

# Section 7: Implementation Plan

## Groundwater Sustainability Plan for Sonoma Valley Groundwater Subbasin

7	IMPLEMENTATION PLAN .....	7-1
7.1	Governance Structure and Planned Administrative Approach .....	7-1
7.2	Groundwater Sustainability Plan Implementation Components and Estimated Costs .....	7-1
7.2.1	Administration and Finance.....	7-1
7.2.2	Communication and Stakeholder Engagement .....	7-2
7.2.3	Annual Monitoring, Data Evaluation, and Reporting .....	7-3
7.2.4	Addressing Data Gaps.....	7-7
7.2.5	Maintaining, Updating, and Making Improvements to the Model .....	7-11
7.2.6	Study and Implementation of Projects and Actions.....	7-12
7.2.7	5-year Update to Groundwater Sustainability Plan .....	7-16
7.2.8	Estimated 5-year Implementation Costs .....	7-17
7.3	Funding.....	7-18
7.3.1	Fees, Grants, and Other Funding Sources.....	7-19
7.4	Schedule .....	7-19

### Tables

Table 7-1. Monitoring Networks and Initial Representative Monitoring Point Networks .....	7-5
Table 7-2. Summary of Estimated 5-year Costs for Projects and Management Actions, Excluding Capital Project Costs .....	7-15
Table 7-3. Estimate of Potential Capital Project Costs for Group 2a Projects.....	7-16
Table 7-4. Total Estimated 5-year Implementation Costs .....	7-18

### Figures

Figure 7-1. Implementation Schedule .....	7-8
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### Appendix

Appendix 7-A. Model Maintenance and Improvements for the Sonoma Valley Groundwater Sustainability Plan	
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## **7 IMPLEMENTATION PLAN**

This implementation plan serves as an initial roadmap for addressing GSP implementation activities between 2022 and 2042 with a primary focus on implementation activities within the initial 5 years (2022 through 2026). This section describes the plans for implementing the activities and actions identified in **Section 4** through **Section 6** in this GSP, including:

- The GSA’s governance structure and planned administrative approach
- Main implementation components and estimated costs for the first 5 years
- Initial approach to funding
- A schedule

This implementation plan is based on the current understanding of Subbasin conditions, identified data gaps, monitoring needs, and projects and management actions. To successfully implement the GSP, the GSA will adapt the implementation plan over time based on new information and data, model development, and input from Subbasin stakeholders.

### **7.1 Governance Structure and Planned Administrative Approach**

The GSA anticipates that the current governance and general administrative structure will remain in place through the implementation period. As described in **Section 1.3.2**, the six member agencies currently plan to continue operating under the Joint Powers Authority agreement that created the GSA. The Board will continue to serve as the governing body and make decisions regarding the implementation of projects and management actions; close data gaps; handle contracts, administration, and funding; and perform other governance issues as needed. A stakeholder-based Advisory Committee representing multiple stakeholder interests will continue providing guidance and recommendations to the Board and GSA staff. Both the GSA Board and Advisory Committee will continue to hold regular public meetings in compliance with California’s laws governing public meetings (commonly known as the Brown Act).

Currently, the GSA contracts with Sonoma Water for technical, outreach, grant administration and GSA management services and contracts with other consultants for legal facilitation and some monitoring services. Starting in 2022, when the GSA transitions from GSP development to implementation, staffing needs will be evaluated to determine how to efficiently and effectively move forward. To reduce costs and to provide consistency for groundwater users within Sonoma County, it is possible that the GSA will coordinate management and other services with the Petaluma Valley and Santa Rosa Plain GSAs.

### **7.2 Groundwater Sustainability Plan Implementation Components and Estimated Costs**

This section describes details of each of the main implementation components, assumptions, and estimated costs for the initial 5 years.

#### **7.2.1 Administration and Finance**

Administration and finance costs include day-to-day management of the agency, as-needed legal costs, applying for and administering grants, tasks associated with implementation of a

fee, auditing and accounting services, administration of the well registration program, facility fees, and office supplies. Annual administration costs total \$245,000 annually.

### **7.2.2 Communication and Stakeholder Engagement**

The GSA will continue the communication and stakeholder activities described in **Section 1**, including:

- Hold regular meetings of a diverse, stakeholder-based Advisory Committee to receive feedback on implementation efforts and to solicit outreach ideas and assistance
- Inform, educate, and solicit feedback from stakeholders on progress implementing projects and management actions and on Subbasin conditions through social media, the GSA website, periodic community meetings, focused stakeholder briefings, and paid and free media
- Approach and engage a diverse set of stakeholders and groundwater users by reaching out to and meeting with organizations that represent disadvantaged communities (with a specific focus on Spanish-language speakers), farmers, environmental interests, rural landowners, and business interests
- Conduct government-to-government communication with federally and non-federally recognized Tribal governments to reassess interest in participating in GSA activities

The GSA will maintain and improve two products currently under development: The Groundwater User Information Data Exchange program, which allows well owners to review and correct well and groundwater use information, and the Groundwater Data Dashboard, which will provide groundwater data in a visual, user-friendly format.

The GSA will conduct, in cooperation with other agencies or organizations, outreach and education programs on specific topics relevant to groundwater users within the Subbasin, such as the importance of well maintenance, management, and best practices with the goal of empowering well owners to understand well construction, pump and storage practices, water quality considerations and treatment options, and well abandonment.

In addition, the GSA will continue to engage and coordinate with local, state and regional agencies (including City of Sonoma, Valley of the Moon Water District, Permit Sonoma, other GSAs, Agricultural Commissioner, Sonoma County Ag + Open Space District, DWR, SWRCB's Division of Drinking Water (DDW) and Water Rights Division, and SFBRWQCB) on filling data gaps and implementation of projects and actions. This coordination will include discussions of partnering opportunities for funding implementation components that are mutually beneficial.

