through the vadose zone.

Deliverable: Estimate of the movement of infiltrated water through the vadose zone over a 90 to 100-day period under different geophysical conditions.

Task 12: Prepare Summary Assessment: Prepare a report (1) summarizing the lessons learned and providing guidance on recharge well design and site selection and (2) describing the results of the recharge pilot tests at the LDSR site and the two selected sites outside LDSR including estimated infiltration rates under differing geophysical conditions and the movement of the infiltrated water through the vadose zone at each site.

Deliverable: Summary Report.

(e) Engagement / Outreach

[to be added]

C. Budget (maximum of 1 point possible)

Complete the Budget Summary Table using the template provided (below). You must also include a ranking system using the template provided by the SGM Grant Program. The ranking table will not be scored, but will be used when developing the draft and final award list. You may use a maximum of 2-pages using Arial, 10-point type font, to justify the budgets provided.

8. (1 point) Provide a completed budget summary table using template below.

Component X: <enter title>

Component X serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☒DAC, ☒SDAC, ☐Tribe, and/or ☒Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	$
(b) Environmental / Engineering / Design	$40,000
(c) Implementation / Construction	$530,000
(d) Monitoring / Assessment	$213,000
(e) Engagement / Outreach	$
Total:	**$**

D. Schedule (maximum of 1 point possible)

Complete the Schedule Table using the template provided (below). The Schedule Table must not exceed a TOTAL of 2 pages using a minimum Arial, 10-point type font.

9. (1 point) Provide a completed schedule table using template below.

Component X: RECHARGE WELL PLANNING PROJECT COMPONENT	January 1, 2023	January 31, 2025
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	08/01/2023	07/15/2024
(c) Implementation / Construction	11/15/2023	03/15/2025
(d) Monitoring / Assessment	03/15/2024	03/15/2026
(e) Engagement / Outreach	MM/DD/YYYY	TBD

Plan for environmental compliance and permitting:

This component is exempt from the CEQA under Categorical Exemption Class 6 (CEQA Guidelines Section 15306, Information Collection). At the completion of Tasks 3 and 7, this will be evaluated for the selected sites. Sacramento County Environmental Management Department requirements for well permits will be reviewed prior to drilling and well permits will be acquired if needed.

No land acquisitions are planned. Temporary rights of entry will be negotiated with landowners for selected sites, and the willingness of landowners to issue such rights will be a selection factor in Task 7.

COMPONENT 3

APPLICATION WORK PLAN, BUDGET, AND SCHEDULE – RECHARGE PILOT STUDIES PLANNING

Grant Proposal Title: **Cosumnes GSP Project Planning & Monitoring Update**

Applicant: **Cosumnes Groundwater Authority**

A. General

1. Detailed Component Description (4 points)

Detailed Component Description: Component Overview

The Cosumnes Subbasin (herein referred to as the "Basin") is a medium priority basin located in Sacramento and Amador Counties and is required to comply with the Sustainable Groundwater Management Act (SGMA). As shown in **Figure 1** in Attachment 4, the Basin is fully covered by seven Groundwater Sustainability Agencies (GSAs), with each being the exclusive GSA in its portion of the Basin. The GSAs are: (1) City of Galt GSA; (2) Galt Irrigation District (GID) GSA; (3) Clay Water District GSA; (4) Sloughhouse Resource Conservation District (SRCD) GSA; (5) Omochumne-Hartnell Water District (OHWD) GSA; (6) Amador County Groundwater Management Authority (ACGMA) GSA; and (7) Sacramento County GSA. Through the formation and administration of the Cosumnes Groundwater Authority (herein referred to as "CGA" or "GSAs"), the seven GSAs are working together to implement one coordinated Groundwater Sustainability Plan (GSP) for the Basin. Therefore, although the applicant for this Grant is CGA, this Component represents the goals, objectives and needs identified by all seven GSAs.

The GSP considered several actions that increase groundwater recharge in *Section 18.2.4 Other PMAs*. These projects rely on surface water originating as stormwater flows to the basin to augment groundwater recharge, but at the time of GSP development project concepts were not developed enough to estimate costs and benefits. Since GSP submittal, the GSAs have used the numerical model, utilized for the GSP, to complete a preliminary analysis of potential water volumes available to projects that capture and infiltrate stormwater flows in surface drainages or from agricultural fields. The numerical model results indicated that surface water diversions from creeks in the Basin could increase recharge by more than 3,000 acre-feet per year (AFY) on average. The GSAs would like to build off of their ongoing Laguna Del Sol Resort (LDSR) Recharge Pilot project to expand recharge activities that have a high likelihood for success and value to the Basin. The Recharge Pilot Studies will focus on two types of recharge studies: 1) Local Diversion Projects and 2) On-Farm Stormwater Capture Projects.

Detailed Component Description: Local Diversion Projects

Using the numerical model, a preliminary analysis determined the amount of water potentially available for diversion from Badger, Laguna, Hadselville, Jackson, and Dry creeks. The analysis concluded that from Water Year 1990 through 2021, the amount of available water ranged from 3 to 73,000 AFY with an average annual amount of 21,300 AFY; Approximately 85% of the available water is in Dry and Laguna Creeks. Much of the flows cannot be captured and stored quickly enough without significant land acquisition and infrastructure investments, and on average 3,600 AFY likely could be diverted and infiltrated. Potential projects could include agricultural field spreading, recharge basins, floodplain inundation, and/or dry wells.

The first task is to locate potential recharge sites along Dry Creek and Laguna Creek. The goal will be to systematically screen the creek corridors to identify up to four suitable recharge and/or restoration sites. Site selection will consider location, surface and subsurface hydrogeologic conditions, and existing infrastructure to measure groundwater level changes (wells), divert runoff, convey the water from the creeks, or provide opportunities for multi-benefit floodplain rehabilitation through levee modifications (setbacks and/or breaching) or topographic modification. The sites must also have access to extraction wells so that groundwater can be used as a test source for water should permits for diversions be delayed or low rainfall conditions result in below average creek flows.

Agreements will be developed with cooperating landowners to secure access for confirmation studies and permitting diversions for the groundwater recharge projects. Confirmation studies can include geophysical investigations, infiltration tests, aquifer tests, water quality testing of both the groundwater and source water, and so forth. The local diversion projects will be located along the surface water features of the Basin and will seek water rights under the California Department of Water Resources (DWR) streamlined permitting process for groundwater recharge. The streamlined process can apply to diversions during high flow events occurring under the following conditions: limited to the period between December 1st and

March 31st; streamflow at the point of diversion is above the 90th percentile; and the diversion does not exceed 20% of the total streamflow.

Once sites are confirmed one to three suitable the local diversion pilot projects will be designed. Once the project designs are finalized any needed construction of diversion and/or recharge facilities will take place. Project operations will rely on either permitted diversions, or locally produced groundwater to confirm suitable infiltration rates and measure the benefits to groundwater storage indicated by water level changes. To monitor and quantify results from the pilot projects, stream gauges will be installed on the appropriate creek reaches, and monitoring wells will be established (either existing wells or constructed for the pilot study) and instrumented with appropriate monitoring equipment. Data collected during the site suitability assessment and from the demonstration projects will be incorporated into the Basin's Data Management System (DMS) and appropriate numerical model input data files will be updated accordingly. Once sufficient data is collected from the local diversion pilot projects, Best Management Practices (BMPs) summarizing the outcomes and lessons learned from the projects will be developed to provide guidance for future recharge projects in the Basin.

Detailed Component Description: On-Farm Stormwater Capture Projects

On-Farm Stormwater Capture pilot projects can be constructed to increase recharge beneath areas located away from the creeks and streams. These projects will focus on capturing stormwater runoff from farmlands and conveying it to spreading basins and/or dry wells. Using soil data from the hydrogeologic conceptual model (HCM) of the GSP and runoff estimates from the numerical model, potential recharge sites will be identified. Sites will be prioritized that produce high runoff volumes and are accessible to acceptable soil conditions to optimize infiltration rates. For demonstration purposes, site selection will include properties that have access to wells, so that if stormwater is unavailable during the study period, groundwater can be used to quantify infiltration rates and obtain useful test data. Once potential recharge sites are determined, the GSAs will approve the most promising sites and develop agreements with the cooperating landowners. The GSAs will then conduct confirmation studies that may include geophysical studies and borings to confirm acceptable subsurface conditions. Once sites are confirmed one to three suitable On-Farm Stormwater Capture pilot projects will be designed. Once the project designs are finalized any needed construction of recharge facilities will take place. Monitoring sites will be developed from existing wells or newly constructed wells to track the water table response and estimate storage changes from recharge events. Necessary instrumentation will be installed to measure water levels and the volumes and quality of captured water that percolates into the subsurface. Data collected during the site suitability assessment and from the demonstration projects will be incorporated into the Basin's Data Management System (DMS) and appropriate numerical model input data files will be updated accordingly. Once sufficient data is collected from the On-Farm Stormwater Capture pilot projects, BMPs summarizing the outcomes and lessons learned from the projects will be developed to provide guidance for future recharge projects in the Basin.

Component Goals, Objectives, and Needs

Goals. The goal of the Recharge Pilot Studies component is to capture and infiltrate local stormwater runoff to augment groundwater and increase the sustainable yield of the Basin.

Objectives. The objectives of the Recharge Pilot Studies component are (1) identify areas with sites suitable for recharge projects; (2) utilize example (pilot) projects to quantify the potential infiltration benefit achievable with local diversion projects and on-farm stormwater capture projects; (3) develop guidance and Best Management Practices (BMPs) to transition the pilots to permanent projects and direct the design of new projects (for example, guidance and recommendations on the use of infiltration ponds, spreading basins and fields, and dry wells); and, (4) recommend policies that incentivize landowners to voluntarily expand stormwater capture projects in the Basin.

Needs. Table WB-8 of the GSP "Estimated Sustainable Yield for Selected Time Periods" indicates that during 1999-2018, average annual estimated pumpage (131,2000 AFY) exceeded sustainable groundwater yield by over 10,000 AFY. Under current development conditions, and 50-years of historical climate, the yield deficit is projected to decrease slightly from 10,000 AFY to 7,400 AFY. Projects and Management Actions described in the GSP augment groundwater by increasing recharge and demand management. This Component augments groundwater with runoff from the local watershed, and preliminary evaluations indicate on average the contribution could be 3,600 AFY and represents almost 50% of the projected yield deficit. Because the source of water for recharge is local runoff, these projects can be implemented immediately following identification of suitable sites and cooperating landowners.

Meeting the Component Goals, Objectives, and Needs

The goal of reducing the storage deficit in the Basin will be met with Component X through recharge projects to capture and infiltrate local stormwater runoff. This will be accomplished by conducting pilot projects to identify the best recharge approaches that can be implemented throughout the Basin.

Communities Served, Measurable Objectives, Minimum Thresholds, Plan Implementation Timeline, and Feasibility

Communities Served. Groundwater is the primary source of water for drinking and other domestic needs in the Basin and supports a thriving agricultural economy. Increased recharge in the Basin will help stabilize water levels, which will benefit all beneficial users of groundwater including underrepresented communities (URCs), disadvantaged and severely disadvantaged communities (DACs and SDACs), Tribes, and groundwater dependent ecosystems (GDEs). The GSAs will continue its active engagement with the public, stakeholders, and landowners in its planning and implementation decisions. Furthermore, as supported through CGA, the GSAs have established and maintained cooperative working relationships with each other, its member districts/agencies, and with neighboring Basins. The GSAs plan to maintain these relationships and expand coordination to other interested parties throughout the implementation of the Basin's PMAs.

Measurable Objectives/Minimum Thresholds. Increased recharge in the Basin will help stabilize water levels and progress toward Measurable Objectives (MOs), which will avoid Minimum Thresholds (MTs) and protect against Undesirable Results. As a planning component, the improved understanding of benefits from recharge operations within the Basin will be integrated into the 2027 GSP, and the quantitative metrics represented by the Sustainable Management Criteria (Minimum Thresholds and Measurable Objectives) will be assessed and updated, as needed. These will improve the understanding of impacts on the different beneficial users in the Basin and help guide the next phase of PMA implementation.

