

## 8 GROUNDWATER SUSTAINABILITY PLAN IMPLEMENTATION

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This section describes how the GSP for the Corning Subbasin will be implemented. The 2 GSAs, Tehama County Flood Control and Water Conservation District, and the Corning Sub-basin GSA (and its member agencies), will be responsible for administering and overseeing Plan implementation following the GSP submittal by January 31, 2022. Section 8 serves as a roadmap for addressing GSP implementation activities between 2022 and 2042. This section focuses on the activities to be completed between 2022 and 2027, prior to the first comprehensive 5-year Periodic Evaluation to the GSP.

Implementing this GSP will require the following formative activities:

- Ongoing GSA administration, stakeholder outreach, and coordination with neighboring Subbasins' GSAs
- Developing funding sources and mechanisms
- Collecting or compiling groundwater, surface water, and subsidence data per the GSP monitoring plan
- Preparing routine GSP reports to update DWR on the status of groundwater sustainability and other GSP implementation tasks
- Addressing identified data gaps
- Expanding and improving the existing monitoring networks
- Updating the Data Management System (DMS)
- Updating and refining the hydrologic model
- Evaluate, prioritizing, and refining projects and management actions

The implementation plan in this section is based on our current understanding of Subbasin conditions described in Section 3, the monitoring networks summarized in Section 5, and potential projects and management actions for achieving groundwater sustainability described in Section 7. Understanding of Subbasin groundwater conditions will evolve over time based on future data collection, model revisions, interbasin coordination, and stakeholder input. As the monitoring network and groundwater model are refined and sustainability measures are implemented, Subbasin conditions may change, and the details of the potential projects and management actions will adapt to the Subbasins beneficial uses and users' needs.

The GSAs are responsible for implementing the Plan. This will be accomplished through the same general process developed during the GSP planning phase. Implementing the GSP requires the GSAs to oversee and manage day-to-day sustainable groundwater management program activities including administration, communication, outreach, funding, data collection, technical

evaluations, and reporting. In addition, the GSAs will be responsible for coordinating the refinement and implementation of projects and management actions (described in Section 7), in collaboration with local stakeholders and local, regional, state, and federal agencies.

## **8.1 Implementation Activity 1: GSAs Administration, Communication, and Outreach**

The GSP management and governance structure during Plan implementation will remain similar to the planning process, as described in detail in Section 1.

### **8.1.1 GSAs Administration**

The GSAs will be responsible for administering and overseeing GSP implementation as soon as the GSP is adopted by the GSA boards. The GSP will be implemented under the Memorandum of Understanding (MOU) signed January 7, 2020, between the 2 GSAs representing the Glenn and Tehama County portions of the Subbasin, respectively:

1. The Corning Sub-basin GSA (CSGSA) is the exclusive GSA for the portion of the Subbasin in Glenn County. The Corning Sub-basin GSA was formed through a Memorandum of Agreement (MOA) between 3 member agencies: Glenn County, Glenn-Colusa Irrigation District (GCID), and Monroeville Water District.
2. The Tehama County Flood Control and Water Conservation District (TCFCWCD) is the exclusive GSA for the portion of the Subbasin within Tehama County.

The Corning Subbasin Advisory Board (CSAB or Advisory Board) will continue to function as an appointed advisory board comprised of members of both GSAs. At least 1 member from each GSA shall be a member of the GSA governing body.

The GSAs are independent organizations with their own staff, administration, and governance frameworks. Day-to-day GSP operations will be managed by the GSAs, potentially with input and recommendations from the Advisory Board. Each GSA has its own structure to coordinate with its county boards, commissions, and member agencies. The GSA roles, responsibilities, and cost sharing agreements will be developed as needed during the GSP implementation process as outlined in the MOU.

During GSP implementation the GSAs and member agency staff will routinely report to the CSAB and their respective agencies, similar to the process for Plan development. The Advisory Board, and GSA meetings will be publicly noticed and follow procedures consistent with the Ralph M. Brown Act for transparency and public involvement. This process will allow for a robust and transparent GSP implementation process that complies with the GSP Regulations.

## 8.1.2 Overview of GSP Implementation Activities

The primary administrative roles and GSP implementation responsibilities of the GSAs during GSP implementation are the following:

- Subbasin GSA Coordination: Coordination between the 2 Subbasin GSAs is crucial to ensure that GSP implementation follows the Plan for groundwater sustainability in the Subbasin. Coordination is outlined in the MOU.
- Internal GSA coordination: Each GSA has its own internal coordination needs. The CSGSA will coordinate between member agencies and any subcommittees. The TCFCWCD will have additional coordination with the county groundwater commission, subcommittees, and others as needed.
- Inter-basin Coordination: The GSAs will continue to meet regularly with representatives from the adjacent subbasins to ensure that the regional groundwater resource is managed sustainably. This is important in the Northern Sacramento Valley as the groundwater aquifers are connected hydrogeologically and are recharged by the major rivers and creeks that form many of the adjacent subbasin boundaries. Regular interbasin coordination will help the GSAs in the Corning Subbasin and other GSAs in the region achieve groundwater sustainability. A list of potential activities to be undertaken during interbasin coordination is provided in Appendix 2D.
- Public outreach and notification: The GSAs are responsible for regular stakeholder engagement during GSP implementation including maintenance of the Corning Subbasin GSP website, hosting public workshops, and routinely engaging the public to share information about groundwater sustainability implementation activities and receive feedback. Stakeholder understanding and acceptance of this Plan is crucial for Plan implementation success. Part of the GSAs role during GSP implementation is to be a local ambassador in their respective jurisdictions, with active participation and outreach for groundwater sustainability.
- Advisory Board and GSA Board meetings: The Advisory Board will meet at least annually to receive updates on GSP implementation from the GSAs, with more frequent meetings scheduled, as necessary. The GSAs will meet at regular intervals and will provide implementation updates periodically to their boards as appropriate.
- Budget planning and funding oversight: The GSAs must maintain financial viability in order to implement the GSP; funding mechanisms are further described below. A cost-sharing agreement between the GSAs may be implemented in accordance with the MOU.
- Oversight of consultants or contractors: The GSAs may collaborate and retain consultants and contractors to execute certain activities on behalf of the GSAs such as collecting data from the GSP monitoring network, developing plans for data gap investigations,

installing new monitoring sites, refining projects and management actions, and developing GSP funding mechanisms.

- Collecting data and reporting sustainability progress: The GSAs will conduct groundwater condition monitoring and collect monitoring data from external sources, as described in Section 5. The GSAs will report findings to DWR in annual reports and 5-year Periodic Evaluations described in Section 8.3.2.
- Filling data gaps: The GSAs will investigate or collaborate with consultants and technical specialists to fill critical data gaps described in the HCM (Section 3.1.9), groundwater conditions (Section 3.2.8) and monitoring networks (Sections 5.2.6, 5.5.3, and 5.6.3). Filling data gaps will entail technical studies, installing new monitoring sites, and refining the groundwater model as new information becomes available and as funding allows.
- Implementation of projects and management actions: Projects and management actions will be necessary for the Subbasin to meet the SMC identified in the Plan, described in Section 6. During the first 5 years of Plan implementation, the GSAs will collaboratively refine the projects and management actions identified in Section 7 by assessing feasibility, costs, expected benefits, permitting, and regulatory circumstances for project implementation.

### **8.1.3 Communication and Outreach**

Ongoing outreach by both GSAs will remain an important part of GSP implementation to continue gathering feedback from Subbasin stakeholders and different beneficial users such as domestic, agricultural, urban, and tribal groundwater users.