An important component of this engagement will be ongoing coordination with agencies responsible for regulating groundwater quality. The GSA will regularly coordinate with SFBRWQCB, SWRCB-DDW, and others to understand and develop a process for determining if groundwater management is resulting in degraded water quality and to assess whether any additional COCs should be considered in the future.

A focused area of engagement in the early stages of GSP implementation is anticipated to be continued coordination and information sharing with agencies that have land use responsibilities and authorities, including Permit Sonoma, city planning departments, and county and city planning commissions. This coordination will build on ongoing coordination that has occurred through development of the GSP and activities that Permit Sonoma has initiated using Proposition 68 grant funding. Coordination will include the sharing of information, including tracking of land use changes and number of new well permits and new agricultural permits (including cannabis projects), both within the Subbasin/contributing watershed and surrounding areas. In addition, as required by SGMA, the GSA will engage in and review General Plan amendments that could impact groundwater resources and will also engage with specific planning processes in Sonoma Valley, including development of the Springs Specific Plan and Sonoma Developmental Center Specific Plan, and will coordinate and share information with local planning commissions such as the Sonoma Valley Citizens Advisory Commission and the Springs and North Valley Municipal Advisory Councils.

Annual outreach and communication are estimated to cost \$80,000 during the first 4 years of implementation, and \$100,000 in the fifth year, when additional outreach will be needed for the preparation of the 5-year GSP update.

### **7.2.3 Annual Monitoring, Data Evaluation, and Reporting**

Monitoring of the six sustainability criteria is a key component for successful implementation of the GSP. Most monitoring relies on existing monitoring programs, some of which will be enhanced or expanded as described in **Section 5** and **Section 7.2.4.2**. Data from the monitoring programs will be routinely evaluated to ensure progress is being made toward sustainability and to identify the occurrence of undesirable results, and assess and investigate conditions that may lead to undesirable results. Data will be maintained in the data management system and will be used by the GSA to guide decisions on projects and management actions and to prepare annual reports to Subbasin stakeholders and DWR.

#### **7.2.3.1 Monitoring and Data Evaluation**

Specific planned monitoring activities are summarized in the following list and in **Table 7-1** and are more fully described in **Section 5**:

- Groundwater-level monitoring activities will include the collection of groundwater-level data at the existing 23 RMPs and new planned RMPs identified in **Section 5.3.1** for comparison to MTs and MOs. Groundwater-level monitoring will also include coordination and evaluation of measurements from 84 additional wells within the Subbasin and contributing watershed areas, described in **Section 5.2.1**, to continue tracking trends in these wells with historical data and support the development of groundwater-level contour maps and storage change estimates. The groundwater-level data will be collected in accordance with the monitoring protocols outlined in **Section 5.3.1**. Monitoring network data gaps identified in **Section 5.4.1** will be addressed through the activities described in **Section 7.2.4**. Groundwater elevation data will be uploaded to the DWR data portal semiannually; before January 1 and July 1 of each year.

- Water quality monitoring activities will include the compilation and evaluation of water quality data reported from existing public water supply wells and compared with the MTs and MOs for the seawater intrusion and water quality sustainability indicators.
- For the water quality sustainability indicator, the data review will focus on exceedances of MTs, or MCLs and SMCLs, for the three COCs (arsenic, nitrate, and TDS) identified for this GSP. However, if during review of the water quality data additional constituents appear to frequently exceed MCLs and SMCLs, MTs and MOs will be considered for these additional constituents during GSP 5-year updates. The number of public water supply wells routinely monitored for each COC is presented in **Table 7-1**. If any other routine monitoring of supply wells is initiated in the Subbasin at a later date, these wells, will also be considered for inclusion in the water quality monitoring network.
- Monitoring for seawater intrusion just north and along the perimeter of the San Pablo Baylands area will be conducted using a combination of existing water supply wells and additional proposed new dedicated monitoring wells constructed during implementation of the GSP, depending upon well access, construction, and funding availability. Initially, this network will include nine existing public water supply wells and one existing multi-depth dedicated monitoring well located within 1 mile of the Baylands area. The future monitoring network will be designed to accurately map the location of the 250 mg/L chloride isocontour.
- Monitoring for land surface subsidence will be measured using satellite InSAR data provided by DWR. InSAR data will be downloaded from the DWR website annually, checked and verified for completeness and reasonableness, and used to develop annual change in elevation maps. The average value for each 100 square meter pixel and elevation change maps will be used to compare with MTs and MOs for the land surface subsidence sustainability indicator.
- Monitoring for surface water and groundwater interaction will include the following monitoring activities:
  - Compilation and evaluation of surface water data from five active stream gages within the Subbasin and contributing water shed area.
  - Continued collection and evaluation of streamflow measurements collected as part of the seepage run program at approximately 50 to 70 sites on a semiannual basis and 15 to 20 sites on a bimonthly basis.
  - Measurement and evaluation of groundwater elevations from the 10 RMPs used to monitor surface water depletion as a proxy. For reporting seasonal highs and lows for future comparison with MTs, all measurements collected more frequently than monthly will be reported as monthly averages to better align with the measurement frequency within historical datasets used to calculate the MTs.

Plans for assessing and improving the monitoring network for surface water and groundwater interaction are described in **Section 7.2.4.1**.

