6. PLAN IMPLEMENTATION

SGMA requires the GSAs to partner with groundwater users to develop and implement GSPs to achieve groundwater sustainability. SGMA requires the Vina Subbasin to be sustainable by 2042. The GSP includes provisions to evaluate current conditions in the Vina Subbasin (Section 2), establish SMC (Section 3), gather and analyze groundwater data (Section 4), and report findings. The provisions in the GSP will be evaluated every five years and updated as necessary. The Vina Subbasin GSAs are required to submit the GSP to DWR by January 31, 2022. DWR will evaluate the GSP within 24 months of submittal. Upon submittal of this GSP to DWR, GSP implementation will begin in the Vina Subbasin. The GSAs will continue their efforts with public engagement and to secure funding to monitor and manage groundwater resources. This section presents the manner in which the GSAs will execute the GSP consistent with the requirements in CCR Title 23 § 354.6(e).

The GSP includes provisions for:

- Gathering data at RMS locations
- Evaluation of SMCs
- Report of findings and analysis
- Implementation of PMAs

Each of these provisions will require funding and schedule coordination to help achieve Vina Subbasin sustainability goals. The following sections describe the funding mechanisms and timetable for the GSP implementation.

6.1 Estimate of Groundwater Sustainability Plan Implementation Costs

Where feasible, the GSAs will use existing funding and/or programs for use in the GSP implementation. The GSAs, member agencies, and water purveyors will coordinate to implement the actions outlined in this GSP. The GSAs will fund the implementation of the GSP where other sources are not available. The cost of implementation of the GSP by activity is presented below.

6.1.1 Administrative Costs

These include the cost of annually operating the GSAs, including staff expenses, audit, outreach, legal and other administrative costs. This does not include agency-specific project implementation costs. Costs are estimated to be in the range of approximately $200,000 to $400,000 annually.

Table 6-1: Estimated Administrative Costs

GSP Implementation	Estimated Annual Costs
Public Outreach	$25,000
Staff	$150,00
Legal	$30,000
Other	$20,000
Total Estimate	**$225,000**

Public outreach efforts will continue during GSP implementation with a focus on progress updates particularly regarding the PMAs. Staff time will likely be in-kind contribution from member agencies of the Vina and RCRD GSAs. Outside counsel will continue to provide legal advice to the GSAs Boards. The budget also includes other miscellaneous costs such as printing and insurance.

6.1.2 Monitoring

Monitoring for compliance with SGMA regulations will include semi-annual collection of groundwater levels at 17 RMS locations and annual collection of groundwater quality at 8 RMS locations. Monitoring activity costs will include labor (field data collection, surveying, laboratory analysis, project management) and equipment (vehicles, meters, pumps, field tools/supplies).

Table 6-2: Monitoring Activities and Estimated Cost

Monitoring Activity	Frequency	Estimated Annual Cost
Groundwater Levels	Semi-Annual, 2 events	$20,000
Groundwater Quality	Annual, one event	$8,000

Some RMS locations include wells that are monitored and funded under existing programs.

6.1.3 Data Analysis

The data gathered from the ongoing monitoring program will be analyzed to assess trends for determination of undesirable results. Analysis of the data may lead to modifications in the RMS network, the hydrogeological conceptual model, and the priority of PMAs. Data gaps that arise from analysis may require installation of new RMS locations.

Table 6-3: Data Analysis Activities and Estimated Cost

Data Analysis Activity	Frequency	Estimated Annual Cost
Data Management System	Annual	$5,000
Review of Groundwater Data	Annual	$5,000

6.1.4 Reporting and Evaluation

Annual reports are required after GSP adoption to provide updates to general GSP information, basin conditions, and plan implementation progress. Section 6.5 discusses the annual reporting

plan in more detail. GSAs are required to conduct an evaluation of the GSP and prepare a report every five years or whenever the GSP is amended. Section 6.6 discusses the evaluation report in more detail.

Table 6-4: Reporting and Evaluation Activities and Estimated Cost

Reporting Activity	Frequency	Estimated Cost
Annual Report	Annual	$30,000
5-year Evaluation Report	5 Years	$100,000

6.1.5 Data Collection

A discussion of the data collection needed to address identified data gaps is presented in Section 5.4, and the estimated costs are presented below.