The GSAs will routinely provide information to the public about GSP implementation and sustainability progress. The Corning Subbasin website will be maintained by the GSAs as a communication tool for posting data, reports, and public meeting information. The GSAs will also explore additional means and methods for direct and indirect communication with stakeholders as described in Section 2.16. The GSAs will respond to public inquiries received and elevate public comments as appropriate.

#### **8.1.3.1 Interbasin Coordination**

The GSAs will also serve as the point of contact for inter-agency coordination with the other GSAs in the region. The interbasin coordination activities that started under GSP development (summarized in Appendix 2D) will continue during implementation to follow the key goals for successful regional groundwater sustainability in the Northern Sacramento Valley, such as:

- Information-sharing on program activities and implementation challenges

- Joint analysis and evaluation of data collected and report development
- Coordination on mutually beneficial activities
- Coordinated communication and outreach for regional scale public engagement

### **8.1.3.2 Coordination with other local, regional, state, and federal agencies**

Many local agencies will likely play a role in GSP implementation, as mentioned in Section 7. The neighboring GSAs, County Planning and Environmental Health Departments, Water Districts, Farm Bureaus, RCDs, and Water Quality Coalitions are among the local and regional agencies that the GSAs will regularly coordinate with during implementation. In addition, DWR regional offices will continue to provide technical support to the GSAs. Coordination with the USBR will be crucial to work out some of the details on project implementation, particularly where surface water use is needed to implement important conjunctive use projects.

### **8.1.3.3 Coordination with the Tribes**

Outreach and coordination with the Paskenta Band in Tehama County will be ongoing, specifically in regard to the development of the Tribe’s groundwater monitoring and management plans. The Tribe may share details of these plans with the GSAs at a suitable time and provide coordination with the GSP during implementation. In addition, the GSAs will coordinate with the Tribe on the implementation of projects and management actions.

## **8.2 Implementation Activity 2: Refinement of GSP Implementation Funding Sources and Mechanisms**

GSP development and initial SGMA outreach have been funded by a DWR grant and in-kind contributions from the GSAs of the Corning Subbasin. Implementation of the GSP will require that the GSAs identify and implement new funding mechanisms to carry out the administrative, reporting, monitoring, and projects and management action activities necessary to achieve the Corning Subbasin’s Sustainability Goal. Pursuant to the MOU among Corning Sub-basin GSA members, any future cost-sharing allocations shall be agreed to in writing by the members in advance of executing any contracts with consultants, vendors, or other contractors or incurring any expense.

The primary funding sources and mechanisms considered by the GSAs to support future implementation activities are:

- **GSA Self-Funding**: The GSAs may levy fees and assessments within their respective jurisdictions, pursuant to the applicable requirements and authorities of SGMA, Proposition 13, Proposition 26, and Proposition 218. SGMA specifically authorizes GSAs to impose charges to fund the cost of administration, operations, permitting,

prudent reserve, and other activities necessary or convenient to implement the plan. The GSAs will coordinate with each other on how they will share GSP implementation costs and pursue self-funding strategies that best meet their local needs. Multiple fee-types may be implemented by GSAs. Self-funding mechanisms that are adopted by the GSAs may be adjusted periodically as new needs are identified and new data become available.

- **Grants:** Grant funding from local, state, federal, and other sources will be pursued to support all applicable implementation activities. Grants are considered an opportunistic source of funding. The availability of grant funding may vary widely from year to year depending on which programs are soliciting grant applications, the total grant funding made available through such programs, and to what purpose awarded grant funding may be applied (i.e., planning, technical support, project implementation, etc.). In many cases, grants sought by the GSAs will also require an agency cost-share that will need to be funded through in-kind services and/or agency revenues. Grant funds are typically application-based and not guaranteed. See Section 8.2.2 for an overview of potential near-term grant and cost-share funding opportunities that may be available to the GSAs.
- **Partner Funding:** The GSAs are committed to working collaboratively and meeting regularly with other local agencies and stakeholders to implement projects and management actions that achieve the Sustainability Goal. The GSAs may coordinate with local partners to incentivize activities that improve sustainable groundwater management and project implementation. The GSAs will coordinate with local partners to identify funding mechanisms and allocation of funding commitments to support proposed projects and activities located within the respective jurisdictions. Every effort will be made to find equitable and agreeable solutions including distribution of costs among partnering agencies.
- **Bonds and Borrowing:** Bonds and borrowing are considered a viable source of funding for infrastructure and other capital-intensive projects. Bonds can serve as low-cost course of financing and are typically issued by public agencies in the form of General Obligation Bonds or Revenue Bonds. These bonds are secured by encumbering 1 or more sources of revenue and other assets available to the agency. Should the GSAs seek to issue bonds, they will need to have established a self-funding mechanism that generate the revenues necessary to service the debt payments.

### **8.2.1 Develop Start-Up Funding Mechanisms**

During the initial phase of GSP implementation (2022 – 2026), the GSAs will evaluate and seek to implement self-funding strategies to recover the costs of their sustainable groundwater management activities. Budgets will be refined and cost-sharing mechanisms agreed to by the GSAs. Consultants and/or legal advisors will be retained to advise on the implementation of fees or assessments. It is anticipated that the GSAs will adopt self-funding mechanisms within the

first 2 years of GSP implementation to recover, at a minimum, costs related to general operational expenses (see Section 8.9.1 for additional discussion and estimates of these expenses). Grants will be pursued as they become available and based on their applicability to priority implementation activities and projects. The GSAs will coordinate with local partners on proposed activities and projects within their jurisdictions that support sustainable groundwater management.

Appendix 8A includes a more detailed memorandum evaluating the potential funding mechanisms described above, including relevant policies and the data required to support their implementation.

The 2 GSAs will refine the budget required to implement the GSP and develop a cost-sharing mechanism for the major GSP implementation activities. Each GSA, being subject to their own county tax assessments, will review the funding mechanisms that makes the most sense for them to levy fees within their respective jurisdictions.

## 8.2.2 Grant Funding Opportunities

Several grant program and funding opportunities have been identified for further consideration and may be applied for to support near-term funding needs associated with implementing the GSP. Table 8-1 summarizes the identified programs and describes how funds could be applied to support specific implementation activities. The GSAs will regularly evaluate new grant funding opportunities as they become available during the implementation horizon. Appendix 8B provides a more detailed description of the non-DWR grants identified below.

Table 8-1. Near-Term Grant and Cost Share Funding Opportunities

Program or Opportunity	Administrator	Funding Purpose	Description
2021-2022 State Budget (California)	DWR, CDFA, SWRCB, CDFW, Natural Resources Agency, Others	Planning, Technical Support, Project Implementation	California's 2021-2022 State Budget includes a \$5.2 billion Water and Drought Resilience Package, \$3.69 billion Climate Resilience Package, and \$1.1 billion Sustainable Agriculture Package. Funds from each package are allocated over the next three years with significant portions to be made available by various state agencies through grants, technical support, and other financial assistance that can directly support planning, projects, and management actions associated with SGMA implementation.