### 7.2.3.2 Annual Reports

Annual reports will be developed to present data, information, and the implementation status for each WY and meet SGMA requirements. As defined by DWR, annual reports must be submitted for DWR review by April 1 of each year following the GSP adoption, except in years when 5-year or periodic assessments are submitted. Annual reports are anticipated to include three key sections: general information, Subbasin conditions (including SMC status and progress towards achieving measurable objectives), and implementation actions and activities.

**Table 7-1. Monitoring Networks and Initial Representative Monitoring Point Networks**

Sustainability Indicator	Monitoring Network	Initial Representative Monitoring Point Network
Chronic Lowering of Groundwater levels	107 wells within the contributing watershed area (including 66 wells in the Subbasin) 53 wells are inferred to primarily monitor the shallow aquifer 54 wells are inferred to primarily monitor the deep aquifer	13 existing wells and 4 new dedicated shallow aquifer wells 10 existing wells and 4 new dedicated deep aquifer wells
Reduction in Groundwater Storage	Same as Chronic Lowering of Groundwater-level Monitoring Network	Same as Chronic Lowering of Groundwater-level Monitoring Network
Seawater Intrusion	Within 1 mile of Baylands: 9 water supply wells, 1 dedicated monitoring well	Within 1 mile of Baylands: 9 water supply wells; 1 dedicated monitoring well
Degraded Water Quality	Existing supply well groundwater quality monitoring programs, as follows: Arsenic: 25 wells Nitrate: 40 wells Salts: 13 wells	Existing supply well groundwater quality monitoring programs, as follows: Arsenic: 25 wells Nitrate: 40 wells Salts: 13 wells
Land Surface Subsidence	3 GPS locations, InSAR satellite in most of the Subbasin	InSAR dataset
Interconnected Surface Water	5 stream gages, 17 shallow monitoring wells adjacent to streams, annual and monthly seepage runs that measure streamflows at multiple sites over a short time period	10 shallow monitoring wells adjacent to streams

### General Information

The general information section will include an executive summary that highlights the key content of the annual report. This section will include a map of the Subbasin, a description of the sustainability goal, a description of GSP projects and their progress, as well as an annual update to the GSP implementation schedule.

### Subbasin Conditions

Subbasin conditions will describe the current groundwater conditions and monitoring results. This section will include an evaluation of how conditions have changed over the previous year and will compare groundwater data for the WY to historical groundwater data. Estimated

pumping data, effects of project implementation (if applicable), surface water deliveries, total water use, and groundwater storage data will be included. Key required components include:

- Groundwater-level data from the monitoring network, including contour maps of seasonal high and seasonal low water-level maps
- Hydrographs of groundwater elevation data at RMPs
- Groundwater extraction data and estimates by water-use sector, to be informed by public supply well reporting and compilation and evaluation of land use change data and well permit approvals
- Groundwater quality at RMPs
- Surface water supply availability and use data by water-use sector and source
- Streamflow data
- Total water-use data
- Change in groundwater in storage
- Subsidence rates and associated data

As part of the monitoring program reporting, status of the SMC will also be reported, including MT and MO status for RMPs. Additionally, information on land use changes and additional permitting of wells and projects that use groundwater will be tracked and reported in the annual reports.

### **Groundwater Sustainability Plan Implementation Progress**

Progress toward GSP implementation will be included in the annual reports. This section of the annual report will describe the progress made toward achieving interim milestones as well as implementation of projects and management actions. Key required components include:

- GSP implementation progress, to be measured by whether the GSA is achieving the milestones provided in the Implementation Schedule (**Figure 7-1**)
- Progress toward achieving the Subbasin sustainability goals
- Changes that may be considered necessary for successful GSP implementation

Development of an annual report will begin following the end of the WY, September 30, and will include an assessment of the previous WY. The annual report will be submitted to DWR before April 1 of the following year. The 2022 annual report covering WY 2021 will be submitted to the GSA by April 1, 2022. Four annual reports for the Subbasin will be submitted to DWR each April between 2022 and 2025, prior to the first 5-year update of this GSP, which will be prepared in 2026 and submitted to DWR in January 2027.

The estimated annual cost of performing annual monitoring, data evaluation, and reporting ranges from \$225,000 to \$275,000, with a cumulative 5-year cost ranging from \$1,125,000 to \$1,375,000.

### 7.2.4 Addressing Data Gaps

Through development of this GSP a number of key data gaps have been identified in **Section 3** through **Section 5**. These data gaps were shared and discussed with Subbasin stakeholders to prioritize activities and actions needed to address the data gaps:

- Amounts, locations, and depths of groundwater pumping (rural, residential, agricultural, public water systems, commercial, and industrial)
- Role of faults within and along the boundaries of the Subbasin, particularly the Eastside Fault
- Distribution and extent of brackish groundwater along margins of Baylands area
- Interconnection of streams to the shallow aquifer system, including seasonal variability and how groundwater pumping and surface water diversions affect streamflow
- Basin boundary characteristics, such as the direction and magnitude of groundwater fluxes across Subbasin boundaries
- Aquifer hydraulic properties, recharge, and discharge mechanisms and volumes for both the shallow and deep aquifer systems
- Three-dimensional data gaps in the monitoring network for each primary aquifer

Studies and activities planned to address these identified data gaps within the initial 5 years of GSP implementation are identified in **Section 7.2.4.1** and categorized as either studies and information gathering or monitoring network improvements.

#### 7.2.4.1 Studies and Information Gathering

Planned studies and information gathering includes the activities described herein.

