SANTA MARGARITA
Groundwater Agency

Public Review Draft

Section 5. Groundwater Sustainability Plan Implementation

Santa Margarita Basin
Groundwater Sustainability Plan

July 23, 2021

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Acronyms & Abbreviations

AFY.....acre-feet per year
DMS.....data management system
DWR .....California Department of Water Resources
GSP .....Groundwater Sustainability Plan
JPA.....Joint Powers Agreement
MGA .....Santa Cruz Mid-County Groundwater Agency
MHA .....Mount Hermon Association
RMP .....representative monitoring point
SGMA .....Sustainable Groundwater Management Act
SLVWD .....San Lorenzo Valley Water District
SMC.....sustainable management criteria
SMGWA .....Santa Margarita Groundwater Agency
SVWD.....Scotts Valley Water District

5 GROUNDWATER SUSTAINABILITY PLAN IMPLEMENTATION

This section describes how the Santa Margarita Groundwater Agency (SMGWA) Groundwater Sustainability Plan (GSP) will be implemented. It serves as an initial roadmap for addressing GSP implementation activities between 2022 and 2042 but focuses on implementation activities to be completed between 2022 and 2026, prior to the GSP's first 5-year update. It also provides an estimate of the cost to implement the GSP over the next 5 years (Table 5-1) and how the SMGWA plans to meet those costs.

In Table 5-1 annual costs are multiplied by 5 to arrive at the 5-year cost that is included in the total. Annual costs are directly related to work that needs to be done consistently to meet the requirements of SGMA. Items listed as lump sum are one-time costs that are not multiplied and are carried forward to the total 5-year cost. Annualized costs over the 5-year period are also provided in Table 5-1. It is important to note that not all lump sum costs will be required in the first year of the 5-year implementation period, but for budgeting purposes, are anticipated before the first GSP 5-year update.

This implementation plan is based on the current understanding of Basin conditions described in Section 2, the monitoring networks summarized in Section 3, and potential projects and management actions for achieving groundwater sustainability described in Section 4. Understanding of groundwater conditions and the specific details of projects and management actions will evolve over time based on future data collection, model analysis, and stakeholder input. New understanding about the Basin and how it responds to implemented projects and management actions may change the course of SMGWA activities, which is the reason why this section focuses on the next 5 years.

Each of the line items in Table 5-1 correspond to the 8 GSP implementation activities described in the subsections that follow.

Table 5-1. Estimated Santa Margarita Groundwater Agency 5-Year Costs For GSP Implementation by Major Category

Activity	Budget Categories and Tasks	Annual Cost	Lump Sum Items	5-year Total	Annualized Cost (5 years)
1	**Agency Membership and Funding Structure Evaluation**	To be accomplished in Fiscal Year 2022 and included in Fiscal Year 2022 budget			
2	**Administrative and Business Operations**				
	Administrative and Planning Coordination	$100,000	$0	$500,000	$100,000
	Treasurer Services	$10,000	$0	$50,000	$10,000
	Legal Services	$12,000	$0	$60,000	$12,000
	Communication and Outreach	$20,000	$0	$100,000	$20,000
	Audit Services	$9,000	$0	$45,000	$9,000
	Software and Licenses	$2,500	$0	$12,500	$2,500
	Memberships	$2,100	$0	$10,500	$2,100
	Meetings and Travel	$5,000	$0	$25,000	$5,000
	Insurance	$1,200	$0	$6,000	$1,200
	Supplies and Equipment	$1,000	$0	$5,000	$1,000
3	**Technical Support and Consultation**				
	Groundwater Model Simulations and Updates	$15,000	$0	$75,000	$15,000
	Consultants As-Needed Technical Support	$15,000	$0	$75,000	$15,000
4	**Monitoring & Reporting**				
	Groundwater Level Monitoring	$8,000	$0	$40,000	$8,000
	Interconnected Surface Water Monitoring: Streamflow	$40,000	$0	$200,000	$40,000
	Interconnected Surface Water Monitoring: 5-Year Vegetation Vigor	$0	$5,000	$5,000	$1,000
	Interconnected Surface Water Monitoring: GDE Monitoring	$5,000	0	$25,000	$5,000
	Annual Reports	$45,000	$0	$225,000	$45,000
	GSP 5-year Update	$0	$100,000	$100,000	$20,000
5	**Non-De Minimis Metering Program**	$2,000	$5,000	$15,000	$3,000
6	**Address Hydrogeological Conceptual Model, Groundwater Conditions, and Monitoring Network Data Gaps**				
	Streamflow Gauge on Carbonera Creek	$0	$15,000	$15,000	$3,000
7	**Data Management System**	$40,000	$0	$200,000	$40,000
8	**Evaluate, Prioritize, and Refine Projects and Management Actions**	Funded by individual agencies sponsoring specific projects and management actions			
	Contingency (10%)	$33,280	$12,500	$178,900	$35,780
	TOTAL	**$366,080**	**$137,500**	**$1,967,900**	**$393,580**