Plan Implementation Timeline. Landowner outreach and engagement activities to identify volunteers were initiated by the GSAs during October 2022 with the distribution of a landowner survey. The GSAs plan to continue outreach and develop a list of landowners willing to volunteer their lands for PMA implementation activities prior to the award of the SGM Implementation Round 2 funding. This way once the funding is awarded and the grant agreement is finalized the GSAs are ahead of the planning tasks and will ensure sufficient time to get the pilot studies up and running and have a longer period of data collection. As described in the detailed project descriptions the sites must have access to extraction wells so that groundwater can be used as a test source for water, should permits for diversions be delayed or low rainfall conditions result in below average creek flows and/or if stormwater is unavailable during the study period. Furthermore, the GSAs have an existing ongoing Recharge Pilot project (LDSR) and are aware of the necessary steps to and the timing of these steps to get the Recharge Pilot projects up and running. Stakeholder engagement and public outreach activities will be a continuous area of focus during GSP implementation.

Feasibility. As stated above, the GSAs have an existing Recharge Pilot project in the Basin which is providing positive results and is proving value to the Basin, therefore expanding likewise pilot projects to other areas of the Basin have a high likelihood for success and will provide additional value to the Basin. Completion of Component 3 in accordance with the stated schedule is very feasible.

2B. Planning Component: Description of planning component is well-coordinated (4 points)

Respond to DWR Comments on GSP

This Component does not address DWR comments on the GSP because they have not yet been received.

Address Data Gaps

Section 18 Projects and Management Actions, of the GSP states that the GSAs "will conduct data gap filling activities as part of the GSP implementation that may include…performing feasibility studies" such as these pilot projects. Furthermore, this Component helps advance activities designated as "Other PMAs" in *Section 18.2.4 Other PMAs* of the GSP in which the details for these projects were insufficient at the time of GSP development to enable the estimation of implementation costs and benefits, even though, as described above, they have the potential to provide a considerable amount of recharge to the Basin. The GSP notes that these activities may need to be more extensively developed for the five-year update of the GSP, especially if progress lags on larger PMAs. This Component addresses the aforementioned tasks that the GSAs said would be address during GSP implementation, along with filling additional data gaps during the site confirmation studies (such as infiltration rates, aquifer test results, geophysical data, water quality data, water level monitoring data, installing stream gauges, stream gauge monitoring data and access to additional wells for monitoring).

Assist in Feasibility of GSP Implementation

This Component assists in the feasibility of implementation of the GSP by conducting the pilot projects that will enable the evaluation of additional recharge methods to help achieve the GSP's Sustainability Goal and developing BMPs that can be duplicated at other sites to capitalize on the potential of these recharge methods.

3. Regional and Component Map(s) (2 points)

See attachment 4 for all maps.

4. Benefit to Under-Represented Community (URC), Tribe or Severely Disadvantaged Community (SDAC) (4 points)

Identification of URC(s), Tribe(s), and/or SDAC(s)

Figure #, in Attachment 4, shows the Basin location relative to mapped Underrepresented Communities (URCs) based on the DWR's Disadvantaged Communities (DAC) Mapping Tool and CalEnviroScreen 4.0. The DACs, and SDACs shown in Figure # include Census tracts identified as:

- SDAC: GEOID20: 06067009503 with a median household income (MHI) of $41,193;
- DAC: GEOID20: 06067009504 with a MHI of $53,162;
- DAC: GEOID20: 06067009501 with a MHI of $59,625; and
- DAC: GEOID20: 06005000303 with a MHI of $58,958.

Portions of the City of Galt and Sacramento County GSAs are considered SDACs and DACs (Figure X). Portions of GID and ACGMA GSAs are considered DACs (Figure X). No DACs or SDACs are identified in SRCD, OHWD and Clay Water District GSAs.

The Basin is home to several Native American tribal communities: (1) Wilton Rancheria tribe located in Sacramento County in the northwestern portion of the Basin, (2) the Buena Vista Rancheria of Me-Wuk Indians tribe in Amador County in the eastern portion of the Basin, and (3) the Ione Band of Miwoks tribe also located in Amador County.

Benefits to URC, Tribe or SDAC

Benefits of Component X are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, and therefore will benefit all URCs. Attachment 4 Page ___ shows a map of URCs in the subbasin.

The component will benefit SDACs. A map of DACs and SDACs is presented in Attachment 4 Page ___. By land area, 1% of the Basin is in a SDAC and 26% of the Basin is in a DAC. The identified SDACs represent 6% of the population in the Basin, or about 3,000 people. The identified DACs represent 29% of the population in the Basin, or about 14,000 people.

The Buena Vista Rancheria of Me-Wuk Indians tribe relies on groundwater as their water supply. The Wilton Rancheria tribal lands are located adjacent to the Cosumnes River. The Wilton Rancheria tribe mission statement states, "The Department of Environmental Resource shall assess, conserve, monitor, preserve, protect, and restore tribal resources to enhance the environment within the Tribe's Territory." The Cosumnes River is within the Tribe's territory and is a valuable resource to them. The Ione Band of Miwok is a public water supplier within the basin and has at least two groundwater wells.

Amount of Grant Funding that will Benefit Tribe, URC, and/or SDAC

Benefits of Component X are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, so approximately $_____ of the project budget will benefit the SDACs if calculated on a per-acre basis or $_____ on a population basis.

5. Positive Impacts to Small Water Systems and/or Private Shallow Domestic Wells (4 points)

From *Section 2 Sustainability Goal,* of the GSP, "The Sustainability Goal of the Cosumnes Subbasin is to ensure that groundwater…continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural, industrial, environmental, and others." *Section 14.1 Undesirable Results for Chronic Lowering of Groundwater Levels*, of the GSP states that "Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon." Therefore the overall goal of the GSP and the PMA activities are aimed at positively impacting small water systems and protecting the shallower private domestic wells.

Justification from Domestic Well Census and Water System Maps

Figure X, in Attachment 4, shows the location of the domestic wells and water systems within the Basin. GSP *Section 5.1.5 Well Density per Square Mile*, reports that there are 2,258 domestic wells in the Basin, far more than the number of production (433) or public (23) wells in the Basin. Stable water levels ensure groundwater accessibility to existing wells and protects against pump and well failures. Domestic wells are typically the most vulnerable to water levels declining below the top of well screen because they are often drilled shallower due to lower water use requirements and financial constraints. Recharge projects such as this Component will help stabilize groundwater levels and ensure a reliable water supply for all users. Additionally under this component, the GSAs will ensure that stakeholder and outreach engagement activities include protocols and venues accessible to domestic well users and small water systems in the Basin and suitable for their continued engagement and inclusion.

Addresses Needs of the State Water Board's SAFER Program

The component's contribution to the stability of groundwater will also help address the needs of the Safe and Affordable Fund for Equity and Resilience (SAFER) program. SAFER prioritizes funding based on a 2022 Drinking Water Needs Assessment. Maps that accompany the 2022 assessment show that areas around Galt are at-risk for water shortage issues and that areas south of Sloughhouse and near Ione and in the southern portion of Amador County are potentially at risk for water shortage issues, as shown in Attachment 4 Page ____. In addition, areas near Twin Cities, south of Sloughhouse, and north of Ione are at risk for water quality issues.

6. Addresses Human Right to Water (4 points)

As noted in the response to question 5, above, the component will contribute to the sustainability of the groundwater basin and the stabilization of the groundwater table in fulfillment of the GSP sustainability goal. This will in turn meet the state policy expressed in Water Code Section 106.3 that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Furthermore, the State Water Board adopted a resolution in February 2016 stating in part that it would work "to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." The stabilization of the groundwater table will contribute to this goal by helping sustain the estimated 2,258 domestic wells in the Basin. Under this Component, the GSAs will continue its ongoing GSP implementation activities to operate the Basin sustainably within the defined Sustainable Yield and to prevent Undesirable Results, thereby preserving the Human Right to Water.

PROJECT/COMPONENT DETAILS

B. Scope of Work and Deliverables

(a) Component Administration

Task 1. Project Management

General component management tasks such as invoicing, budget tracking, schedule management, staff assignments, and subconsultant coordination and management.

Deliverables:

- Invoices

(b) Environmental / Engineering / Design

Task 2 Conduct Stream Corridor Modeling and Analysis

This task includes use of appropriate modeling tools and analytical frameworks to allow a systematic, scalable approach to identify opportunities for recharge along Dry Creek and Laguna Creek. This will involve: coordination to collect and review the relevant existing information to execute the analysis; collecting bathymetric data, where needed to measure streambed elevations; developing the hydrologic model and hydraulic models, as needed, for data to be input into the analysis; modeling and analyzing up to four hydrologic scenarios to understand multi-benefit floodplain outcomes under future scenarios; and generating a technical report detailing the work performed.

Deliverables:

- Technical Report

Task 3 Identify, Rank and Select Project Sites

This task includes: identifying and ranking potential project sites using data from the GSP and the numerical model to identify sites along Dry Creek and Laguna Creek based on hydraulics, channel configuration, surface/subsurface hydrogeologic conditions, and other relevant considerations from Task 2 along with sites throughout the Basin that have high stormwater runoff volumes and acceptable soil conditions; Rank sites based on criteria to be developed by the GSAs; and select 4 to 8 sites to secure access for confirmation studies.

Deliverables:

- Maps of potential project sites, ranked sites, and sites selected for confirmation studies.

Task 4 Confirm Site Suitability

This task includes confirming project site suitability by conducting appropriate tasks, including but not limited to geophysics surveys, infiltration tests, and source water and groundwater quality analysis and summarizing results and present findings to the GSAs and stakeholders.

Deliverables:

- Summary of site suitability activities and findings

Task 5 Design Pilot Projects

This task includes: plan and design water delivery and groundwater recharge infrastructure for Local Diversion Pilot Projects at 1 to 3 selected stream diversion sites and for On-Farm Stormwater Capture Pilot Projects at 1 to 3 selected project sites.

Deliverables:

- Pilot Project design plans and specifications

Task 6 Environmental Review and Permitting

This task includes: complete environmental review of the proposed pilot projects at a level of detail and scope sufficient to secure (1) water rights permits for any proposed stream diversions, as needed; (2) streambed alteration permits that may be required in connection any stream diversions, as needed; and (3) groundwater well permits for any proposed recharge wells that receive surface water. Approve the projects and secure the required permits.

Deliverables:

- Copies of permits and environmental documentation

Task 7 Develop BMPs

This task includes: develop BMP documents summarizing results and lessons learned from the pilot projects.

Deliverables:

- BMP documents

(c) Implementation / Construction

Task 8 Construct Water Delivery and Recharge Infrastructure

This task includes: construct water delivery and recharge infrastructure in accordance with the plans and specifications for each of the approved pilot projects at selected stream diversion and on-farm capture sites.

Deliverables:

- As-builts of constructed features

Task 9 Install Monitoring Equipment

This task includes: locate, design & construct necessary monitoring equipment to quantify benefits (e.g., meters, monitoring wells, sampling stations, etc.) for the approved pilot projects at the selected stream diversion and on-farm capture sites.

Deliverables:

- Photographs of installed equipment

(d) Monitoring / Assessment

Task 10 Model Update

This task includes updating appropriate model input files and HCM maps.

Deliverables:

- List of files updated

Task 11 DMS Update

This task includes incorporating data from the site suitability studies and monitoring data into the Basin DMS.

Deliverables:

- List of data imported into the DMS

(e) Engagement / Outreach

Task 12 Landowner Outreach

This task includes outreach to landowners in the areas of interest (e.g., along the Dry Creek and Laguna Creek corridors and on farmlands with high volume stormwater runoff and acceptable soil conditions for capture and recharge) to identify lands with existing water delivery infrastructure and willingness to participate.