Program or Opportunity	Administrator	Funding Purpose	Description
Sustainable Groundwater Management Grant Program SGMA Implementation – Planning and Projects	DWR	Planning, Project Implementation	Round 2 grant solicitations will provide up to \$204.5 million <sup>46</sup> for medium- and high priority basins to fund SGMA implementation, including projects and planning efforts. Grant amounts are expected to range between \$2 million and \$8 million per basin. The solicitation for Round 2 applicants is expected to open in late 2022 with final grant awards announced by Summer of 2023
Facilitation Support Services	DWR	Technical Support	Provides DWR-funded professional facilitators to foster discussions among diverse water management interests and local agencies to work through challenging water management situations.
Technical Support Services Grant	DWR	Technical Support, Project Implementation	Provides funding and technical support for monitoring well installation and various field activities related to groundwater monitoring.
Agricultural Water Use Efficiency Grant Program	USBR, NRCS	Project Implementation	Provides funding opportunities to improve water supply reliability through water conservation or improved water management, create new supplies for agricultural irrigation, and benefit endangered species
CALFED Water Use Efficiency Program	USBR	Project Implementation	Provides funding to accelerate the implementation of cost-effective actions that reduce the demand on Bay-Delta water and can result in significant benefits to water quality, supply reliability, and instream flows.
WaterSMART Basin Studies Program	USBR	Planning	Provides cost-share funding to develop collaborative studies that evaluate water supply and demand and help ensure reliable water supplies by developing strategies that address water supply/demand imbalances.
WaterSMART Water and Energy Efficiency Grants Program	USBR	Project Implementation	Provides 50/50 cost-share funding to complete projects that conserve and use water more efficiently, increase the production of hydropower, mitigate conflict risk, and accomplish other benefits that contribute to water supply reliability.
WaterSMART Water Marketing Strategy Grant Program	USBR	Planning	Provides grant assistance to conduct planning activities to develop water marketing strategies that establish or expand water markets or marketing activities between willing participants.
WaterSMART Small-Scale Water Efficiency Project Program	USBR	Project Implementation	Provides 50/50 cost-share funding for small water efficiency improvements (e.g., automation, flow measurement installation, canal lining, etc.).
WaterSMART Applied Science Grant Program	USBR	Planning, Technical Support	Provides funding for the development of tools, such as modeling and forecasting tools, and information to support water management for multiple uses.
WaterSMART Cooperative Watershed Management Program	USBR	Planning, Project Implementation	Phase I funding supports watershed group development, restoration planning, and management project design. Phase II funding provides cost-shared assistance to implement watershed management projects.

<sup>46</sup> Note: Includes \$114 million in future General Fund appropriations, the remaining \$19 million Fiscal Year 2021-2022 General Fund appropriations as authorized under the California Budget Act of 2021, and the remaining \$71.5 million in Proposition 68 grant funds.



Program or Opportunity	Administrator	Funding Purpose	Description
WaterSMART Drought Response Program	USBR	Planning, Project Implementation	Supports the development of drought contingency plans and implementation of resiliency projects; undertakes emergency response actions.
WaterSMART Title XVI Water Recycling and Reuse Program	USBR	Planning, Project Implementation	Provides funding for the planning, design, and construction of water recycling and reuse partnerships.
Conservation Innovation Grants Program	NRCS	Planning, Technical Support	Competitive grant program that supports the development of new tools, approaches, practices, and technologies to further natural resource conservation on private lands.

### 8.3 Implementation Activity 3: Monitoring and Reporting

A primary ongoing function of the GSAs during the GSP implementation phase will be to collect, compile, and evaluate data and report progress on groundwater sustainability activities per Article 7 of the GSP Regulations. The GSAs may hire consultants, negotiate agreements with agencies, and/or hire or utilize existing staff for monitoring and reporting functions.

#### 8.3.1 Monitoring

Monitoring of the relevant sustainability indicators will be initiated immediately upon adoption of the GSP. The monitoring network is described in detail in Section 5 of the GSP. The GSAs will coordinate with DWR and other entities, as needed, to ensure that data collection from the GSP monitoring network continues without interruption using the protocols specified in the Plan. The GSP monitoring networks rely exclusively on existing monitoring programs; therefore, there is no immediate need for the GSAs to initiate new programs. Data collected from the various programs will be compiled by the GSAs or county staff and stored in the DMS. Data quality will be assessed routinely to confirm that the data meet the necessary standards.

Groundwater conditions data will be downloaded, summarized in tables and figures, and compared to the SMC in annual reports submitted to DWR. The following general process will be followed for collecting and reporting data:

- Download data from public databases
- Check and verify data
- Upload data to the DMS
- Prepare data summary tables and figures
- Compare data to SMC
- Analyze impacts of projects and management actions

The subsections below outline specific details for implementation of the monitoring networks for each relevant Sustainability Indicator.

### **8.3.1.1 Groundwater Level Monitoring**

DWR, Glenn County, and Tehama County representatives currently collect groundwater level data from a network of monitoring wells in the Subbasin under the statewide CASGEM program. The CASGEM system will be replaced by the GSP groundwater elevation monitoring program once the GSP is submitted to DWR. Groundwater monitoring will continue to be conducted by DWR and the county representatives under the new GSP monitoring program. Groundwater elevation data will be uploaded to the SGMA data portal semiannually; before January 1 and July 1 of each year, similarly to the former CASGEM requirements, just in a different upload system now linked to the GSP. The GSAs will compile groundwater level monitoring results.

During GSP implementation, the GSAs will need to acquire access to the GSP monitoring network wells. The DWR Northern Region Office is actively pursuing renewed access agreements with CASGEM well owners to ensure that data can be collected legally and reported from the wells without interruption during GSP implementation. The GSAs assume that the DWR Northern Region Office will be responsible for providing access agreements to the GSAs for all of the existing monitoring sites in the GSP water level monitoring network.

#### **8.3.1.1.1 Groundwater Storage Monitoring**

The GSAs will use groundwater levels as a proxy to estimate the annual change in groundwater storage. This will require annual groundwater level measurements at Representative Monitoring Point (RMP) wells identified in Section 5.

### **8.3.1.2 Land Subsidence Monitoring**

The GSAs will monitor land subsidence using data collected by DWR from InSAR, land surface elevation surveys, and the 1 extensometer in the Subbasin. InSAR data will be downloaded from the DWR website at least annually. DWR intends to conduct land surface elevation surveys every 5 years. Since the most recent event was in 2017, the next planned regional elevation survey event is expected to take place in 2022. The GSAs expect that the extensometer station data will continue to be collected and uploaded to SGMA Data Viewer or Water Data Library by DWR.

### **8.3.1.3 Groundwater Quality Monitoring**

The GSAs will compile groundwater quality monitoring data from various active groundwater quality monitoring programs in the Subbasin. The GSAs will not actively collect groundwater quality data at this time. Total dissolved solids (TDS) data from supply wells will be compared to the SMC for groundwater quality. Currently, the only sources of supply well TDS data are the

City of Corning, Hamilton City, and several small water systems that report data to the State Water Resources Control Board Division of Drinking Water. Other active groundwater quality monitoring programs that the GSAs intend to track during GSP implementation include monitoring for the Irrigated Lands Regulatory Program, the Dairy Program, and the Glenn County water quality program. DWR sporadically monitors groundwater quality in some of the observation well clusters in the Subbasin; it is uncertain if they will continue to do this in the future. The GSAs will coordinate with the water quality regulatory and monitoring agencies to obtain water quality information within the Subbasin and effectively manage water quality monitoring related to projects and management actions. The routine and sporadic monitoring program data will be reviewed to ensure that overall groundwater quality in the Subbasin is suitable for beneficial use.

#### **8.3.1.4 Interconnected Surface Water Monitoring**

The GSAs will assess interconnected surface water using groundwater levels as a proxy for comparison to SMC. This monitoring will be conducted at a subset of shallow DWR observation RMP wells identified in Section 5. The GSAs will also compile surface water stage and discharge monitoring data from various sources, though this data will not be compared to SMC, but will provide additional insight into the Subbasin's condition.

