

# DRAFT

## Section 7: Implementation Plan Groundwater Sustainability Plan for Santa Rosa Plain Groundwater Subbasin

### Table of Contents

7	IMPLEMENTATION PLAN .....	7-1
7.1	Governance Structure and Planned Administrative Approach.....	7-1
7.2	GSP Implementation Components and Estimated Costs.....	7-1
7.2.1	Administration and Finance.....	7-2
7.2.2	Communication and Stakeholder Engagement .....	7-2
7.2.3	Annual Monitoring, Data Evaluation, and Reporting .....	7-3
7.2.3.1	Monitoring and Data Evaluation .....	7-3
7.2.3.2	Annual Reports .....	7-5
7.2.4	Addressing Data Gaps.....	7-6
7.2.4.1	Studies and Information Gathering.....	7-8
7.2.4.2	Monitoring Network Improvements .....	7-9
7.2.5	Maintaining, Updating, and Improvements to Model.....	7-10
7.2.6	Study and Implementation of Projects and Actions .....	7-11
7.2.7	Five-year Update to Groundwater Sustainability Plan .....	7-14
7.2.8	Estimated Five-year Implementation Costs.....	7-15
7.3	Funding.....	7-16
7.3.1	Fees, Grants and Other Funding Sources .....	7-17
7.4	Schedule .....	7-17

### Tables

Table 7-1.	Monitoring Networks and Initial Representative Monitoring Point Networks.....	7-4
Table 7-2.	Summary of Estimated Five-Year Costs for Projects and Management Actions, Excluding Capital Project Costs .....	7-13
Table 7-3.	Total Estimated Five-Year Implementation Costs .....	7-16

### Figures

Figure 7-1.	Implementation Schedule .....	7-7
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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 **Sections 4** through **6** in this GSP, including the following:

- The GSA’s governance structure and planned administrative approach
- The main implementation components and estimated costs for the initial 5 years of implementation
- The 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 implementation plan will adapt 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 nine member agencies currently plan to continue operating under the Joint Powers Authority agreement that created the GSA. The Board will continue serving as the governing body, making decisions regarding implementation of projects and management actions; closing data gaps; contracts; administration; funding; and other governance issues. 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. As the GSA transitions from GSP development to implementation starting in 2022, staffing needs will be evaluated to determine the most efficient and effective move forward. To reduce costs and for consistency for groundwater users within Sonoma County, it is possible that the GSA will coordinate management and other services with the Petaluma Valley and Sonoma Valley GSAs.

### **7.2 GSP 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, costs associated with 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 are estimated to range from \$250,000 to \$300,000 annually.

### 7.2.2 Communication and Stakeholder Engagement

To meet the requirements of SGMA, the GSA will continue the activities described in **Section 1**, including the following:

- Holding regular meetings of a diverse, stakeholder-based Advisory Committee to receive feedback on implementation efforts and to solicit outreach ideas and assistance
- Informing, educating, and soliciting feedback from stakeholders on the progress of implementing projects and management actions and on subbasin conditions through social media, the GSA website, periodic community/town hall meetings, focused stakeholder briefings, and paid and free media
- Approaching and engaging a diverse set of stakeholders and groundwater users by continuing to reach out to and meet with organizations that represent disadvantaged communities, farmers, environmental interests, rural landowners, and business interests

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.

In addition, the GSA will continue to engage and coordinate with local, state, and regional agencies (including GSA member agencies, other GSAs, Permit Sonoma, Agricultural Commissioner, Sonoma County Ag + Open Space District, DWR, SWRCB's Division of Drinking Water (DDW) and Water Rights Division, and NCRWQCB) to fill data gaps and implement projects and actions. This coordination will include discussions of partnering opportunities for funding implementation components that are mutually beneficial. 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. In addition, the GSA will engage in and review General Plan amendments, other local policies and issues related to groundwater resources in the Subbasin.

An important component of this engagement will be ongoing coordination with agencies responsible for regulating groundwater quality. The GSA will regularly coordinate with NCRWQCB, SWRCB-DDW, and others to understand and develop a process for determining if groundwater management is resulting in degraded water quality.

Annual outreach and communication is estimated to range in cost from approximately \$95,000 to \$120,000 per year.

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

Monitoring of the five applicable sustainability indicators 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, or to identify whether undesirable results are occurring, 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 herein 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 34 RMPs (consisting of 26 existing and 8 new RMPs) identified in **Section 5.3.1** for comparison to MTs and MOs. The groundwater-level monitoring will also include the coordination and evaluation of measurements from 80 additional wells within the Subbasin and contributing watershed areas, as well as outside of the contributing watershed areas along basin boundaries, as described in **Section 5.2.1**, to continue tracking trends in these wells with historical data, assess changes in groundwater elevations near boundaries, 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 annually, 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 water quality sustainability indicator.
  - 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 five-year updates. The number of public water supply wells routinely monitored for each COC is shown 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 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 18 active stream gages within the Subbasin and contributing watershed area.
  - Measurement and evaluation of groundwater elevations from the seven RMPs used to monitor surface water depletion as a proxy. For reporting seasonal highs and lows for future comparison with MTs, all subdaily measurements will be reported as monthly averages to better align with the measurement frequency within historical datasets used to calculate the MTs.
  - Assessment and improvement of the monitoring network for surface water and groundwater interaction as described in **Section 7.2.4.1**.