Deliverables:

- Outreach materials

C. Budget (maximum of 1 point possible)

Complete the Budget Summary Table using the template provided (below). You must also include a ranking system using the template provided by the SGM Grant Program. The ranking table will not be scored, but will be used when developing the draft and final award list. You may use a maximum of 2-pages using Arial, 10-point type font, to justify the budgets provided.

1. Provide a completed budget summary table using template below.

Component X: RECHARGE PILOT STUDIES PLANNING COMPONENT

Component X serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☒DAC, ☒SDAC, ☐Tribe, and/or ☒Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	
(b) Environmental / Engineering / Design	
(c) Implementation / Construction	
(d) Monitoring / Assessment	
(e) Engagement / Outreach	
Total:	

D. Schedule

Complete the Schedule Table using the template provided (below). The Schedule Table must not exceed a TOTAL of 2 pages using a minimum Arial, 10-point type font.

2. Provide a completed schedule table using template below.

Categories	Start Date	End Date
Component X: RECHARGE PILOT STUDIES PLANNING COMPONENT		
(a) Component Administration		
(b) Environmental / Engineering / Design		
(c) Implementation / Construction		
(d) Monitoring / Assessment		
(e) Engagement / Outreach		

Provide a brief description of the plan for environmental compliance and permitting, if applicable, including the following items and a status of each:

This component is believed to be exempt from the California Environmental Quality Act (CEQA) under Categorical Exemption Class 6 (CEQA Guidelines Section 15306, Information Collection). At the completion of site selection in Task 3, the continued applicability of the CEQA exemption will be evaluated for the selected sites. Sacramento County Environmental Management Department requirements for well permits will be reviewed prior to drilling any wells and well permits will be acquired if needed.

No land acquisitions are planned. Temporary rights of entry will be negotiated with landowners for selected sites, and the willingness of landowners to issue such rights will be a selection factor in Task 3.

COMPONENT 4

APPLICATION WORK PLAN, BUDGET, AND SCHEDULE – GROUNDWATER MONITORING IMPROVEMENT PLANNING

Grant Proposal Title: **Cosumnes GSP Project Planning & Monitoring Update**

Applicant: **Cosumnes Groundwater Authority**

A. General

1. Detailed Component Description (4 points)

The Sustainable Groundwater Management Act (SGMA) Monitoring Network is foundational to the Groundwater Sustainability Agencies' (GSAs') quantitative understanding of the groundwater basin and is required to assess the Sustainability Indicators for the basin, protect against Undesirable Results (URs), evaluate potential impacts to the beneficial uses and users of groundwater and track progress made by implemented Projects and Management Actions (PMAs). Therefore, it is critical that data gaps identified as part of the SGMA Monitoring Network be prioritized and addressed as laid out in the Cosumnes Groundwater Sustainability Plan (GSP) *Section 19.1.2, Data Gap Filling Efforts*.

The Cosumnes Subbasin (Basin) SGMA Monitoring Network consists of representative monitoring sites for each Sustainability Indicator. For each Representative Monitoring Site (RMS), the Sustainable Management Criteria (SMCs) are established, and data are routinely collected for comparison to the criteria. Additionally, the Monitoring Network relies upon supplemental sites, where SMCs are not established but data are collected to confirm the representativeness of each RMS, to support the wider understanding of the Basin hydrology and response to PMAs. The Basin's Monitoring Network currently consists of the following RMSs: 19 wells for the Chronic Lowering of Groundwater Levels (RMW-WL) and Reduction of Groundwater Storage Sustainability Indicators, 14 wells for the Degraded Water Quality (RMW-WQ) Sustainability Indicator, and nine wells (RMW-ISWs) and five stream gauges for a total of 14 RMSs for the Depletions of Interconnected Surface Water Sustainability Indicator.

To improve groundwater monitoring within the Basin this Component will include 1) filling identified data gaps amongst the current RMSs; 2) expanding the current RMSs with wells in high interest areas, such as beneath the area overlying the mapped cone of depression, Groundwater Dependent Ecosystems (GDEs), and Disadvantaged Communities (DACs); and, 3) expanding the supplemental monitoring network to include additional domestic and agricultural wells.

Data gaps in the SGMA Monitoring Network include incomplete or unavailable construction information for some of the current RMSs. As described in the California Department of Water Resources' (DWR's) Monitoring Network Best Management Practices (BMPs), if existing wells are used the perforated interval should be known in order to utilize water level or other data collected from that well (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-2-Monitoring-Networks-and-Identification-of-Data-Gaps_ay_19.pdf). This Groundwater Monitoring Improvement Planning Component will include downhole video logging of current RMSs lacking information on well screen perforation intervals and total depth (16 wells), and surveying measurement point elevations and location coordinates where existing data does not meet SGMA-compliant accuracy (35 wells).

As described in *Section 17.4 Assessment and Improvement of Monitoring Network* of the GSP, dedicated monitoring wells screened at more than one depth interval of the Principal Aquifer are needed to quantify relationships between water table elevation changes and extractions from deeper water supply wells, especially near the Cosumnes River, Dry Creek and in the area overlying the mapped cone of depression (the southeastern portion of the Basin). Moreover, multi-depth monitoring sites are needed to evaluate possible perched groundwater conditions that likely support GDEs, which in some parts of the Basin also occur in areas mapped as DACs. This Component plans to expand the number of RMSs by 1 to 4 new sites. Each site will be comprised of either a single well or nested group of wells where each well is screened across a different depth interval of the aquifer. Sites will be created using existing wells, constructing monitoring wells, or a combination of both. For example, a new RMS can be established by constructing a relatively shallow well to monitor perched groundwater conditions relevant to GDEs near existing domestic and/or deeper agricultural wells that monitor the Principal Aquifer. Water

level instrumentation will be installed in the wells at the new RMS and the resulting data will be integrated into the Basin Data Management System (DMS) to support GSP implementation and refinement of the numerical model.

This Component also increases landowner outreach and engagement to develop a more accurate inventory of existing domestic and agricultural wells and solicit volunteers to include their wells in the monitoring network. The GSP recognizes that of all wells within the Basin, domestic wells are greatest in number and generally shallowest in depth and therefore the most vulnerable to declining water levels. Additional domestic wells will be added to the supplemental well network and their data used to confirm that the SGMA monitoring network protects the groundwater supply available to all beneficial users including DAC and other Underrepresented Communities (URCs).

Component Goals, Objectives, and Needs

Goals. This Component's goal is to refine and expand the SGMA Monitoring Network by filling data gaps identified in the GSP and improving representation of groundwater conditions in high interest areas (beneath the area overlying the mapped cone of depression, GDEs, and URCs).

Objectives. Specific objectives for reaching this goal are:

- For current RMSs, collect missing or inadequate data for well screen perforation intervals, total well depth, measurement point elevations, and coordinates to fully comply with SGMA guidelines.
- Expand outreach and engagement efforts to high interest areas (land owners overlying the cone of depression, URCs and DACs) to access existing wells or land areas in targeted areas.
- Increase the number of RMSs that monitor conditions (i) near DACs; (ii) potential GDEs; (iii) perched/shallow aquifers; and (iv) beneath the area overlying the mapped cone of depression.
- Expand the network of supplemental domestic and agricultural wells to confirm the SGMA Monitoring Network is representative of Basin conditions.

Needs. The Basin relies on the RMSs to evaluate SMCs, assess the Sustainability Indicators for the Basin and to track the progress made by PMAs that are implemented. Hence, the GSAs need to ensure the SGMA Monitoring Network is complete as possible, representative of all beneficial users and have necessary construction information to accurately monitor Basin conditions.

Meeting the Component Goals, Objectives, and Needs

The goal of improving the SGMA Monitoring Network of the Basin **will be met** with Component X by filling data gaps of the current monitoring network, expanding the network as appropriate and improving the representation of groundwater conditions and users by expanding the supplemental network.

Communities Served, Measurable Objectives, Minimum Thresholds, Plan Implementation Timeline, and Feasibility

Communities Served. Groundwater is the primary source of water for drinking and other domestic needs in the Basin and supports a thriving agricultural economy. Improved monitoring of the Basin will benefit all beneficial users of groundwater including underrepresented communities (URCs), disadvantaged and severely disadvantaged communities (DACs and SDACs), Tribes, and groundwater dependent ecosystems (GDEs) to ensure all communities are being represented and adequately monitored. The GSAs will continue its active engagement with the public, stakeholders, and landowners in its planning and implementation decisions. Furthermore, as supported through CGA, the GSAs have established and maintained cooperative working relationships with each other, its member districts/agencies, and with neighboring Basins. The GSAs plan to maintain these relationships and expand coordination to other interested parties through increased stakeholder outreach to identify volunteers to have their wells monitored as part of the supplemental monitoring network and coordination with monitoring plan with neighboring Basin to coordinate well installation sites and sampling plans.

Measurable Objectives/Minimum Thresholds. The monitoring network is a required component of the GSP and improves the quantitative description of the Basin Setting (hydrogeologic conceptual model, groundwater conditions, and water budget). The network also improves the data relied on to ensure the reliability of the numerical model, minimum thresholds (MTs) and measurable objectives (MOs). Finally, the monitoring network quantitatively evaluates GSP performance achieving MOs and avoiding MTs which will improve the understanding of impacts on the different beneficial users in the Basin. Therefore, it is critical to fill the data gaps identified in the Cosumnes GSP.

Plan Implementation Timeline. A SGMA compliant monitoring network is in place and is actively utilized as part of GSP implementation. The benefits from filling data gaps through video logging to determine well screen intervals and land surveying measurement point elevations at existing RMSs will therefore be realized immediately. The monitoring network expansion planned under this Component will improve representation of conditions that influence agriculture, domestic URC water supplies, and GDEs during future GSP implementation. Stakeholder engagement and public outreach activities will

be a continuous area of focus during GSP implementation. Given the high demand of well drillers, bidding regarding the dedicated monitoring well(s) will occur immediately following grant execution to allow ample time for design, installation, and development.

Feasibility. The GSAs currently have SGMA compliant monitoring networks in place. Outcomes from this Component will enhance and improve the monitoring networks. Existing wells will be incorporated into the network where possible and in leu of constructing monitoring wells if there are any signification delays in permitting or available drillers. As such, completion of Component 3 in accordance with the stated schedule is very feasible.

2B. Planning Component: Description of planning component is well-coordinated (4 points)

Respond to DWR Comments on GSP

This Component does not address DWR comments on the GSP because they have not yet been received.

Address Data Gaps

The current SGMA Monitoring Network includes approved wells in all of the GSAs within the Basin, and are visited and sampled through coordinated efforts between the GSAs. The Outreach and Engagement task of this Component will increase coordination of monitoring within the Basin and with GSAs in adjacent basins. *Section 19.1.2 Data Gap Filling Efforts* of the GSP describes that the GSAs will prioritize and begin to fill key data gaps related to monitoring as part of GSP Implementation. This Component will do that work consistent with the plan. This Component will specifically address data gaps identified in *Section 17.4 Assessment and Improvement of Monitoring Network* of the Cosumnes GSP including incomplete or unavailable construction information for some of the current RMS wells, the need for wells that represent water table and deeper water supply conditions, especially near the Cosumnes River and Dry Creek. Furthermore, Public comments received on the Public Draft of the GSP and expressed verbally at the Cosumnes Groundwater Authority (CGA) Board of Director's Meetings identified the need to include additional domestic wells in the supplemental monitoring network, and this will be addressed by this Component**.**

Assist in Feasibility of GSP Implementation

By filling data gaps identified in the GSP, this Component assists with GSP implementation. As the above sections have described, filling the data gaps ensures the characterization of Basin conditions is reliable, supports the numerical model, and improves the effectiveness of MTs to protect against Undesirable Results and progress toward MOs. The GSP hinges on the ability to accurately determine its performance relative to these objective measures, and this Component support GSP implementation feasibility and success.

3. Regional and Component Map(s) (2 points)

See attachment 4 for all maps.

The Regional Map appears in Attachment 4 page _____ and the Component Map appears in Attachment 4 Page ____.