Improve information on existing water wells and groundwater extraction: The objective of this task is to better assess the locations, depths, volumes, and timing of groundwater pumping from water-use sectors that have not historically measured and reported water use, such as rural residential, agricultural, commercial, and industrial. This will improve assessment of potential impacts from groundwater pumping to beneficial users and uses within the Subbasin, including existing residential and other water wells and GDEs, and help refine water budget information including rates of storage losses. The task will include the following activities, which will be performed within the initial 2 years of GSP implementation:

- Integration of parcel-specific information obtained through the planned well registration program with existing well log databases.
- Assessment of available remote sensing data on actual ET to help constrain the estimates of groundwater demands for irrigation supplies.

GSP Program Elements	First 20 Years of GSP Implementation																				
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
<b>GSP Submittal and State Review</b>																					
GSP Submittal to DWR	★																				
DWR Review/Approval																					
<b>Administration &amp; Finance Program</b>																					
<b>Administrative/Governance Planning</b>																					
Administrative/Governance Planning																					
<b>Funding Program</b>																					
Fee Study																					
Funding Mechanism Implementation																					
Fee Collection																					
Public Outreach & Coordination																					
Adaptive Management																					
<b>Management Action Implementation</b>																					
Study - Policy Options																					
Study - Farm Plan Coordination																					
Implement Recommended Actions																					
<b>Monitoring Program</b>																					
Implementation																					
Data Gap Filling																					
Model Updates and Refinements																					
<b>Project Implementation</b>																					
<b>Group 1 Projects</b>																					
Voluntary Conservation																					
Expand Recycled Water - Deliver to new contracts																					
<b>Group 2a Projects</b>																					
Aquifer Storage & Recovery (ASR) Feasibility Study Update																					
Aquifer Storage & Recovery (ASR) - City <sup>(1)</sup>																					
ASR - VOMWD <sup>(1)</sup>																					
Expand Recycled Water - eastern area																					
Expand Recycled Water - western area																					
<b>Group 2b Projects</b>																					
Additional ASR Investigations and Pilot																					
Additional ASR Project Implementation																					
Additional ASR - Napa/Denmark Roads																					
Stormwater Capture & Recharge - Site Investigations																					
Stormwater Capture & Recharge - Pilot																					
Stormwater Capture & Recharge - Project																					
<b>Reporting</b>																					
Annual Reports	★	★	★	★		★	★	★	★		★	★	★	★		★	★	★	★	★	
Five Year Evaluation/Updates						★					★					★				★	

Notes

DWR review period  
★ Milestone/Document Submittal  
 Funding, Planning, Design, Construction Activity  
 Implementation Activity

<sup>1</sup> Some projects, such as ASR, may be pursued on a more rapid pace by other entities involved with drought response.

Figure 7-1. Implementation Schedule

Aquifer system properties assessment: The objective of this task is improve the understanding of the aquifer system hydrogeologic framework, distribution and potential effects of faults on groundwater flow, and basin boundary characteristics. Completion of this task will also improve the GSAs ability to assess potential impacts from groundwater pumping to beneficial users and uses within the Subbasin, including existing residential and other water wells and GDEs. As part of this task, the GSA will:

- Evaluate the airborne electromagnetic (AEM) survey results (data collection and compilation funded by DWR) and incorporate into the existing HCM. DWR is planning to collect geophysical data from the Subbasin through its AEM survey program in 2021 or 2022. Additional focused geophysical surveys to refine information in key areas (for example, areas identified for potential managed aquifer recharge projects) will also be considered.
- Based on the planned data collection and evaluation, perform aquifer testing at up to three locations. It is anticipated that the aquifer testing will be completed within the initial 3 years of GSP implementation. Wells for testing will be identified using the following criteria:
  - Wells are owned by willing well owners
  - Wells have known well completion information
  - Wellheads are completed such that water elevations in wells can be monitored with data loggers
  - Wells are equipped with accurate flow meters
  - Wells have area or system for discharge of test water
  - Preferred wells will have nearby wells that can be monitored during the test and will be located near key data gap areas, such as the Eastside Fault, groundwater depletion areas, basin boundaries, and interconnected surface water.

Baylands area voluntary water quality sampling program: The objective of this task is to improve the understanding of the distribution and extent of brackish groundwater along margins of Baylands area and provide data to assist in the selection of locations for future RMPs needed for the seawater intrusion monitoring network. The study will be designed to supplement data collected through previous studies and monitoring programs and is planned to be completed within the first 2 years of GSP implementation. The task will include the following activities:

- Outreach to well owners within and near the Baylands area through the outreach activities described in **Section 7.2.2**.
- Assessment of potential candidate wells for sampling.
- Collection of water quality samples for analysis of chloride and TDS from up to 25 existing water wells.

- Evaluation of water quality sampling results to inform development of seawater intrusion monitoring network.

Interconnected surface water and GDE studies: As indicated in **Section 4.10.2.1**, in recognition of the significant information and data limitations and the importance of interconnected surface water to beneficial users within the Subbasin, the following studies and activities are planned:

- Develop improved information on the locations and amounts of surface water diversions under the jurisdiction of the SWRCB, including both direct diversions from streams and diversions that may occur from water wells near streams. This information will be developed through the coordination process established between the GSA and SWRCB related to depletions of interconnected surface water.
- Perform studies that determine impact of groundwater pumping on surface water depletion through combination of differential stream gaging, tracer experiments, temperature profiling, and other methods.
- Assess the influence of groundwater pumping and groundwater levels on GDE health using available remote sensing tools and datasets. The GDE Pulse web app developed by the Nature Conservancy provides data on long-term temporal trends of vegetation metrics. This information will be integrated with available groundwater-level data to assess the relationship between groundwater conditions and GDEs. Field visits will be conducted as-needed to verify findings from the remote sensing assessment on GDE locations and health. The potential GDEs identified in this GSP will be field verified to ensure that groundwater dependent communities exist, and that the shallow groundwater is connected to regional aquifers that will be managed as part of this GSP.
- Compile and evaluate existing and relevant habitat field surveys that aid in understanding potential impacts of groundwater pumping on habitat associated with interconnected surface water.