### **8.3.2 Reporting**

GSP Regulations require the GSAs to submit regular reports to DWR documenting Subbasin conditions and progress toward sustainability. Per the GSP Regulations the transmittals must be signed by an authorized party and the reports will comply with the DWR online submittal requirements. The following reports will be prepared for the Subbasin:

- **Annual Reports.** In accordance with GSP Regulation §356.2, annual reports will be submitted to DWR starting on April 1, 2022. The purpose of these reports is to provide monitoring and total groundwater use data to DWR, compare monitoring data to the SMC, and provide an update on adaptive implementation of projects and actions to achieve sustainability. Development of an annual report will begin following the end of the water year, September 30, and will include an assessment of the previous water year. The annual reports may also serve as amendment(s) to the GSP as the monitoring networks are refined and understanding of basin conditions are enhanced.
- **5-Year GSP Periodic Evaluation and Assessment Reports.** Five-Year GSP assessment reports will be provided to DWR starting April 1, 2027. The GSAs will evaluate the GSP at least every 5 years to assess whether it is achieving the sustainability goal in the Subbasin. The assessment will include a description of significant new information that has been made available since GSP adoption or amendment and whether the new

information or understanding warrants changes to any aspect of the plan. The 5-Year Periodic Evaluations will also include routine information provided in annual updates.

## 8.4 Implementation Activity 4: Address HCM and Groundwater Conditions Data Gaps

Section 3 identifies data gaps in the current hydrogeologic conceptual model and groundwater conditions that are described in Section 8.4.1, below. The implementation plans to address these data gaps are described in Section 8.4.2, except for some cases that will be addressed by expanding and refining the routine monitoring networks as described in Section 8.5.2 and noted in the section below.

### 8.4.1 Identified Data Gaps

**Western Boundary of the Subbasin:** There is some uncertainty where the western boundary of the alluvial basin is located, as there is anecdotal evidence that some wells in this portion of the Subbasin are drilled into fractured rock and not alluvial aquifer.

**Tehama-Tuscan Transition Zone:** The geologically complex environment created by the cotemporaneous deposition of the Tehama and Tuscan Formations is not entirely understood in all areas of the Subbasin. The interfingering of these heterogeneous formations could be mapped with greater certainty to improve the conceptual understanding of the principal aquifer. This information would be useful to better assess whether confining layers impede vertical movement of groundwater in some areas.

**Hydrogeologic Parameters:** Existing knowledge of aquifer parameters can be considered incomplete for some of the Subbasin's formations, namely the Tuscan and Tehama Formations. Existing aquifer testing results are limited and sometimes potentially misleading, as described in Section 3.1.5. The aquifer properties of these heterogeneous and interfingered formations could be refined to improve the groundwater model calibration, making it a more accurate tool for projecting future groundwater conditions and benefits of projects and management actions.

**Groundwater Dependent Ecosystems (GDEs):** The location and extent of GDEs is estimated based on vegetation mapping and regional groundwater level data. Actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources. There are areas in the Subbasin with potential GDEs where insufficient data exist to say with certainty if GDE vegetation is supported by shallow groundwater or if vegetation is supported by surface water. This distinction is important as GDEs supported only by surface water are not subject to the depletion of interconnected

surface water SMC. Priority species that are known to utilize specific GDE habitat are not well defined for the Subbasin.

**Groundwater Elevations in the Western Area of Subbasin:** Analysis of groundwater elevations in the western Subbasin is limited by the low number of wells screened and monitored in that area. See Section 8.5.2 for the implementation plan for expanding the groundwater level monitoring network in the western portion of the Subbasin.

**Groundwater Quality in the Western Area of Subbasin:** Groundwater quality is not measured in many wells in the western area as most of the wells are private domestic wells and are not part of groundwater quality monitoring programs. See Section 8.5.2 for the implementation plan for collecting additional groundwater quality data in the western portion of the Subbasin.

## 8.4.2 Implementation Plan for Addressing Data Gaps

The most critical hydrogeologic conceptual model data gaps will be addressed early during implementation through the following approaches as funding and DWR collaboration allows. Results of the various data gaps investigations will be incorporated as available, into the required Annual Reports and 5-year GSP Assessment Report.

**Aerial electromagnetic (AEM) or other geophysical surveys:** The GSAs will coordinate with DWR to improve understanding of the subsurface geology, including the complex interfingering of Tehama and Tuscan Formation. In addition, a better understanding of the edge of the western Subbasin boundary is necessary to assess if the most western areas are truly part of the alluvial aquifer as defined by DWR. Additional data gathering could be useful to support a future Basin Boundary Modification request to refine the Subbasin boundary, if appropriate. The GSAs would like to build on DWR's planned AEM survey or other geophysical surveys in the region to expand on previous work performed on the east side of the Sacramento Valley in the Butte County AEM pilot project, which included area in the Corning Subbasin. The AEM pilot test conducted near Hamilton City showed promise as a tool for identifying areas that may be well suited for aquifer recharge projects based on the permeability of near surface geology and also for delineating the deep interfingering of the Tehama and Tuscan formations that might influence deeper processes related to groundwater extraction from the principal aquifer.

**Aquifer testing.** The GSAs may identify wells for aquifer testing to develop better estimates of aquifer properties, to help improve the groundwater model calibration and better understand subsurface characteristics as described above. In addition, aquifer testing could help with project and management action feasibility studies and design.

Wells for aquifer testing will be identified using the following criteria:

- Wells are owned by parties willing to allow access for pump testing and water level measurement and

- Well screen intervals and other completion information is available.
- Wellheads are completed such that groundwater elevations can be monitored with data loggers or groundwater level probes.
- Pumping wells are equipped with accurate flow meters.
- Ideally, pumping wells are near observation wells that can be monitored for groundwater level drawdown to estimate aquifer parameters, although other wells may be used if an observation well is not nearby.

**GDE mapping:** GDE mapping for this GSP was based on GDE-indicator vegetation mapping and historical groundwater level measurements. The GDE analysis may be refined should new wells be installed or added to the GSP monitoring network, or other sources of groundwater level data become available. This data gap investigation will focus primarily on the areas where insufficient groundwater level data exists near the potentially interconnected reaches of Thomes Creek. Additionally, remote sensing tools such as the Nature Conservancy’s GDE Pulse or Google Earth Engine may be used to assess impacts to GDE vegetation vigor from groundwater level declines (if they happen) near interconnected streams.

## 8.5 Implementation Activity 5: Expand and Refine Existing Monitoring Networks

As noted in Section 5, the monitoring networks leverage existing monitoring programs to the extent possible. This section identifies the plan for expanding and enhancing the monitoring networks.

### 8.5.1 Identified Data Gaps

**Lack of Well Screen Information for Some RMP Wells:** The well depth is known for each well used in the GSP groundwater level monitoring network; however, 14 of the 98 total wells have unknown well screen intervals. Since there is only 1 principal aquifer in the Subbasin, the lack of well screen data for some groundwater level monitoring wells does not preclude these wells from being used to understand and manage groundwater in the basin. However, understanding of relative water levels, pumping areas, and vertical gradients is important for groundwater management.

**Localized Spatial Data Gaps for Groundwater Level Monitoring Wells:** There are a few localized spatial data gaps identified in Section 5 where monitoring wells at 1 or more depths could be used to help further refine the understanding of groundwater conditions in areas of high groundwater use. These data gaps are noted near Thomes Creek to the northeast of Corning, and in the western third of the Subbasin in the limited areas where land is used for agriculture.