4. Benefit to Under-Represented Community (URC), Tribe or Severely Disadvantaged Community (SDAC) (4 points)

Identification of URC(s), Tribe(s), and/or SDAC(s)

Figure #, in Attachment 4, shows the Basin location relative to mapped Underrepresented Communities based on the DWR's Disadvantaged Communities (DAC) Mapping Tool and CalEnviroScreen 4.0. The DACs, and SDACs shown in Figure # include Census tracts identified as:

- SDAC: GEOID20: 06067009503 with a median household income (MHI) of $41,193;
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The Basin is home to several Native American tribal communities: (1) Wilton Rancheria tribe located in Sacramento County in the northwestern portion of the Basin, (2) the Buena Vista Rancheria of Me-Wuk Indians tribe in Amador County in the eastern portion of the Basin, and (3) the Ione Band of Miwoks tribe also located in Amador County.

Benefits to URC, Tribe or SDAC

Benefits of Component X are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, and therefore will benefit all Underrepresented Communities (URCs). Attachment 4 Page ___ shows a map of URCs in the subbasin.

The component will benefit Severely Disadvantaged Communities (SDACs). A map of Disadvantaged Communities (DACs) and SDACs is presented in Attachment 4 Page ___. By land area, 1% of the Basin is in a SDAC and 26% of the Basin is in a DAC. The identified SDACs represent 6% of the population in the Basin, or about 3,000 people. The identified DACs represent 29% of the population in the Basin, or about 14,000 people.

The Buena Vista Rancheria of Me-Wuk Indians tribe relies on groundwater as their water supply. The Wilton Rancheria tribal lands are located adjacent to the Cosumnes River. The Wilton Rancheria tribe mission statement states, "The Department of Environmental Resource shall assess, conserve, monitor, preserve, protect, and restore tribal resources to enhance the environment within the Tribe's Territory." The Cosumnes River is within the Tribe's territory and is a valuable resource to them. The Ione Band of Miwok is a public water supplier within the basin and has at least two groundwater wells.

Amount of Grant Funding that will Benefit Tribe, URC, and/or SDAC

Benefits of Component X are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, so approximately $_____ of the project budget will benefit the SDACs if calculated on a per-acre basis or $_____ on a population basis.

5. Positive Impacts to Small Water Systems and/or Private Shallow Domestic Wells (4 points)

From *Section 2 Sustainability Goal* of the GSP, "The Sustainability Goal of the Cosumnes Subbasin is to ensure that groundwater…continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural, industrial, environmental, and others." *Section 14.1 Undesirable Results for Chronic Lowering of Groundwater Levels* of the GSP states that "Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon." Therefore, increasing the monitoring of domestic wells and shallower wells will identify any negative effects associated with Undesirable Results before they become significant and unreasonable. Improving the monitoring network will make sure the small water systems and private shallow domestic wells are adequately monitored and will identify any positive impacts to these wells.

Justification from Domestic Well Census and Water System Maps

Figure X, in Attachment 4, shows the location of the domestic wells and water systems within the Basin. GSP *Section 5.1.5 Well Density per Square Mile* reports that there are 2,258 domestic wells in the subbasin, far more than the number of production (433) or public (23) wells in the subbasin. Domestic wells are typically the most vulnerable to water level decline because they are often drilled shallower due to lower water use requirements and financial constraints. Increased monitoring of domestic wells and shallow water conditions near GDEs and DACs will help identify impacts to these areas. By making the implementation of the GSP more feasible, the Component will help stabilize groundwater levels and ensure a reliable water supply for all users. Additionally under this component, the GSAs will ensure that stakeholder outreach and engagement activities include protocols and venues accessible to domestic well users and small water systems in the Basin and suitable for their continued engagement and inclusion.

Addresses Needs of the State Water Board's SAFER Program

The component's contribution to the stability of groundwater will also help address the needs of the Safe and Affordable Fund for Equity and Resilience (SAFER) program. SAFER prioritizes funding based on a 2022 Drinking Water Needs Assessment. Maps that accompany the 2022 assessment show that areas around Galt are at-risk for water shortage issues and that areas south of Sloughhouse and near Ione and in the southern portion of Amador County are potentially at risk for water shortage issues, as shown in Attachment 4 Page ____. In addition, areas near Twin Cities, south of Sloughhouse, and north of Ione are at risk for water quality issues. Filling data gaps and expanding the number of RMSs will increase the effectiveness of the SGMA Monitoring Network to protect these users from experiencing Undesirable Results.

6. Addresses Human Right to Water (4 points)

As noted in the response to question 5, above, the component will contribute to the feasibility of implementing the GSP, which is necessary to stabilize groundwater levels and fulfill the sustainability goal for the Basin. This will improve the Basin's ability to meet the state policy expressed in Water Code Section 106.3 that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Furthermore, the State Water Board adopted a resolution in February 2016 stating in part that it would work "to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." The stabilization of the groundwater table will contribute to this goal by helping sustain the estimated 2,258 domestic wells in the subbasin. Under this Component, the GSAs will continue its ongoing GSP implementation activities to operate the Basin sustainably within the defined Sustainable Yield and to prevent Undesirable Results, thereby preserving the Human Right to Water.

B. Scope of Work and Deliverables (maximum of 4 points possible)

(a) Component Administration

Project Management

Project management includes general component management tasks, such as invoicing, budget tracking, schedule management, staff assignments, and subconsultant coordination and management.

Deliverables:

- Invoices and Progress Status Reports including up-to-date budget "burn rate" graph.

(b) Environmental / Engineering / Design

Task 1 Well Siting

This task first determines the best locations for monitoring well(s). Site selection will prioritize location(s) near DACs, potential GDEs, perched/shallow aquifers, and/or the mapped cone of depression. Access agreements will be established with the property owners, and then site plan(s) developed to accompany the access agreement, well application and permit form(s) completed under Task 2. The site plan will contain the well location, parcel dimensions, land use, and nearby streets, structures, pumping wells, ground surface elevation contours, and other relevant surface features as appropriate for the monitoring purpose.

Deliverables:

- Map of proposed well locations
- Written access agreements

Task 2 Well Design & Permitting

This task includes work efforts and costs associated with new monitoring well design and permitting; existing well design information will be obtained from Task 4 (survey well locations and elevations) and Task 5 (video logging of well screen intervals). Following DWR's Monitoring Network BMPs, each monitoring well should: (1) be a dedicated monitoring well, (2) have an aquifer-specific screened interval, and (3) consider both unconfined and semi-confined aquifers.

After gaining access under the landowner outreach task, if a new well will be constructed encroachment and construction permit(s) will be obtained from Sacramento County and other relevant entities prior to construction. Specifically, well application and permit form(s), associated site plan(s) developed under Task 1, and well design drawings will be submitted to Sacramento County Environmental Compliance Division and others as appropriate.

Environmental compliance documentation with California Environmental Quality Act (CEQA) obligations are not expected for monitoring well installation(s). CEQA provides numerous categories of exemption, including Class 6 for information collection activities that do not result in serious disturbance to an environmental resource. DWR will be notified of the relevant CEQA exemption, and a Notice of Exemption will be filed.

Deliverables:

- Well design drawings
- Monitoring well permits
- Notice of Exemption

(c) Implementation / Construction

Task 3 Well Installation

This task includes the field work and construction costs associated with installing and developing one (1) to four (4) monitoring well(s). Well installation(s) will occur after permit(s) have been approved by Sacramento County Environmental Compliance Division. Under Task X it is assumed the GSAs will secure access to well sites and mark the site(s) for Underground Services Alert (USA) clearance. USA will be called at least two working days, but no more than 14 working days prior to drilling activities. A qualified C-57 licensed well driller will install the wells, and construction and installation will be overseen by a California registered Professional Geologist. At least 24

hours before completing the well installation, a well inspection appointment for annular seal placement will be made with Sacramento County Environmental Compliance Division. The Sacramento County inspector will be on-site to observe the annular seal placement and sign off on the well installation. No less than 24 hours after annual seal placement, the monitoring well(s) will be developed by the well driller.

As required by DWR, a Well Completion Report for each monitoring well will be submitted to DWR within 60 days of installation completion. The Well Completion Report will include a detailed well log, including lithologic descriptions and well construction information.

Deliverables:

- Well completion report(s)

Task 4 Well Survey

This task includes field work associated with surveying up to 35 current RMS wells, and up to four newly installed monitoring well(s). The well survey will be conducted by a qualified and licensed land surveyor and the horizontal coordinates, vertical reference point elevation, and ground surface elevation will meet the data and reporting standards in Title 23 of the Code of California Regulations Section 352.4 to be fully compliant with DWR's standards for the SGMA Monitoring Network.

Deliverables:

- Well survey report(s)

(d) Monitoring / Assessment

Task 5 Downhole Video Logging

This task will conduct downhole video logging of up to 16 RMS wells. The video logging will be done to determine the screen perforation intervals and total well depth of each well. Well construction information will be updated in appropriate tables of the GSP.

Deliverables:

- Table of updated well construction data

Task 6 Water Level Instrumentation

After the monitoring wells are installed under Task 3 and the wells are surveyed under Task 4, water level monitoring instrumentation will be installed into the wells to measure seasonal and shorter-term water level changes (e.g. irrigation season, rainfall-run off events, etc.).

Deliverables:

- Field sheet(s) and photographs

Task 7 DMS Update

This task includes incorporating data and evaluation results from all other tasks into the Basin DMS, including updated well coordinates, well construction data and wells added to the monitoring networks.

Deliverables:

- Table of data added to the Basin DMS

Task 8 Model Update

This task includes updating appropriate model input files to incorporate new RMS well locations and construction into model data sets.

Deliverables:

- Table of model files updated

(e) Engagement / Outreach

Task 9 Landowner Outreach

This task includes outreach and engagement efforts to landowners within the Basin and GSAs in neighboring basins to coordinate monitoring. These activities are necessary to improve the inventory of domestic wells in the Basin and

to gain access to land and wells to expand the SGMA Representative Monitoring Network and integrate supplemental sites.

Deliverables:

- Outreach materials

Task 10 Expansion of Supplemental Well Network

This task identifies cooperating domestic and agricultural well owners and establishing agreements to incorporate their wells into an expanded supplemental well network. The task entails developing access and monitoring agreements with the landowners, summarizing well characteristics, and updating the Monitoring Network maps, and incorporating monitoring protocols into the Cosumnes GSP Monitoring and Reporting program.

Deliverables:

- Map of Supplemental Well Network
- Table summarizing monitoring schedule and well information (identification number, depth, depth to well screen, use, and so forth).
- Updated Monitoring and Reporting Program.

D. Budget

1. (1 point) Provide a completed budget summary table using template below.

Component X: <enter title>

Component X serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	$0
(b) Environmental / Engineering / Design	$0
(c) Implementation / Construction	$0
(d) Monitoring / Assessment	$0
(e) Engagement / Outreach	$0
Total:	**$0**

E. Schedule

2. Provide a completed schedule table using template below.

Component X: <component name>	January 1, 2023	January 31, 2025
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(e) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY

This component is believed to be exempt from CEQA under Categorical Exemption Class 6 (CEQA Guidelines Section 15306, Information Collection). At the completion of Task 2 this will be evaluated for the selected sites. Well permits will be acquired from Sacramento County as needed.

No land acquisitions are planned. Temporary rights of entry will be negotiated with landowners for selected sites, and the willingness of landowners to issue such rights will be a selection factor in site selection.