To help prioritize and schedule these activities, the GSA will develop ongoing consultation with interested members of the GDE and interconnected surface water practitioner workgroups to address these important data gaps within the Subbasin. It is anticipated that this consultation will be scheduled within the first 6 months of implementation.

#### **7.2.4.2 Monitoring Network Improvements**

Based on the assessment of data gaps in **Section 5**, this section describes the activities for improving the monitoring networks are planned.

Development of seawater intrusion monitoring network: Following completion of the voluntary water quality sampling program, the GSA will develop an improved sea water intrusion monitoring network. It is anticipated that the network will include a combination of appropriately constructed and existing wells through a long-term voluntary sampling program and new dedicated monitoring wells. The monitoring network will be designed to adequately map the chloride concentration isocontour in both the shallow and deep aquifer system. For

the purposes of estimating costs, it is assumed that three new dedicated multi-level monitoring wells would be constructed for the seawater intrusion monitoring network between the second and fourth year of GSP implementation.

Refinement of Groundwater-level Monitoring Network: As described in **Section 5**, many of the identified data gaps in the Groundwater-level Monitoring Network are being addressed through new wells being constructed under the Proposition 68 grant. A focus of Groundwater-level Monitoring Network improvement will be to refine the understanding of areas that are experiencing chronic lowering of groundwater levels in the deep aquifer system in the southern portions of the Subbasin. For remaining data gap areas, the GSA will evaluate both use of existing voluntary wells and construction of new dedicated monitoring wells. For the purposes of estimating costs, it is assumed that two new dedicated multi-level monitoring wells would be constructed for the Groundwater-level Monitoring Network. The GSA intends to conduct outreach and expand the voluntary groundwater-level monitoring program in the Subbasin during GSP implementation.

Additionally, the GSA will work to improve data quality in groundwater-level monitoring networks by a combination of the following activities:

- Performing survey activities for wells that lack sufficient reference point vertical survey data, as funding becomes available
- Obtaining well construction information from well owners or by conducting investigations (for example, video logging) as funding or technical assistance becomes available
- Replacing wells in the monitoring network that have data quality issues with dedicated monitoring wells, as funding becomes available

Refinement of interconnected surface water monitoring network: Following completion of the interconnected surface water and GDE studies and information gathering, improvements to the interconnected surface water monitoring network will be developed. For the purpose of estimating costs, it is assumed that two new dedicated shallow aquifer system monitoring wells would be constructed for the interconnected surface water monitoring network between the second and fourth years of GSP implementation. Additionally, it is assumed that remote sensing assessments of vegetation health will continue to be performed and reported at key intervals, such as the 5-year GSP updates.

The 5-year costs of addressing data gaps are estimated to be from \$1,000,000 to \$1,500,000.

### **7.2.5 Maintaining, Updating, and Making Improvements to the Model**

The Subbasin groundwater model (SVIGFM V2) informs the project and management activities and ongoing performance assessment of the SMC. Periodic updates to the groundwater model will be required to continue to refine and improve its capabilities and maintain ongoing functionality. This includes incorporating new model tools and features, updates to the HCM, incorporating new monitoring data, and related work to support ongoing simulations of projects and management actions. Improvements will be focused on the first 3 years of implementation to facilitate reassessing preliminary SMC, as appropriate, and planning for any

projects and actions. Model updates and refinements will be informed by data and information collected during early stages of implementation, including the planned activities for assessing data gaps, described in **Section 7.2.4**. A detailed plan for model improvements and updates is provided in **Appendix 7-A**. The preliminary areas of focus identified for model updates and improvements include:

- Update model code to MODFLOW-OWHM V2
- Focused calibration of surface water and groundwater interaction
- Assessment of aquifer properties
- Calibration contingent on availability of groundwater-level observation data, aquifer pump tests, simulation results, and other data
- Assessment of model boundary conditions, including mountain front recharge, general head boundaries, and simulated faults
- Improve model estimates of groundwater pumping, including response to changing climate, impact of surface water diversions, and recycled water

The 5-year costs of making updates and improvements to the model are estimated to be from \$200,000 to \$300,000.

### **7.2.6 Study and Implementation of Projects and Actions**

To prevent potential undesirable results and to achieve MOs, projects and management actions are planned as part of GSP implementation. As described in **Section 6**, a portfolio of projects and management actions has been developed with the goal of addressing relevant sustainability indicators, including the circumstances under which they may be implemented.

Based on the occurrence of chronic lowering of groundwater levels in portions of the deep aquifer system and results of projected baseline model scenarios, and to ensure that basin sustainability will be achieved by 2042, the GSA plans to immediately begin implementation of selected projects and management actions. In some cases, initial implementation steps include performing studies or analyses to refine the concepts into actionable projects. Therefore, the initial activities for project implementation will include both initiation of Group 1 and 2a projects and actions, and refining the projects and actions identified in **Section 6**. Studies and work efforts may include, but are not limited to, CEQA studies and documentation, engineering feasibility studies, and preliminary design reports. The study, prioritization, and development of policy options for the GSA Board to consider will be initiated during the first year of GSP implementation.

After necessary initial studies are completed, projects and management actions will undergo, as necessary, final engineering design (in the case of infrastructure projects) and public noticing and outreach, after which construction projects can occur followed by ongoing operations and maintenance.