Table 6-5: Estimated Costs for Implementing Data Gaps

Data Gaps	Estimated Costs
Interconnected Stream Monitoring	$100,000 – $250,000
Contour Mapping	$20,000 - $50,000
Community Monitoring	$50,000 - $150,000
Butte Basin Model Update 1	$50,000 - $100,000
Butte Basin Model Update 2	$50,000 - $100,000

6.1.6 Project and Management Actions

The PMAs and anticipated costs are presented in Section 5. The PMAs with a planned initiation date in or before 2032 are presented below.

Table 6-6: Estimated Project Costs

Project Name	Capital Costs	Expected Groundwater Demand Reduction (AFY)
5.2.3.1 Agricultural Irrigation Efficiency	TBD **	Up to 4,000
5.2.3.2 Residential Conservation	TBD	100
5.2.3.3 Scoping for Flood MAR/Surface Water Supply and Recharge	TBD	NA
5.2.3.4 Community Water Education Initiative	Component 1: $50-100K annually Component 2: $10,000-$200,000 annually Component 3: $10,000-$25,000 annually	NA
5.2.3.5 Fuel Management for Watershed Health	TBD	TBD
5.2.4.1 Paradise Irrigation District Intertie	TBD	5,000
5.2.4.2 Agricultural Surface Water Supplies	TBD	2,000 – 3,000
5.2.4.3 Streamflow Augmentation	TBD	1,000 – 5,000
5.2.4.4 Community Monitoring Program	TBD	NA
5.2.4.5 Recycled Wastewater	TBD	5,000
5.2.4.6 Rangeland Management	TBD	TBD
5.2.4.7 Removal of Invasive Species	TBD	TBD
5.2.4.8 Surface Water Supply and Recharge	TBD	1,000 per project
5.2.5.1 Extend Orchard Redevelopment	TBD	4,000 – 8,000
5.2.5.2 Recharge from the Miocene Canal	TBD	2,000

Note:
**To be Determined (TBD)

6.2 Identify Funding Alternatives

The GSAs will seek to capitalize on existing funding and programs that overlap with GSP requirements. For example, Butte County, DWR, and other entities currently fund groundwater data collection programs at locations within the Vina Subbasin. The GSAs will ensure that the existing programs meet the technical requirements of the monitoring and reporting as outlined in the GSP.

In cases where no funding or programs are established, the GSAs will be responsible for securing funding for the GSP implementation. The GSAs will coordinate funding with their respective constituent members within the Vina Subbasin. GSAs may fund the GSP through a cost-sharing collaboration to be determined after adoption of GSP.

Funding is anticipated to be met from one or a combination of the following sources: direct contributions from the GSAs constituent members; state and federal grant funding, and taxes or assessments levied on landowners and groundwater users in accordance with local and state law.

The GSAs are evaluating a variety of funding mechanisms, including Proposition 218 or Proposition 26, to support ongoing operational costs and to fund agency operations. These costs include retaining consulting firms and legal counsel to provide oversight and assist with SGMA compliance. Expenses consist of administrative support, GSP development, and GSP implementation.

6.3 Schedule for Implementation

Figure 6-1 presents the estimated schedule for GSP implementation for the Vina Subbasin GSP starting in 2022 through 2042. Project schedules may shift or be altered by the GSAs Board of Directors based on funding opportunities and circumstances. Some activities such as monitoring, data analysis, and reporting will begin upon submittal of the GSP and will continue through GSP implementation. Other activities such as the PMAs will be completed by priority as funding and resources become available.

6.4 Data Management Systems

In development of this GSP, the GSAs developed a groundwater model that was calibrated to estimate future scenarios. The DMS plans to build on existing data inputs in the groundwater model and develop a more formalized approach to collecting and capturing data. As stated in Section 4, Monitoring Network, future data will be gathered to develop annual reports, as well as provide necessary information for future and ongoing updates to the groundwater model at five-year intervals upon GSP implementation. The DMS that will be used is a geographical relational database that will include information on water levels, land elevation measurements, and water quality testing. The DMS will allow the GSAs to share data and store the necessary information for annual reporting.