**Localized Spatial Data Gaps for Shallow Groundwater Level Monitoring Near Streams:**

Monitoring well data gaps were identified that would help characterize groundwater and surface water interaction adjacent to Thomes Creek and the northern boundary of the Subbasin. The data gap locations are co-located with those identified in the shallow RMP network for monitoring water levels in the Subbasin.

**Localized Spatial Data Gaps for Groundwater Quality Monitoring Wells:** The primary data gap for the groundwater quality monitoring networks is that the DWR is currently evaluating potential plans to continue monitoring the groundwater quality well network in the Subbasin. The GSAs recommend that the DWR continue to monitor groundwater quality in the network of observation well clusters in the Subbasin in the future. Groundwater quality is also not measured in many wells in the western portion of the Subbasin as there are no wells in active groundwater quality monitoring programs. In addition, most water supply wells at the cities are only monitored sporadically for TDS, and the GSAs will work with the cities to implement annual monitoring of TDS for annual GSP reporting.

**Localized Spatial Data Gaps for Surface Water Monitoring:** Many of the formerly active stream gages in the Subbasin are no longer available for monitoring. Replacing or modifying the 2 stream gages on Thomes Creek would provide more complete spatial coverage for streamflow monitoring. There is 1 existing gauge at the upstream portion of Thomes Creek that is not capable of measuring low flows below 3 feet, and there is 1 gauge on the lower reaches of the creek that is no longer active.

## **8.5.2 Implementation Plan for Expanding and Refining Monitoring Networks**

The most critical monitoring network data gaps will be addressed early during implementation. The GSAs intend to apply for DWR technical support services assistance and other funding to fill spatial data gaps. The general plan for expanding and enhancing the monitoring networks is summarized below:

**Videologging of Wells with Unknown Screen Intervals:** The GSAs will seek to videolog wells with unknown screen intervals used for groundwater level monitoring. There are currently 14 wells with unknown screen intervals in the GSP monitoring network. Videologging will be conducted, focusing first on the RMP wells, followed by other less critical GSP monitoring network wells as funding allows. If a downhole pump is installed in the well in question, the pump will be removed prior to lowering a video camera. While the survey is being completed, the GSAs will note the screen intervals and conduct a well condition assessment to determine whether the well construction information and current condition support collection of reliable data for the GSP.

**Identify or Install additional Groundwater Level Monitoring Wells:** During the first few years of GSP implementation, the GSAs will seek to identify existing wells that are suitable and

accessible for monitoring groundwater levels in the data gap areas for chronic lowering of groundwater levels and depletion of interconnected surface water sustainability indicators. There are 5 general areas with spatial data gaps shown in the shallow and deep groundwater level RMP networks shown in Figures 5-4 and 5-5, respectively. If an existing well cannot be identified, or permission to use data from an existing well cannot be secured, then a new monitoring well will be drilled and added to the monitoring network, provided permission will be granted by the landowner. The GSAs will work with DWR to obtain TSS agreements to install new observation wells, as needed. In addition, groundwater level analysis near the Corning Subbasin boundaries will be supplemented in GSP annual reports with data from neighboring subbasin wells, as necessary, while the GSAs evaluate and add new or existing wells to address data gaps in the RMP network.

**Groundwater Quality Data Gap Implementation Plan:** The GSAs will coordinate with DWR to explore the continuation of regular groundwater quality monitoring in observation well clusters in the Subbasin, as this information would be extremely helpful for the Subbasin. Additionally, domestic wells in the western area of the Subbasin may be added to the current supply well monitoring network to collect TDS samples in those areas. The GSAs will also coordinate with the City of Corning and Hamilton City on annual TDS monitoring at their supply wells.

**Surface Water Monitoring Data Gap Implementation Plan:** The GSAs will assess the feasibility of modifying or reviving the 2 surface water gages on Thomes Creek to address data gaps on this stream reach. This activity will be coordinated with applicable state and federal agencies. Thomes Creek is the only major surface water body in the Subbasin that is classified by the TNC Gage Gap webmap as a poorly gaged stream. The active DWR stream gauge on Thomes Creek near Paskenta only records creek stage and discharge when there is greater than 3 feet of water in the creek. There is also an inactive, former USGS stream gauge location on Thomes Creek to the west of I-5 that could be revived or replaced to improve monitoring on this reach.

## 8.6 Implementation Activity 6: Update Data Management System

As described in Section 5.7, the GSAs have developed a DMS that will be used to store, review, and upload data collected during GSP development and implementation. As new information is collected during monitoring and provided by local stakeholders, the DMS will be updated. The regular updates will also coincide with the review of new data and development of GSP annual reports.

After the initial data upload and GSP submission, new data will be compiled in the input Excel tables, which are based on GSP and Annual Report upload templates provided by DWR. The monitoring data will be imported at least annually to the DMS Access database as part of the



annual report process. GIS data in the web mapping application will also be updated annually, as needed. These annual updates will be completed by the GSAs.

During GSP implementation, a more robust well data tracking and a well registration program may be developed to better assess wells in use and amount of pumping in the Subbasin. Should this program be implemented, the additional data collected will be included into the DMS.

### **8.6.1 Well Database Update**

This program would be aimed at improving overall county well data management. The GSA could assist each county in developing improved well tracking databases. This would involve reviewing well completion reports and GIS data currently available through DWR's Well Completion Report Application and SGMA Data Viewer and the County Environmental Health Departments. Since much of this data is incomplete or places wells at the center of public land survey system (PLSS) sections, additional research could be conducted to refine the data. For example, the counties could check with well owners about data accuracy and compile information on new wells, including location, purpose, construction information, and hydrogeology. The counties could also identify abandoned wells or wells no longer in use. A similar effort has already been undertaken in Glenn County and enhanced with DMS improvements using Proposition 1 grant funding as described in Section 7.3.2.1. This effort could therefore focus on refining well data within the Tehama County portion of the Corning Subbasin and continuing to refine the Glenn County portion of the data included in its countywide well DMS. This effort will be coordinated with the GSPs being developed within Tehama and Glenn Counties to produce 2 county-wide well completion report databases, containing robust and spatially refined well data, ideally down to at least the APN scale.

### **8.6.2 Well Registration Program**

To further develop a robust understanding of groundwater use in the Corning Subbasin a well registration program could be implemented to track the volume and timing of groundwater pumping in the Subbasin. Registration could include sharing of available well construction information, metering information, and monthly or annual estimated extraction volumes. Well metering is intended to improve estimates of groundwater use. Well metering would focus on larger production wells and would likely exclude *de minimis* wells (pumping less than 2 AF/yr for domestic purposes). A pilot program could be started with the voluntary registration of new production wells and would need to be coordinated with the County Environmental Health Departments during the well permitting process.

## **8.7 Implementation Activity 7: Update and Refine Hydrologic Model**

The GSAs will coordinate with technical teams responsible for groundwater modeling in neighboring subbasins to confirm that the regional groundwater models are consistent,

particularly near the Subbasin boundaries where model areas overlap, through regular inter-basin coordination activities.

The NSac model that was developed for this GSP will play a key role in supporting ongoing GSP implementation and 5-year GSP Periodic Evaluations. DWR recommends regular update of the data sets and models used to support GSP development and implementation. This includes updating input data to extend the model simulation period and investigating structural changes that may improve model performance and reduce uncertainties.