The following activities related to projects and actions are planned during the first 5 years of implementation:

Implementation of Group 1 Projects:

- Assessment and implementation of conservation and groundwater use efficiency opportunities. This project would include an assessment of groundwater use characteristics, existing levels of water-use efficiency, and recommendations on preferred tools, strategies and incentives for implementing. While implementation of these projects is initially planned to be on a voluntary basis, the assessment will also identify specific metrics for evaluating the benefits of the projects and assess Subbasin conditions that may lead to mandatory implementation of demand management actions. Implementation of planned recycled water expansion to new users with existing contracts.

Planning and Implementation of Group 2a Projects:

- Develop a work plan and implement expanded ASR operations with City of Sonoma and Valley of the Moon Water District. Group 2A ASR projects require permitting, environmental analysis, and engineering design, which would begin in 2022.
- Support and coordination with existing grant applications for recycled water expansion opportunities (such as North Bay Water Reuse Authority Phase 2 Napa Road Project).

Planning for Group 2b Projects:

- Update 2013 feasibility study for other ASR opportunities:
  - Update source water (Russian River) availability and transmission system capacity assumptions
  - Assessment of locations/operations that benefit GSP implementation (that is, areas of depletion)
  - Design and implement pilot studies for favorable areas
- Assessment of additional recycled water opportunities:
  - Optimization of existing and projected future available supplies
  - Cost/benefit analysis for future alignment options
  - Identify optimal locations for future storage
- Site-specific investigations and pilot study of on-farm and other dispersed recharge opportunities:
  - Water available for recharge
  - Areas with permeable near-surface deposits

- Optimal methods and techniques
- Focus on locations that could help sustain baseflows/support GDEs for recharge

Management Actions:

- Study and development of potential policy options for future GSA consideration or recommendation, which will build upon and advance initial work initiated by Permit Sonoma under a Proposition 68 grant to update the well permitting process and database and update Permit Sonoma's policy and database for groundwater monitoring requirements on commercial use permits. This study will prepare a prioritized list of potential policy options, including stronger demand management actions that may need to be adopted should the projects previously described not be implementable or successful. The following initial list of potential policy options has been developed for potential inclusion in the assessment:
  - Water conservation plan requirements for new development
  - Discretionary review of well permits for any special areas identified in the GSP or through data collected during GSP implementation, such as areas of the southern Subbasin currently experiencing ongoing groundwater-level declines in the deep aquifer system and/or areas near streams with sensitive habitat
  - Expand low impact development or water efficient landscape plan requirements
  - Well construction and permitting recommendations (for example, water quality sampling/reporting for COCs, requirement for water-level measurement access, prevent cross-screening multiple aquifers)
  - GSA review of discretionary projects that impact groundwater resources
  - Metering program
  - Development of a drinking water well mitigation program
  - Permitting and accounting of water hauling

The items previously listed represent initial ideas for policy options, which will be informed through the continued stakeholder engagement and outreach. In particular, it is expected that as the GSA participates in future General Plan amendment and updates processes with the County, as required by SGMA, additional policy options may be developed and considered.

- Coordinate farm plans, developed at individual farm sites, with implementation of the basinwide GSP:
  - Identify areas of mutual interest (such as improved water-use efficiency, increased groundwater recharge, increased monitoring and data collection, coordinated information sharing, and reporting) in addition to challenges that need to be addressed

(for example, data confidentiality, data quality requirements, verification of farm plan performance)

- This project would: (1) identify requirements or standards to demonstrate benefits to GSP implementation, (2) develop metrics that would be measured and verified, and (3) consider options to incentivize actions of mutual benefit.

The estimated costs of refining and implementing the projects described herein and actions are estimated to be from \$485,000 to \$980,000, as summarized in **Table 7-2**.

**Table 7-2. Summary of Estimated 5-year Costs for Projects and Management Actions, Excluding Capital Project Costs**

Project/Action	Project Scenario Group	Estimated 5-year Costs	Other Potential Funding Sources	Assumptions
Conservation/Water-Use/Efficiency/Alternate Water Sources	1	\$50,000 to \$85,000	Other GSAs	Split equally amongst 3 GSAs
Recycled Water Expansion	2a	\$60,000 to \$80,000	SVCSD	
Aquifer Storage and Recovery	2a/2b	\$250,000 to \$400,000	Other GSAs, Sonoma Water/Water Contractors	Other GSAs and Sonoma Water/Water Contractors will also contribute funding
Stormwater Capture and Recharge	2b	\$80,000 to \$230,000		
Farm Plan Coordination		\$20,000 to \$60,000	Other GSAs	Other GSAs will also contribute funding
Policy Options		\$25,000 to \$125,000		Other GSAs will also contribute funding
		\$485,000 to \$980,000 \$740,00	Total Range Midrange	

It is anticipated that the capital project costs within the first 5 years will be paid for by some combination of individual project proponents/beneficiaries and grant funding. Specific details regarding roles of project proponents and the cost share mechanisms are anticipated to be determined as the projects are further defined and scoped. Therefore, costs associated with implementation of capital project implementation is not included in the GSP implementation budget estimate in **Table 7-2**.

Screening level capital costs for implementing Group 2a projects are provided in **Table 7-3**, along with assumptions. As noted, some projects such as ASR within the City of Sonoma and Valley of the Moon Service Areas may be on a more expedited timeframe, as they are being considered for drought resiliency grant funding opportunities.