BUDGET TABLE TEMPLATE

Component X: <enter title>

Component X serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	$0
(b) Environmental / Engineering / Design	$0
(c) Implementation / Construction	$0
(d) Monitoring / Assessment	$0
(e) Engagement / Outreach	$0
Total:	**$0**

SCHEDULE TABLE TEMPLATE

For Project with MULTIPLE Components use the following:

Grant Title: <enter title>

Categories	Start Date	End Date
Component 1: Grant Administration <or other component name if no Grant Administration is covered by grant funds>		
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(e) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY
Component X: <component name>		
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(e) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY

COMPONENT 5

APPLICATION WORK PLAN, BUDGET, AND SCHEDULE – CONSERVATION DEMONSTRATION PROJECTS

Grant Proposal Title: **Cosumnes GSP Project Planning & Monitoring Update**

Applicant: **Cosumnes Groundwater Authority**

A. General

1. Detailed Component Description (4 points)

Detailed Component Description: Background

Agriculture accounts for over 80% of the groundwater use in the Cosumnes Subbasin (Basin). Reductions in groundwater use through land repurposing (voluntary changes in land use) and water conservation (more efficient use of the water applied to existing land uses) are identified in the Cosumnes Groundwater Sustainability Plan (GSP) as projects and management actions (PMAs) that will be implemented during the first five-year phase (Phase 1) of the GSP. As described in the guidance document *Advancing Strategic Land Repurposing and Groundwater Sustainability in California* (Environmental Defense Fund, 2021), land repurposing includes any activity that converts previously irrigated agricultural land to new uses that reduce groundwater demand or use and provide some other measurable benefits to the environment. In addition to land repurposing the Groundwater Sustainability Agencies (GSAs) plan to develop voluntary water conservation programs and Best Management Practices (BMPs) to increase water use efficiency, decrease demand, and reduce groundwater consumption as these practices can be implemented much sooner than repurposing lands. The GSP (*Section 18.2.3 Revenue Generation*) has set a goal for Phase 1 of achieving a net reduction in groundwater consumption of approximately 2,700 acre-feet per year (AFY). The GSP assumes that this goal could be achieved by repurposing a small portion (750 to 1,000 acres) of the high-water cropland in the Basin. Alternatively, a similar saving could be achieved if water conservation measures were widely applied to crops throughout the Basin. This Component will include (1) developing a Land Repurposing Program Plan that will be implemented during Phase 2 of the GSP and (2) conducting multiple Water Conservation Demonstration Projects that will identify water use reduction practices and accounting technologies that could be broadly applied to croplands in the Basin.

Detailed Component Description: Land Repurposing Program Plan

The Land Repurposing Program Plan (Plan) will be informed by landowner outreach including a survey to identify interested landowners. The survey will measure interest in a variety of repurposing options including: crops with lower evapotranspiration (ET) characteristics (e.g., winter wheat, triticale, some annual crops, etc.), recharge areas/multi-benefit recharge basins, cover crop/native vegetation hedgerows for pollinator habitat, water conservation and trading programs, open spaces with public access for recreation, rotational fallowing, delayed orchard replant (leaving fallow years after orchard removal), dryland farming, rangeland, solar farms, and over-irrigation by riparian water right holders when excess surface water is available to recharge the Basin. As part of Plan development, a site screening GIS-based tool will be developed that utilizes a scoring framework to identify and rank land areas for different alternative uses. The scoring criteria will be developed from technical considerations and stakeholder input as part of outreach and engagement efforts. These criteria can consider the following: revenue generated, previous land use, landowner preference, proximity to surface water, regional coordination, Stakeholder input, land characteristics such as soil type and topography, subsurface characteristics such as geological layers, implementation timeframe, magnitude of benefit, esthetic value, community needs/potential for new or expanded industry (tourism, recreation, etc.), suitability of land use (e.g., for mitigation banks), level of difficulty to restore to native habitat, previous use and legacy effects (e.g., alfalfa soil may be higher in Nitrogen than other cropped land because of leguminous activity; some crops required intensive pesticide use, and so forth) and potential boundary/division constraints such as major roads.

The screening tool will identify potential land repurposing opportunities, and the most promising alternatives will be selected based on landowner interest and an analysis of direct and indirect economic impacts expected from the potential changes on businesses, farmworkers, and disadvantaged communities (DACs). The results will be summarized in the Plan which will guide decisions and programs during GSP implementation. For example, the plan can be relied upon when decisions are made on potential compensation and/or incentives provided to landowners to participate in land repurposing program.

Detailed Component Description: Overall Water Conservation Demonstration Projects

The GSAs have begun to identify willing participants for the demonstration projects by reaching out to landowners and conducting a survey to gauge interest in reducing production costs by decreasing water use (water conservation). The Water Conservation Demonstration Projects will help clarify questions on implementation costs; potential economic impacts on farmers, including the need for compensation and or incentives to inspire voluntary participation; and how to quantify the benefits (measurable water savings) associated with conservation strategies. Water Conservation Demonstration Projects will be conducted to quantify implementation costs (technological instrumentation, land- and infrastructure improvements) and benefits (measurable water savings and landowner profitability). The Conservation practices will be site specific and can include, but are not limited to, metering groundwater production and water application, irrigation scheduling strategies, and conservation methods for high water use crops (e.g., pasture). Demonstration project results will be utilized to develop BMPs for inclusion in the GSP to help direct policy decisions that incentivize water savings and guide implementation by participating landowners.

Detailed Component Description: Deficit Irrigation Demonstration Project

Specifically the GSAs are interested in evaluating the viability of applying deficit irrigation practices to pastureland by eliminating one irrigation event towards the end of the irrigation season and potentially reduce annual water use by 10%. With guidance from professional Agricultural Advisors, the GSAs will conduct a demonstration project to measure the effects of deficit irrigation on pastureland, quantify the water savings, and evaluate its impact on pasture productivity, species composition, and the nutrient value of the forage. Based on reviews of available studies and discussions with the UC Cooperative Extension office, there is a lack of information to assess potential impacts of deficit irrigation for local conditions in the Basin. To fill this data gap, a demonstration project will be conducted on a local pasture to monitor soil moisture conditions and forage value (quantity and quality) under controlled irrigation conditions.

Detailed Component Description: ET Monitoring Demonstration Project

The GSAs are also interested in using weather stations to measure consumed ET to provide an alternative way to better manage the timing and quantity of irrigation to reduce production costs and ultimately save water. The cost and water savings opportunity from water conservation needs to be quantified under local conditions. This requires establishing a baseline water use on a farm, then measuring the change that results from implementing the conservation practice(s). The GSAs will deploy methods to measure water deliveries, application rates, and local weather station data to estimate water consumed by ET.

The demonstration project will utilize weather station measurements for the specific fields in which they are installed to develop a baseline of water consumption for existing management practices. The cooperating growers will then implement water saving management practices and measurements will continue, to determine estimated water consumption from which the difference can be calculated. The difference between baseline and project water use represents the water savings. Additionally all stations will have precipitation gauges which will allow for the partitioning of ET between precipitation and irrigation.

The GSAs will work with one (1) to three (3) landowners to create test plots large enough to measure the effects of conservation activities, preferably near the deficit irrigation demonstration projects described above. The ET weather stations will be installed and data collected for at least one year to establish the baseline water use on the test plots. During this time the GSAs will work with the Agricultural Advisors to recommend conservation actions that will reduce water use, such as shortened run lengths and check widths, increased flow rates, increased head ditch capacity, improved head ditch outlets and pipes, increased system maintenance frequency, tailwater recovery, and so forth. After the baseline period, the selected conservation practices will be deployed and data collected for comparisons with the measured baseline water use. The ET Monitoring Demonstration Project results will be utilized to develop BMPs for inclusion in the GSP and direct policy decisions that incentivize water savings and guide implementation of conservation practices by participating landowners.

Component Goals, Objectives, and Needs

Goals. The goal of the Conservation Demonstration Projects under Component X is to identify practices that reduce groundwater pumpage and thus more closely operate the Basin within its sustainable yield.

Objectives. As a planning component, the objective of Component X is to reduce the demand for groundwater through voluntary land repurposing and conservation actions. Table WB-8 of the GSP "Estimated Sustainable Yield for Selected Time Periods" indicates that during 1999-2018, average annual estimated pumpage (131,2000 AFY) exceeded sustainable groundwater yield by over 10,000 AFY. Under current development conditions, and 50-years of historical climate, the yield deficit is projected to decrease slightly from 10,000 AFY to 7,400 AFY. During the past 20 years, agriculture has pumped on average about 116,000 AFY of groundwater from the Basin. Projects and Management Actions described in the GSP therefore recommend pumpage reductions through voluntary land repurposing and conservation actions. For example, a

5% increase in water use efficiency can translate into almost 6,000 AFY savings in groundwater, representing almost 80% of the projected storage deficit under current development conditions.

Needs. Implementation of Component X needs to complete the following general tasks: (1) update maps of current land uses in Basin; (2) conduct continued landowner outreach efforts to assess interest in land repurposing options for different land uses; (3) summarize expected pumping reductions under different land use options including increased conservation; (4) estimate economic impacts from land use options and conservation practices; (5) screen and rank Basin areas that are candidates for land repurposing and conservation options; (6) quantify water savings from recommended conservation practices; (7) develop BMPs to guide land repurposing and conservation efforts; and, (8) identify policies to recommend that can incentivize landowners to consider land repurposing and conservation actions.

Meeting the Component Goals, Objectives, and Needs

The goal of reducing the storage deficit in the Basin **will be met** with Component X by reducing the demand for groundwater. This will be accomplished through changes in land use and improved water use efficiency (conservation). Because land- and water-use changes are undertaken by landowners on a voluntary basis, reliable guidance and BMPs will be developed by filling existing data gaps (current land use maps and water consumption estimates); outreach efforts to landowners, especially those in high priority land use areas; and demonstration projects that confirm economic feasibility and quantify expected water savings benefits.

Communities Served, Measurable Objectives, Minimum Thresholds, Plan Implementation Timeline, and Feasibility

Communities Served. Groundwater is the primary source of water for drinking and other domestic needs in the Basin and supports a thriving agricultural economy. Increased reduced groundwater consumption in the Basin will help stabilize water levels, which will benefit all beneficial users of groundwater including underrepresented communities (URCs), disadvantaged and severely disadvantaged communities (DACs and SDACs), Tribes, and groundwater dependent ecosystems (GDEs). The GSAs will continue its active engagement with the public, stakeholders, and landowners in its planning and implementation decisions. Furthermore, as supported through CGA, the GSAs have established and maintained cooperative working relationships with each other, its member districts/agencies, and with neighboring Basins. The GSAs plan to maintain these relationships and expand coordination to other interested parties throughout the implementation of the Basin's PMAs.

Measurable Objectives/Minimum Thresholds. Reduced groundwater consumption in the Basin will help stabilize water levels and progress toward Measurable Objectives (MOs), which will avoid Minimum Thresholds (MTs) and protect against Undesirable Results. The improved understanding of the benefits from implementation of conservation activities within the Basin will be integrated into the 2027 GSP, and the quantitative metrics represented by the Sustainable Management Criteria (Minimum Thresholds and Measurable Objectives) will be assessed and updated, as needed. These will improve the understanding of impacts on the different beneficial users in the Basin and help guide the next phase of PMA implementation.

Plan Implementation Timeline. Landowner outreach and engagement activities to identify volunteers were initiated by the GSAs during October 2022 with the distribution of a landowner survey. The GSAs plan to continue outreach and develop a list of landowners willing to implement conservation activities on their lands and/or volunteer to repurpose their lands. This way once the funding is awarded and the grant agreement is finalized the GSAs are ahead of the planning tasks and will ensure sufficient time to get the demonstration studies up and running and have a longer period for data collection. Stakeholder engagement and public outreach activities will be a continuous area of focus during GSP implementation.

Feasibility. Changes in water management practices to conserve water are common throughout agriculture and one of the most readily implementable means to reduce groundwater consumption. Development of the Land Repurposing Plan can begin immediately after funding is awarded as the plan will be based on data already available from the GSP and Basin DMS. Completion of Component 3 in accordance with the stated schedule is very feasible.

2B. Planning Component: Description of planning component is well-coordinated (4 points)

Respond to DWR Comments on GSP

DWR has not commented on the GSP, and therefore this Component does not address DWR comments on the GSP.