The DMS will be on local servers and data will be transmitted annually to form a single repository for data analysis for the Vina Subbasin's groundwater, as well as to allow for preparation of annual reports. GSA representatives will have access to data and will be able to ask for a copy of the regional DMS. The DMS currently includes the necessary elements required by the regulations, including:

- Well location and construction information for the representative monitoring points (where available)
- Water level readings and hydrographs including water year type
- Land based measurements
- Water quality testing results
- Estimate of groundwater storage change, including map and tables of estimation
- Graph with Water Year type, Groundwater Use, Annual Cumulative Storage Change

ID	Task Name	Start	Finish
1	**GSP Implementation**	**1/31/22**	**4/1/42**
2	GSP Submittal	1/31/22	1/31/22
3	Public Outreach	2/1/22	4/1/42
4	Monitoring	2/1/22	4/1/42
5	Develop Intial DMS	2/1/22	2/1/23
6	**Annual Reports**	**4/1/22**	**4/1/42**
28	Interbasin Coordination	4/1/22	4/1/42
29	**Five Year Updates**	**4/1/27**	**4/1/42**
30	2027 Update	4/1/27	4/1/27
31	2032 Update	4/1/32	4/1/32
32	2037 Update	4/1/37	4/1/37
33	2042 Update	4/1/42	4/1/42
34	**Data Gaps**		
35	Interconnected Stream Monitoring	2/1/22	4/1/42
36	Contour Mapping	2/1/22	5/5/32
37	Community Monitoring	2/1/22	4/1/27
38	Update Butte Basin Model 1	1/1/23	1/3/27
39	Update Butte Basin Model 2	1/1/27	1/1/32
40	**Project Implementation**	**1/1/23**	**12/30/40**
41	Project 1: Ag Irrigation Efficiency	1/1/23	12/31/27
42	Project 2: Residential Conservation	1/1/23	12/31/25
43	Project 3: Scoping for Flood MAR	1/1/23	12/31/32
44	Project 4: Community Water Education	1/1/23	12/30/32
45	Project 5: Fuels Management for Watershed Health	1/1/25	12/30/40
46	**Adaptive Management**	**2/1/22**	**2/2/42**
47	Evaluate Potential Projects	2/1/22	2/2/42
48	Evaluate New Projects	2/1/22	2/2/42
49	Evaluate Management Actions	2/1/22	2/2/42