5.1 Implementation Activity 1: Agency Membership and Funding Structure Evaluation

The SMGWA is organized as a Joint Powers Agency (JPA) by and between 3 public agencies: San Lorenzo Valley Water District (SLVWD), the Scotts Valley Water District (SVWD) and the County of Santa Cruz. The water districts are the Basin's principal water purveyors, while the County oversees the well permitting process and represents non-municipal pumpers. The SMGWA member agencies agreed to jointly develop this GSP and fund the required activities during the GSP development period. However, it is appropriate and prudent for the SMGWA to evaluate expanding the agency's membership and funding structure. This activity will determine the most effective and equitable approach going forward with GSP implementation starting after the GSP is submitted to DWR by January 31, 2022. No budget is included in Table 5-1 for staff costs related to evaluating changes to agency membership and funding structure because it is anticipated that the activity will be completed in Fiscal Year 2022 and funded under the approved Fiscal Year 2022 budget.

5.2 Implementation Activity 2: Administrative and Business Operations

This category includes various activities in support of the SMGWA, including administrative and planning coordination, Board support, legal and audit services, communication and outreach, and miscellaneous services and supplies. Estimated costs to cover these expenses are provided in Table 5-1.

This category broadly includes various management, planning and programmatic support tasks to the SMGWA for ongoing GSP and SGMA related requirements. The SMGWA has used a collaborative staffing model since it was formed in 2017 whereby cooperating agencies participating in Basin management through the SMGWA do so as part of their internal budgets and not that of the SMGWA. Staff from cooperating agencies provide leadership, management, and administrative and support services to the agency. For the SMGWA to fund agency staff time, the SMGWA bylaws would need to be revised.

Outside vendors and consultants are retained to perform specialized activities such as technical work, legal counsel, financial audit, facilitation, public outreach, and grant administration. As the SMGWA shifts from GSP development into implementation starting in 2022, administrative support needs will be evaluated to determine the appropriate level of service and structure. It is anticipated staffing needs will be assessed annually during the early years of GSP implementation as a better understanding of the agency's needs is developed.

The SLVWD Finance Manager has been appointed and continues to serve as SMGWA Treasurer and is responsible for the financial and accounting activities of the SMGWA. The SVWD has

been providing administrative staff support to SMGWA with a half-time employee position designated for this purpose. Considering that in the future, the scope and frequency of activities for the agency will change notably, the appropriate level and method of providing administrative services will need to be assessed.

Community outreach activities will also transition from awareness building and education about SGMA, SMGWA, and the Basin, to providing more routine updates on the implementation efforts of the GSP and communication on Basin conditions. Some of the activities can be achieved under the administration function while others require subject matter expert services.

5.3 Implementation Activity 3: Technical Support and Consultation

This category includes activities by technical consultants in support of implementing the GSP. It includes ongoing improvements and use of the groundwater model to evaluate impacts from projects and management actions on groundwater conditions, and as needed-technical support not related to the groundwater model. Estimated costs to cover these tasks are presented in Table 5-1.

5.3.1 Groundwater Model Simulations and Updates

The Basin groundwater model helps inform development of projects and management activities, and ongoing performance assessment of the GSP's sustainable management criteria (SMC). Periodic updates to the groundwater model are required to continue to refine and improve its capabilities and maintain ongoing functionality. This includes incorporating new model tools and features, aquifer parameters, refining of climate change projections, and related work to support ongoing simulations of projects and management actions. The estimated cost of this task is provided in Table 5-1.