Address Data Gaps

This Component builds on the landowner outreach and engagement surveys and identifies the circumstances under which farmers are motivated to participate in land repurposing and water conservation practices. The local ET data provided from the weather stations will be utilized to refine input data sets relied upon by the Basin's numerical model to calculate ET and

estimate groundwater pumpage. As noted in GSP *Section 10.5.1 Primary Volumetric Inflows and Outflows*, up to 70% of applied water is consumed as ET, but the uncertainty associated with ET estimates could be as large as 20%, representing significant uncertainty in the model-calculated water budget. The data developed by this Component therefore fills a critical data gap and facilitates GSP implementation of PMAs intended to achieve the Sustainability Goal for the Basin "*to ensure that groundwater in the Basin continues to be a long-term resource for beneficial users and uses*".

Assist in Feasibility of GSP Implementation

As noted above, reduction in groundwater consumption is a principal action during Phase 1 of GSP implementation. Changes in water management practices to conserve water are common throughout agriculture and one of the most readily implementable means to reduce groundwater consumption. Implementation is therefore feasible, and the goal is to achieve a net reduction of 2,700 AFY as described in GSP *Section 18.2.3 Revenue Generation*. The Land Repurposing Program Plan and the information generated from the Water Conservation Demonstration Projects will identify actions, accounting methods, and landowner incentives to achieve the goal.

3. Regional and Component Map(s) (2 points)

See attachment 4 for all maps.

4. Benefit to Under-Represented Community (URC), Tribe or Severely Disadvantaged Community (SDAC) (4 points)

Identification of URC(s), Tribe(s), and/or SDAC(s)
Figure #, in Attachment 4, shows the Basin location relative to mapped Underrepresented Communities based on the DWR's Disadvantaged Communities (DAC) Mapping Tool and CalEnviroScreen 4.0. The DACs, and SDACs shown in Figure # include Census tracts identified as:

- SDAC: GEOID20: 06067009503 with a median household income (MHI) of $41,193;
- DAC: GEOID20: 06067009504 with a MHI of $53,162;
- DAC: GEOID20: 06067009501 with a MHI of $59,625; and
- DAC: GEOID20: 06005000303 with a MHI of $58,958.

Portions of the City of Galt and Sacramento County GSAs are considered SDACs and DACs (Figure X). Portions of GID and ACGMA GSAs are considered DACs (Figure X). No DACs or SDACs are identified in SRCD, OHWD and Clay Water District GSAs.

The Basin is home to several Native American tribal communities: (1) Wilton Rancheria tribe located in Sacramento County in the northwestern portion of the Basin, (2) the Buena Vista Rancheria of Me-Wuk Indians tribe in Amador County in the eastern portion of the Basin, and (3) the Ione Band of Miwoks tribe also located in Amador County.

Benefits to URC, Tribe or SDAC
Benefits of Component 3 are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, and therefore will benefit all Underrepresented Communities (URCs). Attachment 4 Page ___ shows a map of URCs in the subbasin.

The component will benefit SDACs. A map of the DACs and SDACs is presented in Attachment 4 Page ___. By land area, 1% of the Basin is in a SDAC and 26% of the Basin is in a DAC. The identified SDACs represent 6% of the population in the Basin, or about 3,000 people. The identified DACs represent 29% of the population in the Basin, or about 14,000 people.

The Buena Vista Rancheria of Me-Wuk Indians tribe relies on groundwater as their water supply. The Wilton Rancheria tribal lands are located adjacent to the Cosumnes River. The Wilton Rancheria tribe mission statement states, "The Department of Environmental Resource shall assess, conserve, monitor, preserve, protect, and restore tribal resources to enhance the environment within the Tribe's Territory." The Cosumnes River is within the Tribe's territory and is a valuable resource to them. The Ione Band of Miwok is a public water supplier within the basin and has at least two groundwater wells.

Amount of Grant Funding that will Benefit Tribe, URC, and/or SDAC

Benefits of Component X are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, so approximately $_____ of the project budget will benefit the SDACs if calculated on a per-acre basis or $_____ on a population basis.

5. Positive Impacts to Small Water Systems and/or Private Shallow Domestic Wells (4 points)

From *Section 2 Sustainability Goal* of the GSP, "The Sustainability Goal of the Cosumnes Subbasin is to ensure that groundwater…continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural,

industrial, environmental, and others." *Section 14.1 Undesirable Results for Chronic Lowering of Groundwater Levels* of the GSP states that "Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon." Therefore, the overall goal of the GSP and the PMA activities are aimed at positively impacting small water systems and protecting the shallower private domestic wells.

Justification from Domestic Well Census and Water System Maps

Figure X, in Attachment 4, shows the location of the domestic wells and water systems within the Basin. GSP *Section 5.1.5 Well Density per Square Mile* reports that there are 2,258 domestic wells in the subbasin, far more than the number of production (433) or public (23) wells in the subbasin. Domestic wells are typically the most vulnerable to water level decline because they are often drilled shallower due to lower water use requirements and financial constraints. Long-term stability in water levels ensure groundwater accessibility to all users, and is protective against well failure, thus water savings through Land Repurposing and Water Conservation projects contribute towards groundwater sustainability making GSP implementation more feasible. Additionally under this component, the GSAs will ensure that stakeholder and outreach engagement activities include protocols and venues accessible to domestic well users and small water systems in the Basin and suitable for their continued engagement and inclusion.

Addresses Needs of the State Water Board's SAFER Program

The component's contribution to the stability of groundwater will also help address the needs of the Safe and Affordable Fund for Equity and Resilience (SAFER) program. SAFER prioritizes funding based on a 2022 Drinking Water Needs Assessment. Maps that accompany the 2022 assessment show that areas around Galt are at-risk for water shortage issues and that areas south of Sloughhouse and near Ione and in the southern portion of Amador County are potentially at risk for water shortage issues, as shown in Attachment 4 Page ____. In addition, areas near Twin Cities Road, south of Sloughhouse, and north of Ione are at risk for water quality issues.

6. Addresses Human Right to Water (4 points)

As noted in the response to question 5, above, the component will contribute to the feasibility of implementing the GSP, which is necessary to achieve groundwater sustainability and achieve the GSP sustainability goal. Because all drinking water in the Basin is provided by groundwater, these actions meet the state policy expressed in Water Code Section 106.3 that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Furthermore, the State Water Board adopted a resolution in February 2016 stating in part that it would work "to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." Water conservation and land repurposing actions specifically focus on water resource allocation and efficient use for the purpose of stabilizing groundwater levels and groundwater storage. The stabilization of the groundwater table will contribute to this goal by helping sustain the estimated 2,258 domestic wells in the Basin. Under this Component, the GSAs will continue its ongoing GSP implementation activities to operate the Basin sustainably within the defined Sustainable Yield and to prevent Undesirable Results, thereby preserving the Human Right to Water.

B. Scope of Work and Deliverables

1. Include in the Work Plan a complete description of all tasks that will be completed as part of this grant Component.

Category (a) Component Administration

Task 1 Grant Administration
Task 1 includes general component management tasks, such as invoicing, budget tracking, schedule management, staff assignments, and subconsultant coordination and management.

Deliverables:

- Invoices and Progress Status Reports including up-to-date budget "burn rate" graph.

Category (b) Environmental / Engineering / Design

Task 2 Update Land Use
Update the current land use dataset for use in identifying farms with high-water-use crops and characterize all land uses within the Basin. The updated datasets will be presented in tables and maps.

Deliverables:

- Maps of updated land use
- Tables summarizing updated land use dataset

Task 3 Develop Land Repurposing Program Plan

Based on the results of the landowner survey, the economic impact analysis, and feasible land use options for Basin conditions, a menu of recommended land repurposing alternatives and associated incentives will be described in the Land Repurposing Program Plan. The Plan will also recommend an accounting system so the GSAs can track enrollees, practices implemented, acreages involved, and incentives provided. Prepare an agreement for use by CGA to enroll farmers into the program.

Deliverables:

- Land Repurposing Plan and associated farmer's agreement

Task 4 Identify, Rank, Select and Design Conservation Demonstration Projects
Identify sites of willing landowners, rank potential sites based on soil characteristics, land uses and crop types, water consumption, irrigation methods and current water management practices, and overall fitness for testing potential technologies and actions. A minimum of 3 sites will be selected to secure access for site inspections and project implementation. The site inspections will identify existing infrastructure, identify recommended site modifications, and assess the feasibility of recommended site-specific management practices. Upon satisfactory completion of the site assessments, demonstration projects will be designed and implemented at the sites.

Deliverables:

- Maps of site locations
- Written access agreements
- Demonstration Site Designs and Plans

Task 5 Conduct Economic Impact Analysis
Based on the results of landowner outreach and survey responses, identify the land repurposing actions for which there is the broadest support in the Basin and evaluate potential direct and indirect economic impacts to local growers, businesses, and DACs with an emphasis on direct economic impacts attributable to the GSP. Incorporate the findings into a Technical Memorandum that will be integrated into the Land Repurposing Program Plan.

Deliverables:

- Technical Memorandum - Economic Impact Analysis

Task 6 Environmental Compliance

File CEQA exemptions for pilot project activities with State Clearinghouse.

Deliverables:

- CEQA exemptions

Category (c) Implementation / Construction

Task 7 Construct Infrastructure

Construct any needed infrastructure at the Demonstration Sites (e.g., weirs, field modifications, supply and return ditch modifications, etc.). Conduct an inspection of the completed infrastructure by a licensed professional and submit a Certification of Completion letter from the licensed professional to ensure the infrastructure was constructed per the 100% design plans and specifications and that the infrastructure will provide the benefits claimed.

Deliverables:

- Site inspection and/or report(s)

Task 8 Installing Monitoring Equipment

Locate, design & construct necessary monitoring equipment to quantify benefits (e.g., meters, weather stations, sampling stations, soil moisture sensors, etc.) at the Demonstration Sites. Conduct an inspection of the completed monitoring equipment by a licensed professional to ensure the monitoring equipment was constructed, installed, and calibrated correctly.

Deliverables:

- Site inspection and/or report(s)
- Well completion report(s)

Category (d) Monitoring / Assessment

Task 9 Develop BMPs

Develop BMPs for the selected Demonstration Sites following sufficient collection of data and analyses.

Deliverables:

- BMP document(s)

Task 10 DMS Update

Incorporate data and evaluation results from all other tasks into the Basin DMS.

Deliverables:

- Table of data added to the Basin DMS

Task 11 Model Update

Update appropriate model input files. These can include adjustments to assumed irrigation efficiencies, water application and runoff characteristics, land use, and the calculation of actual water consumed by ET.

Deliverables:

- Table of model files updated

Category (e) Engagement / Outreach

Task 12 Landowner Outreach

Conduct outreach to landowners within the subbasin to identify parties interested in participating in conservation demonstration projects, sharing of preliminary results, provide up-to-date status reports and education.

Deliverables:

- Outreach materials

C. Budget

2. Provide a completed budget summary table using template below.

Water Use Management Component

Component serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	$20,000
(b) Environmental / Engineering / Design	$30,000
(c) Implementation / Construction	$85,000
(d) Monitoring / Assessment	$55,000
(e) Engagement / Outreach	$10,000
Total:	**200,000**

D. Schedule

3. Provide a completed schedule table using template below.

Categories	Start Date	End Date
Water Use Management Component		
(a) Component Administration	10/04/2022	4/30/2026
(b) Environmental / Engineering / Design	08/01/2023	03/15/2024
(c) Implementation / Construction	03/15/2024	04/15/2024
(d) Monitoring / Assessment	04/15/2024	4/30/2026
(e) Engagement / Outreach	10/04/2022	TBD

Plan for environmental compliance and permitting

This component is exempt from the CEQA under Categorical Exemption Class 6 (CEQA Guidelines Section 15306, Information Collection). No other permits or environmental compliance measures are anticipated to be required. Temporary rights of entry will be negotiated with landowners for selected demonstration project sites, and the willingness of landowners to grant such rights will be a site section factor.