The NSac model was derived from DWR’s C2VSimFG model and incorporates several local improvements. These improvements include more detailed allocation of surface water diversions, simulating Black Butte Lake, and local adjustments to model parameters. The NSac model performs well in the Corning Subbasin; simulated surface water hydrographs closely match observed hydrographs, simulated groundwater hydrographs generally match observed hydrographs in the more densely inhabited and farmed areas, and simulated water budget components are in line with historical estimates. DWR generally does not incorporate detailed local improvements into their Central Valley model, so it will be necessary to maintain the NSac model with more refined local data collected by the GSAs to support GSP implementation and 5- year assessments. Table 8-2 summarizes data to be updated in the model for the 5-year GSP assessment reporting.

Table 8-2. Ongoing Data Collection Supporting NSac Model Refinements

Primary Data Category	Secondary Data Category	Data time interval
Hydrological Data	Stream Inflow	Monthly
Hydrological Data	Surface Water Diversions	Monthly
Hydrological Data	Precipitation	Monthly
Agricultural Water Demand	Land Use	Annual
Agricultural Water Demand	Surface Water Deliveries	Monthly
Agricultural Water Demand	Groundwater Pumping	Monthly
Urban Water Demand	Population	Annual
Urban Water Demand	Per Capita Usage	Monthly
PMA Evaluation	Conveyance Groundwater Recharge	As available
PMA Evaluation	In-Lieu Groundwater Recharge	As available
PMA Evaluation	Enhanced Stormwater Recharge	As available

GSP implementation could benefit from the collection of additional data and the improvement of the NSac model. Data collected through the data gap implementation plan and the expanded monitoring networks will be used to refine the NSac model as well. Incorporation of future DWR

C2VSimFG updates will keep the NSac model current with regional groundwater conditions and reduce the resources required to support the local model. Continued development of new hydrologic and hydrogeologic data throughout the Subbasin will improve knowledge and understanding of the groundwater flow system and provide valuable information for use in model improvement. Suggested additional data are summarized in Table 8-3.

Table 8-3. Additional Data Collection and Model Improvements

Primary Data Category	Secondary Data Category
Monitor New Wells	Hydrology
Hydrogeological Data	Geology
Install Observation Wells	Geology
C2VSimFG Updates	Input data sets
C2VSimFG Updates	Stratigraphy
C2VSimFG Updates	New IWFM components

Additional model refinements that can be implemented in conjunction with DWR’s C2VSim team include the following:

- The crop evapotranspiration coefficients used in the groundwater model could be further refined to more accurately estimate groundwater pumping. Crop evapotranspiration is estimated regionally, but these values may be refined based on local conditions.
- Streamflow in ephemeral streams is not included in the groundwater model due to a lack of discharge data. The ephemeral streams could be added to the model to simulate projects and management actions that incorporate flood waters on ephemeral streams.
- Refine incorporation of GCID groundwater pumping data and verify projected pumping estimates.
- Develop discharge rating curve for the Stony Creek BBQ stream gauge so that stream stage can be correlated with stream discharge and used to verify model values at that same location.

Additional refinements to the model input assumptions and boundary conditions will be considered during more thorough review of model outputs as compared to the neighboring subbasins’ models, during inter-basin coordination and collaboration activities. Key information to review and corroborate include stream-aquifer interconnectivity and simulated depletions, and overall subsurface flow volumes between neighboring subbasins.

DWR plans to issue regular updates to the C2VSimFG model. This may eventually include a regular release schedule that maintains model input data sets 2 to 3 years behind the present time

period. DWR may also implement structural changes to the C2VSimFG model, potentially including changes to model layering, element configuration, and hydrogeologic parameters. Future enhanced IWFM features may also be implemented as they become available. These C2VSimFG updates should be tracked and incorporated into the NSac model as appropriate. Future C2VSimFG model updates released by DWR should be evaluated, with major changes considered for incorporation into the NSac model as part of the 5-year GSP Periodic Evaluation process.

## **8.8 Implementation Activity 8: Refine and Implement Projects and Management Actions**

A combination of projects and management actions will need to be implemented to achieve sustainability in the Subbasin. Section 7 identifies potential projects and management actions that would help achieve sustainability. The GSAs will refine and assess feasibility and timeline of the projects and management actions during the first 5 years of GSP implementation. The projects and actions will be implemented in a coordinated fashion across the Subbasin to achieve sustainability. Refinement of the projects and management actions will occur simultaneously with refinement of the funding mechanism that supports the projects and actions. Planned activities during the first 5 years of implementation will include the following tasks:

- Performing feasibility studies
- Clarifying water rights and water availability for recharge opportunities
- Applying for new or change of diversion, place of use, or timing on new water rights as necessary
- Refining benefit analysis for proposed projects using the groundwater model
- Developing proposed project costs
- Producing preliminary design of projects if projects are adequately defined
- Initiating environmental permitting for projects as necessary
- Applying for grant funding for project implementation

Cost-sharing agreements between the GSAs and other local agencies that may benefit directly from these projects will be developed as needed.

## **8.9 Short-Term Implementation Start-Up Budget**

Initial GSP implementation budget consists of general administrative costs and additional costs to cover the 8 implementation activities described above. The following subsections and tables provide additional detail on estimated initial GSP implementation costs. Costs will be further

refined early in implementation as funding mechanisms are put into place. See Section 8.2 for additional discussion on anticipated funding sources and mechanisms.

### 8.9.1 GSA Operational Expenses

The operational expenses of the Corning Sub-basin GSAs will generally include the following budget category items:

- **General Management:** General management costs include items such as staffing, administrative support, accounting services, audits, and insurance. It is anticipated that dedicated staff from Tehama and Glenn Counties will continue to act as the primary personnel serving the GSAs of the Corning Subbasin. However, staffing needs may also be contracted out. For planning purposes, it is estimated that at least 2 management-level staff and 2 administrative-level staff will support the administration of the GSAs on a part-time basis. Staff serve as the key points of contact for members of the public, the GSA governing boards, CSAB, and other stakeholders. Moreover, staff are tasked with fundamental administrative duties, such as hiring and managing consultants, billing and accounting, development of meeting materials, and organizing outreach efforts.
- **Technical Services:** It is anticipated that the Corning Sub-basin GSAs will have an ongoing need for on-call consulting and legal services to support regular operations. As directed by staff, professional consultants may carry out a variety of tasks to support general analytical needs or provide additional technical capacity on an as-needed basis. Examples of potential tasks include technical education, legislative and regulatory interpretation, data analysis (e.g., hydrological, economic, agricultural, etc.), inter- and intra-basin coordination, opportunities assessments, and program evaluation. Legal services are currently provided to the GSAs within the Corning Subbasin by the Legal Counsels of Glenn County, Tehama County, and the member agencies of the CSGSA. It is expected that these services will continue to be provided to support items such as contracting, document review, and developing official statements and responses. If needed, special counsel may be engaged to address other needs (e.g., litigation).
- **Materials and Outreach:** Costs for materials and outreach include items such as website maintenance, office supplies, materials reproduction, postage, legal noticing, and general outreach. Funding these items and activities will ensure the Corning Sub-basin GSAs continue to engage a broad range of stakeholders through a variety of mediums and comply with all legal noticing requirements. In addition, it will ensure staff will have the basic supplies necessary to carry out their duties and communicate with relevant entities.
- **Fees & Assessments:** The majority of the GSAs' GSP development costs have been funded under a Proposition 1 Planning Grant. In-kind contributions of Glenn County, Tehama County, and CSGSA member agency staff time have further supported the coordination needs of consultants, stakeholders, and the CSAB. Implementation of the

GSP will necessitate that the GSAs identify new sources of revenue to fund general program administration costs and other activities. It is anticipated that the primary source of new revenues will result from either fees, charges, and/or assessments levied in compliance with Proposition 26 and/or Proposition 218. A rate study (e.g., Cost of Services Study, Engineers Report) will be necessary to develop an appropriate funding methodology, describe the nexus of benefits, establish a recommended charge, and comply with related legal requirements. There will also be additional procedural costs (e.g., noticing, ballots, etc.) depending on process and type of charge the GSAs seek to levy. Public engagement and outreach beyond the minimum legal requirements under the Proposition 218 and 26 processes will bear additional costs. Once adopted, it is anticipated that charges will initially be collected by each county on behalf of the GSAs using their respective tax rolls.