**Table 7-3. Estimate of Potential Capital Project Costs for Group 2a Projects**

Project Group	Year 1	Year 2	Year 3	Year 4	Year 5	5-year Total
<b>GSP Implementation Item<sup>[a]</sup></b>	<b>2022 to 2023</b>	<b>2023 to 2024</b>	<b>2024 to 2025</b>	<b>2025 to 2026</b>	<b>2026 to 2027</b>	<b>2022 to 2027</b>
Recycled Water Expansion: Napa Road Pipeline <sup>[b]</sup>		\$600,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,600,000
Aquifer Storage and Recovery: City of Sonoma and Valley of the Moon Service Areas <sup>[c]</sup>	\$500,000	\$1,500,000	\$1,500,000	\$1,000,000	\$500,000	\$5,000,000
<b>Total</b>	<b>\$500,000</b>	<b>\$2,100,000</b>	<b>\$2,500,000</b>	<b>\$2,000,000</b>	<b>\$1,500,000</b>	<b>\$8,600,000</b>

<sup>[a]</sup> Costs to GSA would need to be determined based on availability of future grant funding, future studies and evaluation of relative benefits of project to GSA and other entities

<sup>[b]</sup> Project included in Phase 2 programmatic Environmental Impact Report and feasibility study for North Bay Water Reuse Authority

<sup>[c]</sup> Projects to be included in forthcoming Drought Funding application

It is also anticipated that each implemented project will have its own set of monitoring objectives and data collection requirements to allow for project evaluation and confirmation assessments, and, if necessary, modifications to improve project effectiveness. The costs of specific projects that are not covered by beneficiaries/project proponents will include assumptions about financing the projects over time.

### 7.2.7 5-year Update to Groundwater Sustainability Plan

As required by SGMA regulations, an evaluation of the GSP and the progress toward meeting the approved SMC and the sustainability goal will occur at least every 5 years and with every amendment to the GSP. A written 5-year evaluation report (or periodic evaluation report) will be prepared and submitted to DWR. The following information will be included in the evaluation reports:

- A sustainability evaluation will contain a description of current groundwater conditions for each applicable sustainability indicator and will include a discussion of overall sustainability in the Subbasin. Progress toward achieving interim milestones and MOs will be included, along with an evaluation of status relative to MTs. If interim milestones are not being achieved, the evaluation will identify obstacles to achieving the interim milestones. The evaluation will include a plan for overcoming those obstacles and provide a new assessment of interim milestones that achieve sustainability by 2042.
- An implementation plan progress section will describe the current status of project and management action implementation and whether any adaptive management actions have been implemented since the previous report. An updated project implementation schedule will be included, along with any new projects identified that support the sustainability goals of the GSP and a description of any projects that are no longer included in the GSP. The benefits of projects and management actions that have been implemented will be described and updates on projects and management actions that are underway at the time of the report will be documented.

- GSP elements will be reconsidered as additional monitoring data are collected, land uses and community characteristics change, and GSP projects and management actions are implemented. It may become necessary to reconsider elements of this GSP and revise the GSP as appropriate. GSP elements to be reassessed may include basin setting, management areas, undesirable results, MTs, and MOs. If appropriate, a revised GSP, completed at the end of the 5-year evaluation period, will include revisions informed by findings from the monitoring program and changes in the Subbasin, including changes to groundwater uses, demands, or supplies, and results of project and management action implementation.
- A description of the monitoring network will be provided. An assessment of the monitoring network's function will be included, along with an analysis of data collected to date. If data gaps are identified, the GSP will be revised to include a method and implementation schedule for addressing these data gaps, along with a description of how the GSA will incorporate updated data into the GSP.
- New information available since the last 5-year evaluation or GSP amendment will be described and evaluated. If the new information should warrant a change to the GSP, this will also be included.
- A summary of the regulations or ordinances related to the GSP that have been implemented by DWR or others since the previous report will be provided. The report will include a discussion of any required updates to the GSP.
- Legal or enforcement actions taken by the GSA in relation to the GSP will be summarized, including an explanation of how such actions support sustainability in the Subbasin.
- A description of amendments to the GSP will be provided in the 5-year evaluation report, including adopted amendments, recommended amendments for future updates, and amendments that are underway.
- Ongoing coordination will be required among the GSA; members of the Advisory Committee; other local, state, and federal partners; and the public. The 5-year evaluation report will describe coordination activities between these entities, such as meetings, joint projects, data collection and sharing, and groundwater modeling efforts.
- Outreach activities associated with the GSP implementation, assessment, and GSP updates will be documented in the 5-year evaluation report.

The initial 5-year GSP evaluation is due to be submitted to DWR in 2027. The estimated cost of preparing the initial 5-year GSP update is estimated to be from \$200,000 to \$300,000.

### **7.2.8 Estimated 5-year Implementation Costs**

The cost of the items described in **Section 7.1.1** through **Section 7.1.7** will vary from year to year, but the average cost of implementation is approximately \$1.2 million annually for the first 5 years (fiscal year 2022-2023 through fiscal year 2027-2028), excluding the construction costs of specific capital projects, as summarized in **Table 7-4**.

To enhance efficiencies and provide similar benefits to nearby groundwater users in Santa Rosa Plain and Petaluma Valley GSAs, it is assumed that the development costs of common projects and actions will be shared among the three GSAs. In addition, the budget assumes that costs will be shared for the development of projects and actions conducted in cooperation with local, regional, and state partners (such as sanitation districts, water suppliers, RCDs, and others).