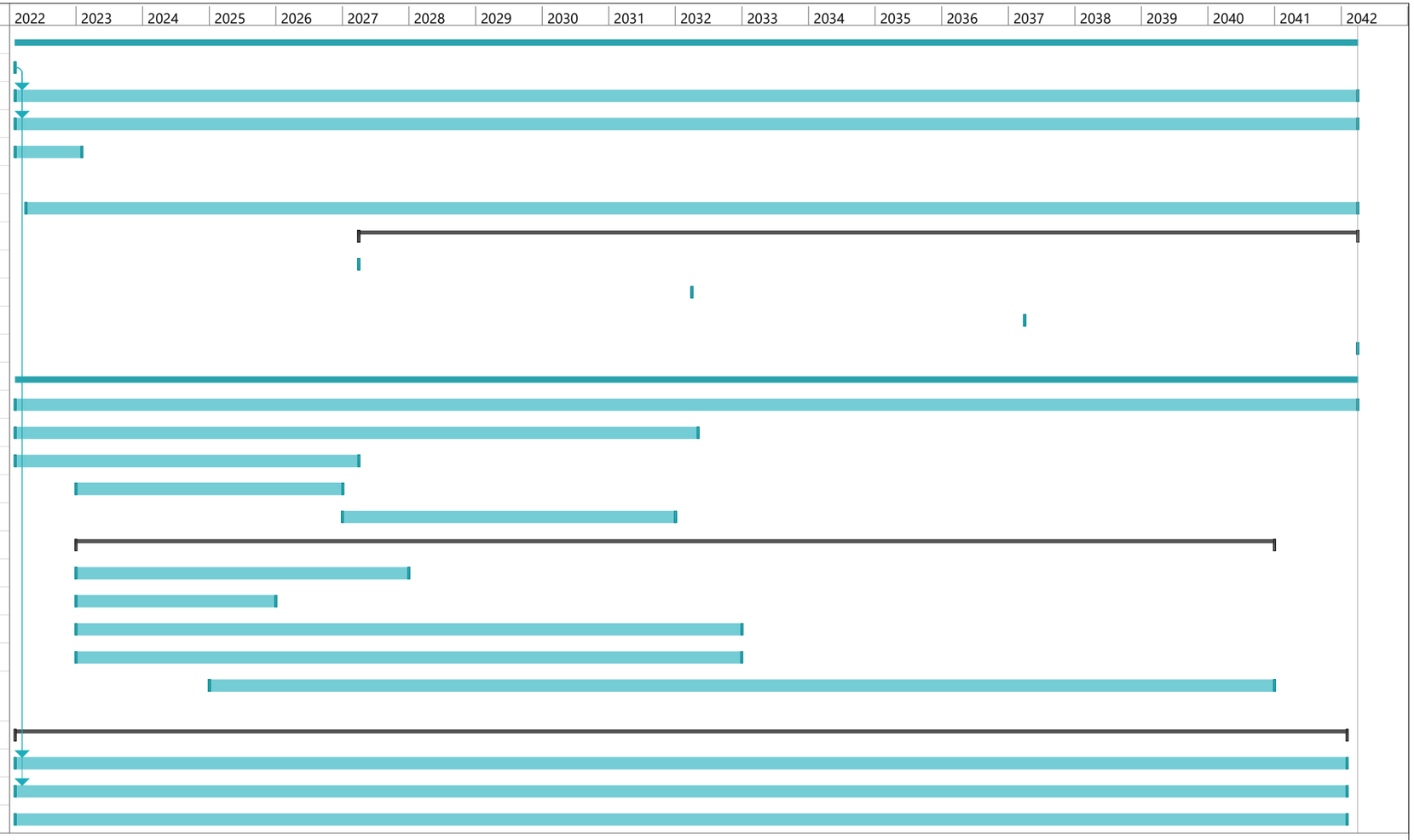

Figure 6-1
Vina Subbasin
Implementation Schedule

Summary
Project Summary
Manual Task
Manual Summary Rollup
Start-only
Finish-only

Reporting generated from data from the GSAs will include, but is not limited to:

- Seasonal groundwater elevation contours
- Estimated groundwater extraction by category
- Total water uses by source

Additional items may be added to the DMS in the future as required. Data will be entered into the DMS. The majority of the data will then be aggregated to the entity that is responsible for the regional DMS and summarized for reporting to DWR. Groundwater contours will be prepared outside of the DMS because of the need to evaluate the integrity of the data collected and generate a static contour set that has been reviewed and will not change once approved. Groundwater storage calculations will be calculated in accordance with the method described in Section 2, outside of the DMS. Results are uploaded to the DMS for annual reporting and trend monitoring. Since most of the pumping in the Vina Subbasin is not currently measured, the groundwater pumping estimates are also calculated outside of the DMS using the methods developed by GSAs and uploaded to the DMS for annual reporting and trend analysis. The GSAs may choose to have their own separate system for additional analysis.

The one-time cost of expanding the existing data systems is estimated between $50,000 to $200,000, as the system is still being evaluated. The Board has indicated a desire to make the data transparent and available to the public while respecting the privacy of individual landowners.

6.5 Annual Reporting

Annual reports will be submitted by April 1 for the prior year's activities. The report will include a general update in the form of an executive summary with an accompanying map of the Vina Subbasin. The body of the report will include a detailed discussion and graphical representation of the following:

- Groundwater elevation data, including contour maps at seasonal high and low conditions and hydrographs using water year type and historical data from at least 2015
- Groundwater extraction data divided into volume by water usage sectors with accompanying map, including a description of the methodology and accuracy of the groundwater extraction estimation
- Surface water volume used or available for use for groundwater recharge or in-lieu use, including a description of the water sources
- Total water volume use divided into water use sector and water source type, including a description of the methodology and accuracy of the water use estimation
- Changes in groundwater storage with accompanying map, including a graph with water year type, groundwater use, annual change in groundwater storage, and cumulative change in groundwater storage using historical data from at least 2015

The annual report will also include a discussion and update on the plan implementation, including the status of IMs and the execution of PMAs

6.6 Evaluation Report

The GSAs will evaluate the GSP and provide an evaluation report every five years or whenever the GSP is amended for submittal to DWR.