- **Reserve**: GSAs are permitted to fund the costs of maintaining a prudent reserve. Reserve funds are a common financial management strategy among public agencies that allow entities to better manage cash flow and mitigate the risk of unanticipated cost overages. It is recommended that a minimum contingency rate of 10% of all program administration costs be used when developing the initial reserve fund amount. This rate should be re-evaluated in the future after the Corning Subbasin GSAs have established several years of financial activities that can be analyzed to support an updated rate.

Table 8-4 and Table 8-5 provide a summary of the estimated operational costs for each GSA by budget category and associated line items for the initial implementation phase of the Corning Subbasin GSP (i.e., 2022 – 2026). Estimated costs are identified as either annual costs or lump sum costs. Annual costs are directly related to recurring operational work or activities that need to be funded each year. Lump sum costs are for items that will not recur annually, although their completion timelines may require more than 1 year. Expenditures for lump sum costs are anticipated to occur within the 5-year timeframe of the initial implementation phase, but these costs will not necessarily need to be fully funded in the first year of GSP implementation. Some costs are anticipated to be borne individually by each GSA, while others may be shared among the GSAs and other/their member agencies. Because each GSA and/or their members also have SGMA responsibilities in other subbasins, the actual operating costs associated with their management of the Corning Subbasin may be further reduced as common staff, materials, and services are shared across multiple subbasins. Pursuant to the MOU among Corning Sub-basin GSA members, any future cost-sharing allocations shall be agreed to in writing by the members in advance of executing any contracts with consultants, vendors, or other contractors or incurring any expense.

Table 8-4. Estimated TCFCWCD GSA Operational Expenses, 2022 – 2026

*[approximate draft; to be revised during GSP implementation and following additional legal review]*

Budget Categories and Tasks	Annual Cost - TCFCWCD GSA	Lump Sum Items - TCFCWCD GSA	5-year Total	Annualized Total
				(5 years)
<b>General Management</b>				
Management Staff	\$75,000	\$0	\$375,000	\$75,000
Administrative Support	\$60,000	\$0	\$300,000	\$60,000
Audits & Accounting	\$25,000	\$0	\$125,000	\$25,000
Insurance	\$2,000	\$0	\$10,000	\$2,000
<b>Technical Services</b>				
Consulting Services	\$20,000	\$0	\$100,000	\$20,000
Legal Services	\$50,000	\$0	\$250,000	\$50,000
<b>Materials &amp; Outreach</b>				
Supplies & Materials	\$5,000	\$0	\$25,000	\$5,000
Legal Notices	\$1,000	\$0	\$5,000	\$1,000
Community Outreach	\$12,000	\$0	\$60,000	\$12,000
<b>Fees &amp; Assessments</b>				
Fee Studies & Adoption	\$0	\$40,000	\$40,000	\$8,000
County Tax Roll	\$10,000	\$0	\$50,000	\$10,000
<b>Grants</b>				
Grant Applications	\$20,000	\$0	\$100,000	\$20,000
<b>Reserve &amp; Contingency</b>				
General Reserve (10%)	\$28,000	\$4,000	\$144,000	\$28,800
<b>Total</b>	<b>\$308,000</b>	<b>\$44,000</b>	<b>\$1,584,000</b>	<b>\$316,800</b>

Table 8-5. Estimated CSGSA Operational Expenses, 2022 - 2026

*[approximate draft; to be revised during GSP implementation and following additional legal review]*

Budget Categories and Tasks	Annual Cost - CSGSA	Lump Sum Items - CSGSA	5-year Total	Annualized Total
				(5 years)
<b>General Management</b>				
Management Staff	\$75,000	\$0	\$375,000	\$75,000
Administrative Support	\$40,000	\$0	\$200,000	\$40,000
Audits & Accounting	\$15,000	\$0	\$75,000	\$15,000
Insurance	\$2,000	\$0	\$10,000	\$2,000
<b>Technical Services</b>				
Consulting Services	\$20,000	\$0	\$100,000	\$20,000
Legal Services	\$50,000	\$0	\$400,000	\$80,000
<b>Materials &amp; Outreach</b>				
Supplies & Materials	\$5,000	\$0	\$25,000	\$5,000
Legal Notices	\$1,000	\$0	\$5,000	\$1,000
Community Outreach	\$12,000	\$0	\$60,000	\$12,000
<b>Fees &amp; Assessments</b>				
Fee Studies & Adoption	\$0	\$90,000	\$90,000	\$18,000
County Tax Roll	\$5,000	\$0	\$25,000	\$5,000
<b>Grants</b>				
Grant Applications	\$20,000	\$0	\$100,000	\$20,000
<b>Reserve &amp; Contingency</b>				
General Reserve (10%)	\$27,500	\$9,000	\$146,500	\$29,300
<b>Total</b>	<b>\$302,500</b>	<b>\$99,000</b>	<b>\$1,611,500</b>	<b>\$322,300</b>

On an annualized basis, the operational expenses for the TCFCWCD and CSGSA are estimated to be \$316,800 per year and \$322,300 per year, respectively, during the first 5 years following GSP implementation. Total operational expenses on an annualized basis are estimated to be \$639,100 per year during this same period. The costs estimated in Table 8-4 and Table 8-5 will be refined and their actual allocation re-assessed prior to the implementation of any fees or assessments by the GSAs. Some estimated costs may be further reduced as a result of the GSAs and/or their member agencies providing common staff, materials, and services to other basins within their jurisdiction.

## 8.9.2 Implementation Activities Funding

Table 8-6 summarizes the conceptual planning-level costs for the initial 5 years of GSP implementation. These costs do not include costs to implement projects and management actions. Annual costs are directly related to work that needs to be done consistently to meet the



requirements in the GSP Regulations and to fund the 8 implementation activities. This initial cost estimate will likely change as more data become available and GSP implementation approaches, and funding mechanisms are developed.