**Table 7-4. Total Estimated 5-year Implementation Costs**

GSP Implementation Item	Year 1	Year 2	Year 3	Year 4	Year 5
	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027
GSA Administration and Operations	\$245,000	\$235,000	\$230,000	\$220,000	\$235,000
Communication and Stakeholder Engagement <sup>[a]</sup>	\$80,000	\$80,000	\$80,000	\$80,000	\$100,000
Annual Monitoring, Evaluation, and Reporting	\$230,000	\$200,000	\$200,000	\$200,000	\$200,000
Data Gap Filling <sup>[a]</sup>	\$30,000	\$345,000	\$805,000	\$290,000	\$0
Conceptual Projects and Planning Design <sup>[a]</sup>	\$100,000	\$150,000	\$200,000	\$200,000	\$90,000
Model Updates <sup>[a]</sup>	\$0	\$30,000	\$50,000	\$100,000	\$70,000
Five-year GSP Updates <sup>[a]</sup>	\$0	\$0	\$0	\$100,000	\$200,000
Subtotal	\$685,000	\$1,040,000	\$1,565,000	\$1,190,000	\$895,000
10 Percent Contingency (rounded to nearest \$5,000)	\$70,000	\$105,000	\$155,000	\$120,000	\$90,000
Total	\$755,000	\$1,145,000	\$1,720,000	\$1,310,000	\$985,000

Preliminary average annual costs are equal to approximately \$1.2 million.

<sup>[a]</sup> Potential for bond funding/technical services support

Estimates of future implementation costs (Year 6 through Year 10) will be provided in the 5-year GSP update.

### 7.3 Funding

Development of this GSP was partially funded through grants from DWR through the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) and the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018 (Proposition 68). Additional support was provided through DWR Technical Support Services program, which included the drilling of 12 shallow monitoring wells. GSA member agencies, as described in **Section 1.3.1**, funded the remainder of the GSP development and GSA administration. The grant funding ends after submittal of this GSP, and the member-agency funding agreement ends on June 30, 2022. Therefore, additional funding streams are needed for GSP implementation.

GSP implementation will partially be funded by an implementation fee that is the current subject of an ongoing fee study. Other potential funding sources include grants through DWR, SWRCB, and federal and local entities; DWR technical support; and partnerships with member

agencies, other GSAs, and entities interested in leveraging mutually beneficial programs, projects and studies.

### 7.3.1 Fees, Grants, and Other Funding Sources

SGMA provides GSAs the authority to impose certain fees, including groundwater pumping fees. In September 2022, the GSA engaged a consultant to conduct a fee study to evaluate and provide recommendations for GSP implementation funding. The study includes outreach and education to inform and solicit feedback from groundwater users and other stakeholders. Any imposition of a fee, tax, or charge will comply with California law and all applicable Constitutional requirements, based on the nature of the fee.

The fee will be designed to pay for the costs of implementing the GSP that will not be covered by grants, low-interest financing, project beneficiaries and project partners. An implementation budget provided in **Table 7-4** provides a high-level overview of costs, and indicates items that could be eligible for grant funding. Administrative and operational costs are generally not eligible for grants or loans, but the remainder of the items listed in the budget (with the exception of contingency funds) may be partially or fully eligible for grant funding, depending on the grant source and availability. The GSA has successfully applied for and received more than \$2.2 million in grant funding and technical support services, and will continue to pursue grants and low-interest financing to offset the costs of monitoring, filling data gaps, and for planning and implementing projects and actions.

In addition, funding could be provided by project partners (such as other agencies) or project beneficiaries (such as farmers, businesses and nearby groundwater users) who directly benefit from project implementation.

A more detailed budget will be developed as part of the fee study process and will be available in Winter 2022. The GSA Board will consider adoption of the implementation fee in Spring 2022, and fee collection is anticipated to begin in December 2022.

### 7.4 Schedule

The implementation schedule is on **Figure 7-1**. The final GSP will be submitted to DWR no later than January 31, 2022. While DWR has 2 years to review the GSP, the schedule on **Figure 7-1** assumes that implementation begins immediately, and provides an overview of the preliminary schedule for agency administration and finance, monitoring, project implementation, and reporting. Many of these categories consist of ongoing tasks and efforts that will continue throughout GSP implementation.

Administration and finance items on **Figure 7-1** include:

- Completion and implementation of the fee study
- Adaptive management tasks related to ongoing development and assessment of the SMC for seawater intrusion and interconnected surface water (as described in **Section 4**)
- Outreach and communication

- Studies and implementation of management actions, including farm plan coordination and development of the policy options (described in **Section 7.1.6**).

The monitoring task includes collecting and analyzing data from existing and future RMPs, and planning for new monitoring sites to fill the data gaps discussed in **Section 5**. Specifically, this category includes the installation of stream gages and development of associated shallow wells to fill data gaps for depletion of interconnected surface water and the development of additional monitoring sites to assess seawater intrusion.

The project implementation schedule includes the development and implementation of Group 1, Group 2A, and Group 2B projects, as described in **Section 6**. After a short planning period, it is assumed that Group 1 project implementation will begin in 2023. Group 2A projects require permitting, environmental analysis, and engineering design, which would begin in 2022. Implementation of Group 2A projects is anticipated to begin in 2026. Group 2B projects require significant financial commitments, planning, and permitting. The schedule assumes that planning and permitting for Group 2B projects will begin in 2028. The timing of projects is based on best estimates and may shift as GSP implementation proceeds based upon the needs at the time.

The implementation of the two management actions (assessment and prioritization of potential policy options and coordination of Farm Plans with GSP implementation) will begin at the outset of implementation with the goal of having initial recommendations on scope and prioritization for the GSA Board to consider within the first year of implementation.

GSP reporting will occur on an annual and a 5-year basis as required under SGMA. Annual reports will be submitted to DWR by April 1 of each year. Periodic reports (every 5 years or following substantial GSP amendments) will be submitted to DWR by April 1 at least every 5 years (2027, 2032, 2037, and 2042). The contents of annual and periodic reports are described in **Section 7.3**.