The assessment will include a detailed discussion of the following:

- Significant new information and whether the information warrants changes to the basin setting, MO, MT, and SIs, including completed or planned GSP amendments
- Current groundwater conditions relating to each MO, MT, and IMs
- Implementation of any project and management actions and the resulting effects on groundwater conditions
- Assessment of the basin setting, MAs, undesirable results, MO, and MT
- Evaluation of the basin setting and overdraft conditions to include changes in water use, along with overdraft mitigation measures (if applicable)
- Assessment of the monitoring network with analysis of data collected to date, including identification of data gaps and suggested improvements of the network
- Program to address data gaps, including timing and incorporation of data into the GSP, with prioritization on the installation of new data collection sites and analysis of new data based on the needs of the basin
- Relevant actions taken by the GSAs, including a summary of regulations, ordinances, legal enforcement or action related to the implementation of the GSP and sustainability goals

Summary of coordination by GSAs within the basin or within hydrogeologically connected basins and land use agencies.

6.7 Inter-basin Coordination

The Vina Subbasin understands that in the Sacramento Valley inter-basin coordination is critical due to the interconnectedness of groundwater, as each Vina Subbasin prepares and implements its GSP. As such, the Vina Subbasin participated with the surrounding 10 subbasins (Antelope, Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Sutter, Wyandotte Creek, and Yolo). Inter-basin coordination efforts were focused on establishing a foundation and guidelines for sustained inter-basin coordination by identifying priorities and resources. The main objective of the coordination efforts is to identify any significant discrepancies in the GSPs, understand why those differences exist, and evaluate to the extent they need to be reconciled.

As part of the coordination efforts, the Northern Sacramento Valley Inter-basin Coordination Report was prepared (Appendix 6-A). The report outlined a framework for inter-basin coordination for sustainable groundwater management in the Northern Sacramento Valley. It

described a menu of options for ongoing communication and collaboration between and among groundwater subbasins over the 20-year implementation of SGMA. The framework is intended to be used by the GSAs to support GSP development and implementation.

The Vina Subbasin intends to coordinate in the following ways with its neighboring subbasins and with subbasins in the North Sacramento River Corridor group (Antelope, Los Molinos, Red Bluff, Corning, Butte, and Colusa Subbasins):

1. Information Sharing

The Vina Subbasin will work with the GSA's staff of neighboring subbasins to identify lines of communication and methods for information sharing that would be agreed upon by the respective GSA Boards. This will continue throughout GSP implementation and may include:

1. Informing each other on changing conditions (i.e., surface water cutbacks, land use changes, policy changes that inform groundwater management)
2. Sharing annual reports and interim progress reports
3. Sharing data and technical information and work towards building shared data across and/or along basin boundaries (e.g., monitoring data, water budgets, modeling inputs and outputs, and Groundwater Dependent Ecosystems)

2. Conducting Joint Analysis and Evaluation of GSPs

In the near term, the Vina Subbasin intends to pursue grant funding and collaboratively work with subbasins in the North Sac River Corridor group to:

1. Contract with a consultant to conduct this work
2. Evaluate and compare contents of GSPs with a focus on establishing a common understanding of basin conditions at boundaries
3. Identify significant differences, uncertainties, and potential issues of concern related to groundwater interaction at the boundaries
4. Engage in analysis and evaluation of SMCs between GSPs to assess impacts and identify significant differences and possible impacts between subbasins that could potentially lead to undesirable results

The North Sac River Corridor is the appropriate scale of coordination for these activities due to the shared boundary of the Sacramento River, shared data gaps, and the interconnectedness of the subbasins.

3. Coordination on mutually beneficial activities

The Vina Subbasin will work collaboratively with North Sac River Corridor Subbasins to identify items in our GSPs that are ripe for a coordinated project and pursuit of funding such as Projects and Management Actions, Data Gaps (new monitoring wells, stream gaging etc.).

1. GSAs Boards will jointly identify projects/programs to coordinate on.

2. Vina Subbasin will pursue partnerships to obtain grant funding to support a consultant to conduct this work.
3. Vina Subbasin will work collaboratively with entities such as the Northern California Water Association and others in their efforts to pursue funding and support local and state agency activities to identify and fill regional data gaps.

4. Coordinated Communication and Outreach

Staff of the Vina Subbasin GSAs will continue to participate in regional public engagement activities and efforts related to implementation of SGMA in the Northern Sacramento Valley. These efforts will include GSA Board members and will foster transparency of communications.

This may include:

1. Coordinating and collaborating on regional-scale public engagement and communication strategies that promote awareness on groundwater sustainability, enhancing public trust, and maintaining institutional knowledge
2. Maintaining a list of GSP/subbasin staff contacts and websites

5. Issue Resolution Process

Vina Subbasin will pursue development of an issue-resolution process with neighboring subbasins in the North Sac River Corridor group.

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