ATTACHMENT 3

APPLICATION WORK PLAN, BUDGET, AND SCHEDULE

Grant Proposal Title: **Cosumnes Subbasin GSP Update and Implementation Project**

Applicant: **Cosumnes Groundwater Authority**

A. General

Component #: Groundwater Sustainability Plan (GSP) Reporting, Data Gap Filling, and SGMA Compliance Activities

1. Detailed Component Description (4 points)

Detailed Component Description

The Cosumnes Subbasin (herein referred to as the "Basin") is a medium priority basin located in Sacramento and Amador Counties and is required to comply with the Sustainable Groundwater Management Act (SGMA). As shown in **Figure 1** in Attachment 4 page #, the Basin is fully covered by seven Groundwater Sustainability Agencies (GSAs), with each being the exclusive GSA in its portion of the Basin. The GSAs are: (1) City of Galt GSA; (2) Galt Irrigation District (GID) GSA; (3) Clay Water District GSA; (4) Sloughhouse Resource Conservation District (SRCD) GSA; (5) Omochumne-Hartnell Water District (OHWD) GSA; (6) Amador County Groundwater Management Authority (ACGMA) GSA; and (7) Sacramento County GSA. Through the formation and administration of the Cosumnes Groundwater Authority (herein referred to as "CGA" or "GSAs"), the seven GSAs are working together to implement one coordinated Groundwater Sustainability Plan (GSP) for the Basin. Therefore, although the applicant for this Grant is CGA, this Component represents the goals, objectives and needs identified by all seven GSAs.

The GSAs adopted a GSP and submitted to the California Department of Water Resources (DWR) in January 2022. Per Title 23 of the California Code of Regulations (23-CCR) § 355.2(e), DWR has two years, or until January 2024, to evaluate and provide a written assessment of the Cosumnes GSP. While DWR evaluation is underway, the GSAs will proceed with GSP implementation, including filling key data gaps identified within the GSP. Furthermore, 23-CCR § 356.4 requires the GSAs to evaluate its GSP at least every five years and provide a written assessment to DWR describing how the implementation of the GSP and its Projects and Management Actions (PMAs) are meeting the Sustainability Goal of the Basin. Therefore, the GSAs are required to submit its first five-year GSP evaluation and update by 1 January 2027 (2027 GSP).

Component # will assist the GSAs with its ongoing GSP implementation, including data gap filling, reporting, and SGMA compliance, including:

- Responding to DWR's forthcoming evaluation of the 2022 GSP;
- Data gap filling efforts: groundwater dependent ecosystems (GDEs) monitoring and analyses, and improving the well inventory; and
- Preparation of the 2027 GSP in compliance with five-year evaluation requirements, including an update and re-calibration of the numerical model.

Component Goals, Objectives, and Needs and How They will be Met

Goal. The **goal** of Component # is for the GSAs to fully comply with SGMA requirements and to operate the Basin within its Sustainable Yield, avoid Undesirable Results, fill data gaps, and provide a clear framework for demonstrating ongoing Basin sustainability.

Objectives. As a planning component, the **objectives** of Component # are to support continued implementation and compliance activities, stakeholder and public outreach and engagement, conducting the five-year evaluation of the GSP, addressing forthcoming DWR recommendations and comments made on the 2022 GSP, and undertaking the corresponding data gap filling efforts, data collection, and technical studies needed to accomplish the abovementioned activities.

Needs. Component # supports the GSAs' **needs** to satisfy all reporting and other compliance activities required by SGMA. **These needs will be met** by (1) integration of the required data collection by the GSAs into the Basin's Data Management System (DMS) (such as, data from the SGMA Monitoring Network monitoring, surface water deliveries, metered groundwater use where available, and stream diversions); (2) estimating the Basin-wide groundwater demands by obtaining remote sensing evapotranspiration data and integrating into the numerical model, (3) updating the numerical model to incorporate data gap filling efforts and re-calibrating to recently collected data, and (4) preparing the 2027 GSP.

Additionally, Component # supports the GSAs' **needs** to fill key data gaps. Key data gaps identified in the GSP in which the GSAs aim to fill include:

- Uncertainty about well use (i.e., domestic, irrigation, public supply, industrial) and status (i.e., whether or not wells are active). Uncertainty regarding well use and status limits the analyses the GSA can conduct when assessing sector-specific impacts (e.g., when assessing impacts to domestic well users) and introduces uncertainty within the tools the GSA are relying upon to manage Basin groundwater conditions (e.g., the numerical model and the domestic well impact analysis). Maintaining an accurate accounting of existing well use and status is therefore critical for ongoing Basin management and GSP compliance to ensure all beneficial users of groundwater are being identified. **This need will be met** by conducting a well census in which wells documented within the Basin's Data Management System (DMS) and identified in DWR's Online System of Well Completion Reports (OSWCR) database are further investigated and attempted to be located. The improved well inventory will document current well use and status, or if the well cannot be located will be identified as abandoned. Additionally, wells that are found during the census that are not contained with the Basin's DMS will be added.
- Uncertainty in conditions near GDEs. As identified in the GSP, ongoing data collection to evaluate the degree of hydraulic connection between the Principal Aquifer and shallow water-bearing zones will be critical in refining the definition of Undesirable Results, preliminary Minimum Thresholds (MTs) and Measurable Objectives (MOs). **This need will be met** by continued high-frequency water level data collection from the three shallow monitoring wells (wells: RMW-ISW2, RMW-ISW3, and RMW-ISW6) near the Cosumnes River. Data will be used to assess GDE response to Principal Aquifer water level conditions. To better understand environmental beneficial users of groundwater specifically around these GDE units, an updated field mapping of the GDE species and conditions will be cataloged and remote sensing data (e.g., GDE Pulse) will be assessed. Additionally, Valley oak (Quercus lobata), an endemic species to California and dominant vegetation mapped across the Basin using DWR's Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset, will be analyzed in the Basin to quantify ecosystem benefits and impacts using satellite imagery and groundwater level data. The results will not only benefit CGA's GSP development and implementation but will also be useful to other Central Valley groundwater basins, since valley oak is a prevalent vegetation mapped in the NCCAG dataset.

Communities Served, Measurable Objectives, Minimum Thresholds, Plan Implementation Timeline, And Feasibility

Communities Served. Groundwater is the primary source of water for drinking and other domestic needs in the Basin and supports a thriving agricultural economy. Component # will serve the entire Basin, including disadvantaged communities (DACs) and beneficial users of groundwater (e.g., the domestic users and small water systems mentioned below as well as irrigated agriculture and GDEs). The GSAs will continue its active engagement with the public, stakeholders, and landowners in its planning and implementation decisions. Furthermore, as supported through CGA, the GSAs have established and maintained cooperative working relationships with each other, its member districts/agencies, and with neighboring Basins. The GSAs plan to maintain these relationships and expand coordination to other interested parties through the increased outreach and engagement activities.

Measurable Objectives/Minimum Thresholds. The modeling and data gap filling activities will feed directly into the 2027 GSP and will improve the understanding of the impacts of the Basin's operations and defined Sustainable Management Criteria (SMC) on different beneficial users. The preliminary MOs and MTs for the Depletions of Interconnected Surface Water Sustainability Indictor can be revisited based on the GDEs data analyses. SMCs for Chronic Lowering of Groundwater Levels will also be revisited based on the new data added to the Basin's DMS and the re-calibrated Numerical Model.

Plan Implementation Timeline. While the 2027 GSP update is due after the conclusion of the SGMA Implementation Round 2 Grant, the GSAs plans to accomplish most of the needed analyses, updates and improvements, and major modifications and revisions within the Grant timeline (by the end of April 2026). All data and information gathered and processed up to the end of WY 2025 will be used to update and enhance the numerical model and produce a draft 2027 GSP. The potential modifications to address DWR comments will be conducted according to their respective regulatory timelines during the life of the grant. Stakeholder engagement and public outreach activities will be a continuous area of focus during GSP implementation.

Feasibility. The GSAs have successfully met all SGMA-required deadlines and completed all prior SGMA-required documents in accordance with the statutory deadlines. As such, completion of Component # in accordance with the stated schedule is very feasible.

2B. Planning Component: Description of planning component is well-coordinated (4 points)

Respond to DWR Comments on GSP

It is anticipated that DWR will evaluate the 2022 GSP, per the requirements of 23-CCR § 355.6, within two years of the submittal (by January 2024) and issue a written assessment. At a minimum, DWR's assessment will likely include

recommended actions. Under this component, the GSAs will respond to any potential DWR requests and comments in a timely, organized, and adequate manner, including coordination calls with DWR representatives and developing written responses to any possible comments on the 2022 GSP provided by DWR. In the case of a finding of inadequacy, the GSAs will update its implementation plan and modify the 2027 GSP to comprehensively respond to possible deficiencies outlined in DWR's review of the 2022 GSP within the 180-day period, per 23-CCR § 355.2.

Address Data Gaps

Under Component #, the GSAs will work towards filling the most significant data gaps identified in the GSP including well status and use and conditions near GDEs. As discussed above, these key data gap filling efforts serve multiple purposes: to update and ensure all beneficial groundwater users have been identified and to better understand and quantify the Basin system, specifically regarding surface water and GDEs, and provide the GSA with the data to better inform their planning decisions particularly regarding the development of SMCs for the Depletions of Interconnected Surface Water and Chronic Lowering of Groundwater Levels Sustainability Indicators.

Assist in Feasibility of GSP Implementation

Component # will assist the GSAs with conducting regulatory required reporting and compliance activities in a timely and comprehensive manner, which in turn, will lead to increased feasibility of successful implementation of the GSP and maintaining the sustainable management of the Basin. Specifically, stakeholder outreach and public engagement supported under this component will facilitate improved common understanding of conditions and resources and maintain trust in the management of the Basin. It will also increase GSAs' ability to serve all beneficial users of the Basin, as outlined in its GSP, including beneficial uses and users that are more difficult to reach, include, and serve due to socio-economic or other factors.

3. Regional and Component Map(s) (2 points)

See attachment 4 for all maps.

4. Benefit to Under-Represented Community (URC), Tribe or Severely Disadvantaged Community (SDAC) (4 points)

Identification of URC(s), Tribe(s), and/or SDAC(s)
Figure #, in Attachment 4 Page ##, shows the Basin location relative to mapped URCs based on the DWR's DAC Mapping Tool and CalEnviroScreen 4.0. The DACs, and SDACs shown in Figure # include Census tracts identified as:

- SDAC: GEOID20: 06067009503 with a median household income (MHI) of $41,193;
- DAC: GEOID20: 06067009504 with a MHI of $53,162;
- DAC: GEOID20: 06067009501 with a MHI of $59,625; and
- DAC: GEOID20: 06005000303 with a MHI of $58,958.

Portions of the City of Galt and Sacramento County GSAs are considered SDACs and DACs. Portions of GID and ACGMA GSAs are considered DACs. No DACs or SDACs are identified in SRCD, OHWD and Clay Water District GSAs.

The Basin is home to several Native American tribal communities: (1) Wilton Rancheria tribe located in Sacramento County in the northwestern portion of the Basin, (2) the Buena Vista Rancheria of Me-Wuk Indians tribe in Amador County in the eastern portion of the Basin, and (3) the Ione Band of Miwoks tribe also located in Amador County.

Benefits to URC, Tribe or SDAC
Benefits of Component # are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, and therefore will benefit all URCs. By land area, 1% of the Basin is in a SDAC and 26% of the Basin is in a DAC (Figure #). The identified SDACs represent 6% of the population in the Basin, or about 3,000 people. The identified DACs represent 29% of the population in the Basin, or about 14,000 people.

The Buena Vista Rancheria of Me-Wuk Indians tribe relies on groundwater as their water supply. The Wilton Rancheria tribal lands are located adjacent to the Cosumnes River. The Wilton Rancheria tribe mission statement states, "The Department of Environmental Resource shall assess, conserve, monitor, preserve, protect, and restore tribal resources to enhance the environment within the Tribe's Territory." The Cosumnes River is within the Tribe's territory and is a valuable resource to them. The Ione Band of Miwok is a public water supplier within the basin and has at least two groundwater wells.