Table 8-6. Estimated Planning-Level Costs for First 5 Years of Implementation

Activity	Budget Categories and Tasks	Annual Cost	Lump Sum Items	5-year Total	Annualized Cost	Notes
					(5 years)	
1 and 2	GSA Administration, Program Management, and Funding	\$610,500	\$143,000	\$3,195,500	\$639,100	Includes costs for GSA administration, communication, outreach, (Section 8.1) and funding mechanisms (Section 8.2) per Tables 8-4 and 8-5.
3	<b>Monitoring &amp; Reporting</b>					
	Groundwater Conditions Monitoring	\$50,000	\$0	\$250,000	\$50,000	Placeholder costs for groundwater level monitoring
	Annual Reports (\$50,000 for first report, \$30,000 for subsequent reports)	\$34,000	\$0	\$170,000	\$34,000	Assumes \$50,000 for first report, \$30,000 for subsequent reports
	GSP 5-year Periodic Evaluation	\$0	\$150,000	\$150,000	\$30,000	
4	<b>Address HCM and Groundwater Conditions Data Gaps</b>					
	AEM or other geophysical testing to refine hydrogeologic conceptual model	\$0	\$100,000	\$100,000	\$20,000	Placeholder costs. Expect majority of work to be funded by DWR.
	Aquifer testing to refine hydrogeologic conceptual model	\$0	\$100,000	\$100,000	\$20,000	Placeholder costs
	GDE mapping	\$0	\$150,000	\$150,000	\$30,000	Placeholder costs
6	<b>Expand Existing Monitoring Networks</b>					
	Videologging of wells with unknown screen intervals	\$0	\$10,000	\$10,000	\$2,000	Placeholder costs. Expect work to be funded by DWR TSS grant. GSA responsibilities: administer grant; coordinate with DWR
	Install 5 new observation wells	\$0	\$125,000	\$125,000	\$25,000	Placeholder costs. Expect work to be funded by DWR TSS grant. GSA responsibilities: administer grant; coordinate with DWR and landowner; identify well locations; obtain property access; review and coordinate execution of agreements. Recent TSS applications showed a GSA contribution* of \$25,000 for 1 observation well cluster.
	Coordinate with DWR to continue groundwater quality monitoring	\$2,000	\$0	\$10,000	\$2,000	Placeholder costs. The GSAs will coordinate with DWR to explore the continuation of regular groundwater quality monitoring in observation well clusters in the Subbasin
	Assess modification or replacement of surface water gages on Thomes Creek	\$0	\$40,000	\$40,000	\$8,000	Placeholder costs

Activity	Budget Categories and Tasks	Annual Cost	Lump Sum Items	5-year Total	Annualized Cost	Notes
					(5 years)	
6	<b>Update Data Management System</b>					
	Routine Data Management System Updates	\$10,000	\$0	\$50,000	\$10,000	Placeholder costs.
	Well Database Update	\$0	\$50,000	\$50,000	\$10,000	Placeholder costs for updating Tehama Co well database similar to Glenn Co update, in collaboration with the other Tehama County GSPs and updating the Glenn County database.
	Well Registration Pilot Program	\$0	\$50,000	\$50,000	\$10,000	Placeholder costs for developing a pilot well registration program.
7	<b>Update and Refine Groundwater Model</b>	\$0	\$150,000	\$150,000	\$30,000	Placeholder costs
8	Evaluate, Prioritize, and Refine Projects and Management Actions	\$60,000	\$0	\$300,000	\$60,000	Depends on projects and management actions pursued; Could be grant or project match; Will be coordinated with agencies that benefit.
	Contingency (10%)	\$76,650	\$106,800	\$490,050	\$95,310	
	<b>TOTAL</b>	<b>\$843,150</b>	<b>\$1,174,800</b>	<b>\$5,390,550</b>	<b>\$1,078,110</b>	

**Notes:**

Some of the line items may be optional costs, such as well registration pilot program and well database updates.

Some of the implementation activities may be delayed beyond the first few years to allow for funding to be arranged.

\*GSA contribution is expected to encompass in-kind staff time to collect and manage data and maintain equipment over the useful life of the well (approximately 20 years)

## 8.10 Implementation Schedule

A general schedule showing the major tasks and estimated timeline during the first 5 years of GSP implementation is provided in Figure 8-1. Every project and management action summarized in Section 7 has its own implementation timeline and is not shown specifically on this general implementation schedule.

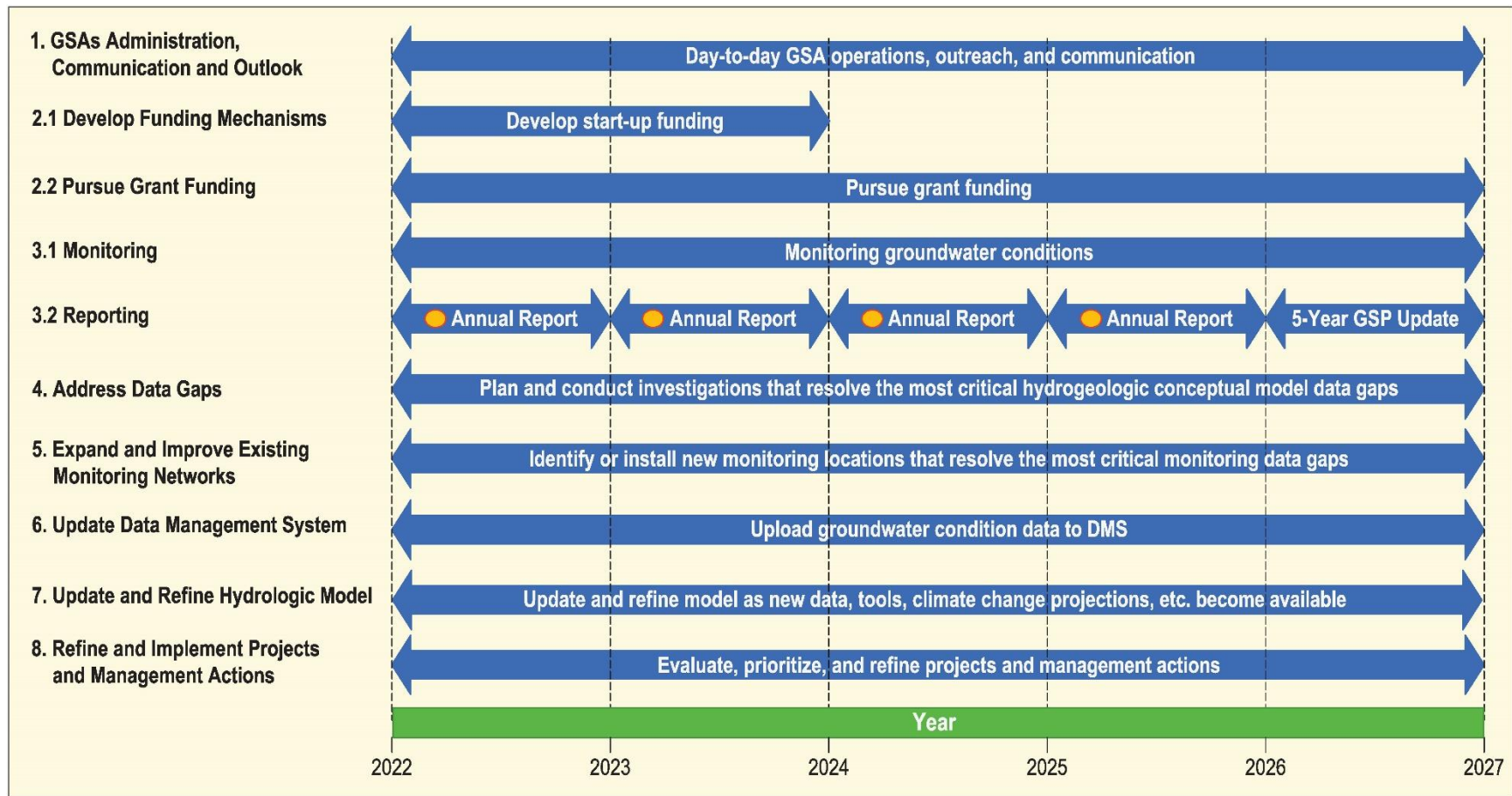


Figure 8-1. General Schedule of 5-Year Start-Up Plan