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

<b>Sustainability Indicator</b>	<b>Monitoring Network</b>	<b>Initial Representative Monitoring Point Network</b>
Chronic Lowering of Groundwater Levels	96 wells within the contributing watershed area (including 85 wells in the Subbasin) 61 wells are inferred to primarily monitor the shallow aquifer 35 wells inferred to primarily monitor the deep aquifer	14 existing and 4 new shallow aquifer system wells 12 existing and 4 new deep aquifer system wells
Subbasin Boundary Groundwater-level Monitoring Network (This network provides information on boundary conditions, but is not used for RMPs)	16 wells outside boundaries but within contributing watershed, including: 8 wells: Wilson Grove Formation Highlands Basin 1 well: Petaluma Valley Basin 3 wells: Rincon Valley Subbasin 1 well: Alexander Valley Subbasin 2 wells: outside of defined basins	
Reduction in Groundwater Storage	Same as monitoring network for Chronic Lowering of Groundwater Levels	Same as monitoring network for Chronic Lowering of Groundwater Levels
Degraded Water Quality	Existing supply well groundwater quality monitoring programs, as follows: Arsenic: 104 wells Nitrate: 122 wells Salts: 92 wells	Existing supply well groundwater quality monitoring programs, as follows: Arsenic: 104 wells Nitrate: 122 wells Salts: 92 wells
Land Surface Subsidence	Three GPS locations; InSAR satellite in most of the Subbasin	InSAR dataset

Sustainability Indicator	Monitoring Network	Initial Representative Monitoring Point Network
Interconnected Surface Water	18 stream gages; 10 shallow monitoring wells adjacent to streams	Seven shallow monitoring wells adjacent to streams

### 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 1st of each year following the GSP adoption, except in years when five-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.

#### 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, and an annual update to the GSP implementation schedule.

#### Subbasin Conditions

The Subbasin Conditions section will describe the current groundwater conditions and monitoring results. This section will also 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 the following:

- 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
- 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 SMC will also be reported, including MT and MO status for RMPs.

### **GSP 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 the following:

- 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
- Any 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 by 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 five-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 **Sections 3** through **5**. These data gaps were shared and discussed with Subbasin stakeholders to prioritize activities and actions needed to address the following 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 Sebastopol Fault
- 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

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>																				
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 - Recycled Water Opportunities Assessment																				
Study - Farm Plan Coordination																				
Implement Recommended Actions																				
<b>Monitoring Program &amp; Data Gaps</b>																				
Implementation of Monitoring																				
Data Gap Filling																				
Model Updates and Refinements																				
<b>Project Implementation</b>																				
<b>Group 1 Projects</b>																				
Voluntary Conservation																				
<b>Group 2 Projects</b>																				
Stormwater Capture & Recharge - Site Investigations																				
Stormwater Capture & Recharge - Pilot																				
Stormwater Capture & Recharge - Project																				
<b>Group 3 Projects</b>																				
Aquifer Storage & Recovery (ASR) Feasibility Study Update																				
ASR Investigations and Pilot <sup>(1)</sup>																				
ASR Project Implementation <sup>(1)</sup>																				
<b>Reporting</b>																				
Annual Reports	★	★	★	★		★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
Five Year Evaluation/Updates																				

Notes:

DWR Review	
Milestone/Document Submittal	★
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

- 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 the following sections 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 include the following activities.

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. This will improve the assessment of potential impacts from groundwater pumping to beneficial users and uses within the Subbasin, including existing residential and other water wells and GDEs. 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

Aquifer system properties assessment: The objective of this task is to 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 GSA's ability to assess potential impacts from groundwater pumping to beneficial users and uses within and along the boundaries of the Subbasin, including existing residential and other water wells and GDEs. As part of this task, the GSA will evaluate the airborne electromagnetic survey results (data collection and compilation funded by DWR) and incorporate them into the existing HCM. DWR is planning to collect geophysical data from the Subbasin through its airborne electromagnetic 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 data collection and evaluation described above, aquifer testing will be performed and evaluated 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 cooperators
- 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 flowmeters

- 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 near interconnected surface water with nearby shallow monitoring wells and along Subbasin boundaries (particularly the western and southern boundaries)

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 under riparian water rights. 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 the impact of groundwater pumping on surface water depletion through a 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 TNC provides data on long-term temporal trends of vegetation metrics. This information will be integrated with available groundwater-level data and information to assess the relationship between groundwater conditions and GDEs. Conduct field visits as needed to verify the findings of the remote sensing assessment regarding 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.

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

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

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. 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















### 7.3.1 Fees, Grants and Other Funding Sources

SGMA provides GSAs the authority to impose certain fees, including groundwater pumping fees. In September 2021, the GSA engaged a consultant, SCI Consulting, to conduct a fee study to evaluate and provide recommendations for GSP implementation funding. The study will build on the work done in a previous fee study adopted by the GSA Board in 2019. The new study will include 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 7-3** 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 shown 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 shown on **Figure 7-1** includes completion and implementation of the fee study and outreach and communication. The task also includes studies and implementation of management actions, including Farm Plan Coordination, assessment of additional recycled water opportunities, and development of the policy options (described in **Section 7.2.6**).

The monitoring program and data gap 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**.

The project implementation schedule includes the development and implementation of Group 1, Group 2, and Group 3 projects, as described in **Section 6**. After a short planning period, it is assumed that Group 1 project implementation will begin in 2023. Group 2 and 3 projects require permitting, environmental analysis, and engineering design, which would begin in 2022. Depending upon results of pilot studies, planned to be initiated in 2024, full-scale implementation of Group 2 and 3 projects is anticipated to 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. Additionally, some projects, such as ASR, may be pursued on a more rapid pace by other entities involved with drought response.

The implementation of the management actions (coordination of Farm Plans with GSP implementation, assessment of recycled water opportunities, assessment and prioritization of potential policy options and) will be initiated in the first year of implementation with the goal of having initial recommendations on scope and prioritization for the GSA Board to consider within the first two years 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 7.2**.