Amount of Grant Funding that will Benefit Tribe, URC, and/or SDAC

Benefits of Component # are expected to be distributed Basin-wide by contributing to the sustainability of the groundwater basin and the stabilization of the groundwater table, so approximately $_____ of the project budget will benefit the SDACs if calculated on a per-acre basis or $_____ on a population basis.

5. Positive Impacts to Small Water Systems and/or Private Shallow Domestic Wells (4 points)

From *Section 2 Sustainability Goal,* of the GSP, "The Sustainability Goal of the Cosumnes Subbasin is to ensure that groundwater…continues to be a long-term resource for beneficial users and uses including urban, domestic, agricultural, industrial, environmental, and others." *Section 14.1 Undesirable Results for Chronic Lowering of Groundwater Levels*, of the GSP states that "Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon." Therefore, the overall goal of the GSP is aimed at positively impacting small water systems and protecting the shallower private domestic wells. As a results from Component X, the improved well inventory will be used to update the domestic well impact analysis which is used to evaluate the potential for well dewatering that could occur at the chosen MTs to ensure that conditions associated with the MTs would not constitute significant and unreasonable effects to this sensitive beneficial use.

Justification from Domestic Well Census and Water System Maps

Figure X, in Attachment 4, shows the location of the domestic wells and water systems within the Basin. GSP *Section 5.1.5 Well Density per Square Mile*, reports that there are 2,258 domestic wells in the Basin, far more than the number of production (433) or public (23) wells in the Basin. Stable water levels ensure groundwater accessibility to existing wells and protects against pump and well failures. Domestic wells are typically the most vulnerable to water levels declining below the top of well screen because they are often drilled shallower due to lower water use requirements and financial constraints. This Component will improve the data and analyses to confirm the GSP is working towards the Basin's Sustainability Goal and ensure a reliable water supply for all users. Additionally under this component, the GSAs will ensure that stakeholder and outreach engagement activities include protocols and venues accessible to domestic well users and small water systems in the Basin and suitable for their continued engagement and inclusion.

Addresses Needs of the State Water Board's SAFER Program

The component's contribution to the stability of groundwater will also help address the needs of the Safe and Affordable Fund for Equity and Resilience (SAFER) program. SAFER prioritizes funding based on a 2022 Drinking Water Needs Assessment. Maps that accompany the 2022 assessment show that areas around the City of Galt are at-risk for water shortage issues and that areas south of Sloughhouse and near Ione, and in the southern portion of Amador County are potentially at risk for water shortage issues, as shown in Attachment 4 Page ##. In addition, areas near Twin Cities, south of Sloughhouse, and north of Ione are at risk for water quality issues.

6. Addresses Human Right to Water (4 points)

As noted in the response to question 5, above, the component will contribute to the sustainability of the groundwater basin in fulfillment of the GSP sustainability goal. This will in turn meet the state policy expressed in Water Code Section 106.3 that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Furthermore, the State Water Board adopted a resolution in February 2016 stating in part that it would work "to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." Under this Component, the GSAs will continue its ongoing GSP implementation activities to operate the Basin sustainably within the defined Sustainable Yield and to prevent Undesirable Results, thereby preserving the Human Right to Water.

B. Scope of Work and Deliverables (maximum of 4 points possible)

(a) Component Administration

Task 1: Project Management

Project management includes general component management tasks, such as invoicing, budget tracking, schedule management, staff assignments, and subconsultant coordination and management.

Deliverables:

- Invoices and Progress Status Reports including up-to-date budget "burn rate" graph.

(b) Environmental / Engineering / Design

(c) Implementation / Construction

(d) Monitoring / Assessment

Task 2: Data Gap Filling

Conduct well census to confirm location, status, and construction details of wells in the Basin. Conduct analysis of stream gauge data to quantify surface flows and update water budget calculations. Obtain satellite ET data for the basin and use to quantify groundwater extraction.

Deliverables:

- Summary of well census

Task 3: Groundwater Depleted Ecosystems (GDEs) Assessment and Monitoring

Conduct an additional assessment of potential GDEs in basin where data gaps currently exist. Perform aerial imagery and field mapping to close data gaps and confirm status of potential GDEs and use GDE Pulse tool to evaluate Analyze water level data from monitoring wells and pumping well records. Determine if water levels in the shallow monitoring wells may be affected by nearby pumping from the Principal Aquifer. Determine if shallow monitoring wells should be integrated into the GSP monitoring network. Detail results in 2027 GSP Appendix.

Deliverables:

- Representative maps showing distribution of confirmed or high-likely GDEs
- Draft 2027 GSP Appendix –Report summarizing Valley Oak GDE findings

Task 4: Numerical Model Update and Re-Calibration

Update the numerical model parameter values and calibration using new data to better represent the aquifer's water budget to improve understanding of underground geology, future refinements to the hydrogeologic conceptual model, and help identify potential areas for recharge. Incorporate data from DWR's airborne electromagnetic (AEM) surveys to integrate basin-specific and cross-basin geophysical data. Address potential model limitations identified in the GSP, including the need for additional hydrogeological conceptualization and incorporating future data into model calibration.

Deliverables:

- Presentation materials on the numerical model update included in CGA Board of Directors Meeting packets

Task 5: Modify GSP in Response to DWR Determination

Under this task, the GSAs will modify the 2022 GSP, as applicable, in response to DWR's review and evaluation of the Plan. If approved with recommendations, the GSAs will address and consider those recommendations in implementing the 2022 GSP. If for some reason the 2022 GSP is determined incomplete or inadequate, the GSAs will provide a comprehensive response and reasonable modifications to the Plan to successfully address DWR's concerns and will submit a modified plan within 180 days. In both cases, the GSAs will include coordination and technical support to respond to any potential DWR requests in a timely, organized, and adequate manner, including coordination calls with DWR representatives and developing written responses to any possible comments on the 2022 GSP provided by DWR.

Deliverables:

- As-needed written responses to any potential comments on the 2022 GSP provided by DWR
- Revised 2022 Plan, if needed

Task 6: Five-Year GSP Update

Assess progress in prior years after the adoption of the Cosumnes Subbasin GSP, and use the best available information and science to prepare the 2027 5-year amendment to the Cosumnes Subbasin GSP. The amendment will be updated to reflect progress towards achieving the Cosumnes Subbasin 2042 sustainability goals, project implementation, and SGMA regulations compliance.

Deliverables:

- Draft Five-Year GSP Update

(e): Engagement / Outreach

Task 7

: Stakeholder Engagement and Public Outreach

Under this task, the GSAs will continue its outreach and engagement efforts to the stakeholders, interested parties, and general public according to the Outreach and Engagement Plan, possible recommendations provided by DWR in its review of the 2022 GSP, and identified needs for improvement. The GSAs will hold regular Board meetings open to the public, continue providing information and updates to its website, and provide direct and specific engagement with key stakeholders in the form of workshops or education seminars as outlined in the Outreach and Engagement Plan.

Additionally, WWGSA will form a Technical Advisory Committee (TAC) to support the Board in reviewing policies and advise on P/MA implementation. The committee will be made up of District staff, volunteer landowners, and non-profit representatives. TAC meetings will be held monthly and open to the public, so that any community member can contribute to discussions.

Deliverables:

- Meeting agenda, minutes, and materials.

1. Budget

Provide a completed budget summary table using template below.

- Assure that the budget is reasonable for the project.
- Assure that the budget table provided coincide with the scope of work and the schedule table.

2. Schedule

Provide a completed schedule table using template below.

- Assure that the schedule is feasible for the project.
- Assure that the schedule table provided coincide with the scope of work and the budget table.

BUDGET TABLE TEMPLATE

For Project with NO Components use the following.

Table 1a: Budget Summary

Grant Title: <enter title>

Grantee: <enter Grantee name>

Component serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Grant Agreement Administration	$0
(b) Environmental / Engineering / Design	$0
(c) Implementation / Construction	$0
(d) Monitoring / Assessment	$0
(e) Engagement / Outreach	$0

For Project with MULTIPLE Components use the following:

Table 1a: Budget Summary

Grant Title: <enter title>

Grantee: <enter Grantee name>

Components	Grant Amount
Component 1: Grant Administration	$0
Component 2: XXX	$0

Component 3: XXX	$0
Component 4 : XXX	$0
Component 5 : XXX	$0
Total:	**$0**

Table 1b: Component Budget Summaries

Component 1: Grant Administration <or other Component title if no Grant Administration is covered by grant funds>

Component serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Grant Agreement Administration	$0
(b) Environmental / Engineering / Design	$0
(c) Implementation / Construction	$0
(d) Monitoring / Assessment	$0
(e) Engagement / Outreach	$0
Total:	**$0**

Component X: <enter title>

Component X serves a need of a DAC, SDAC, Tribe and/or Underrepresented Community?

(check all that apply): ☐DAC, ☐SDAC, ☐Tribe, and/or ☐Underrepresented Community

Budget Categories	Grant Amount
(a) Component Administration	$0
(b) Environmental / Engineering / Design	$0
(c) Implementation / Construction	$0
(d) Monitoring / Assessment	$0
(e) Engagement / Outreach	$0
Total:	**$0**

Table 2 – Ranking of Proposed Components

Rank	Name	SJV Funds Component Requirement	Readiness	Partnerships with Non-Profits, Non-Governmental Organizations (NROs), and/or Colleges/Universities	Benefactors	Cost
Rank in order of importance with 1 being most important. Do not use rank # more than once each.	*Provide a name for each proposed component.*	*Please check box if the component is eligible for SJV-funds*	*Please check if the component will be under construction by the end of 2023*	*Please list all partnering agencies that are collaborating on a component with the estimate amount of funding being provided to the nonprofit(s), NGO(s), and/or college(s)/ university (-ies)*	*Does this component benefit any of the following communities? (Check all that apply)*	*Provide a cost estimate for the total component cost. Round to nearest hundred.*
1	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
2	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
3	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
4	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
5	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
6	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
7	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
8	Component Name	☐	☐		☐ Tribe(s) ☐ URC(s) ☐ SDAC(s)	$
					Total Cost:	**$**

SCHEDULE TABLE TEMPLATE

<Schedule must align with work plan and budget.>

For Project with NO Components use the following.

Grant Title: <enter title>

Categories	Start Date[1]	End Date[1]
(a) Grant Agreement Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(d) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY

NOTES:

[1]Exhibit C Schedule only dictates the work start date and the work end date for the Budget Category listed. The Grantee must adhere to the Deliverable Due Date Schedule that has been approved by the DWR Grant Manager. The dates listed in Exhibit C Schedule are date ranges that correlates to the Deliverable Due Date Schedule. Eligible costs for each line item will only be approved if the work completed falls within the date ranges listed in Exhibit C.

For Project with MULTIPLE Components use the following:

Grant Title: <enter title>

Categories	Start Date	End Date
Component 1: Grant Administration <or other component name if no Grant Administration is covered by grant funds>	**January 28, 2022**	**July 27, 2022**
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(e) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY
Component X: <component name>	**January 1, 2023**	**January 31, 2025**
(a) Component Administration	MM/DD/YYYY	MM/DD/YYYY
(b) Environmental / Engineering / Design	MM/DD/YYYY	MM/DD/YYYY
(c) Implementation / Construction	MM/DD/YYYY	MM/DD/YYYY
(d) Monitoring / Assessment	MM/DD/YYYY	MM/DD/YYYY
(e) Engagement / Outreach	MM/DD/YYYY	MM/DD/YYYY

Environmental Compliance and Permitting

Provide a brief description of the plan for environmental compliance and permitting, if applicable, including the following items and a status of each:

- A description and/or list of expected environmental compliance requirements, including any California Environmental Quality Act obligations;
- A listing of environmental related permits or entitlements that are needed for the project;
- A list of easement/land acquisition needed.

Per Water Code § 10728.6, the 2027 GSP and other planning documents being developed pursuant to this Component are not subject to any California Environmental Quality Act (CEQA) obligations or other permitting requirements.

Insert MW permitting requirements here