5.3.2 Consultants As-Needed Technical Support

It is anticipated the SMGWA will have a need for technical support to inform Basin management. The estimated $15,000 per year for this activity included in Table 5-1 covers general as-needed costs that are not project specific. Examples of as-needed support include assistance with the data management system (DMS), collate and upload seasonal high and low (at a minimum) groundwater elevation data to the online SGMA portal as required by the SGMA, periodic SMGWA requests for information, attending SMGWA Board meetings when requested, and providing ongoing updates on SGMA related activities by the DWR and others.

There may be times when a defined project requires consultant support. Specific needs beyond what is included in the 5-year budget provided in Table 5-1 are yet to be identified and are not included in the budget. Examples of technical consultant support for potential future projects are

hydrogeologic technical support (not groundwater model specific), economic (e.g., cost-benefit analysis), programmatic assessment of funding mechanisms, supplemental studies to address data gaps, vulnerability assessments for climate change, and additional assessment of managed aquifer recharge opportunities.

5.4 Implementation Activity 4: Monitoring and Reporting

One of the primary ongoing functions of GSP implementation is data collection and its evaluation, comparison of data against SMC, and reporting of groundwater conditions. The SMGWA will either contract consultants, negotiate agreements with agencies, and/or hire staff to implement the GSP's monitoring and reporting tasks. Cooperating agencies will provide the monitoring data they collect from their existing monitoring networks as part of their ongoing operations. Costs for monitoring and reporting are included in Table 5-1.

5.4.1 Monitoring

The SMGWA's monitoring program is described in Section 3.3. Individual member agencies will continue to collect the same data from their monitoring networks as they have prior to the GSP to inform management and operation of their respective water supplies. It likely that costs resulting from improvements to or expansion of existing monitoring networks necessary to evaluate progress towards sustainability, or otherwise added at the request of the SMGWA, will be funded by the SMGWA.

Groundwater level, groundwater quality, extraction, streamflow, and rainfall data collected by cooperating agencies will be uploaded semi-annually to the DMS described in Section 5.7. Data stored in the DMS will be downloaded by the consultant or SMGWA staff preparing the annual report and summarized in the required tables and figures to demonstrate that progress is being made toward sustainability in the Basin, as defined in Section 3. Cooperating agency uploads to the DMS will be coordinated with the requirement under SGMA for SMGWA to upload, at a minimum, seasonal high and low groundwater elevation data to the SGMA portal by January 1 and July 1 of each year.

5.4.2 Reporting

SGMA regulations require that the SMGWA submit regular reports to DWR documenting Basin conditions and progress toward sustainability. The costs to prepare the required reports are included in Table 5-1 and described below.

- **Annual Reports.** In accordance with SGMA Regulation §356.2, annual reports will be submitted to DWR starting on April 1, 2022. The purpose of the report is to provide monitoring and total groundwater use data to DWR, compare monitoring data to

sustainable management criteria, and adaptively implement actions and projects to achieve sustainability.

- **5-Year GSP Update Reports.** Five-year GSP update reports will be provided to DWR starting April 1, 2027. The SMGWA will evaluate the GSP at least every 5 years to assess whether it is achieving its sustainability goals. The evaluation will include a description of significant new information that has been made available since GSP adoption or amendment and whether the new information or understanding warrants changes to any aspect of the plan.
- **GSP Amendments.** Although not required by SGMA regulations, the SMGWA may prepare amendment(s) to the GSP as the monitoring networks are refined and understanding of basin conditions are improved over time. The amendment does not need to correspond to the GSP's 5-year update if there is an urgent need to make a change to the GSP.

5.5 Implementation Activity 5: Implement Groundwater Extraction Metering for Non-*De Minimis* Extractors

The SMGWA will initiate a well metering program to collect volumes of non-*de minimis* groundwater extraction. These data will be used to assess and refine the sustainable yield calculation, which is used to define undesirable results related to the reduction of groundwater in storage sustainability indicator. The metering program will apply to all non-*de minimis* private pumping extracting more than 2 AFY and will be led by the County of Santa Cruz. Under the SGMA, private well owners who extract less than 2 AFY for domestic purposes (also called *de minimis* users), including individual water systems serving fewer than 5 connections, may not be required to meter their wells by the SMGWA. The SMGWA has no current plans to regulate or to charge a fee on either *de minimis* or non-*de minimis* private users. The SMGWA may evaluate these options as funding mechanisms in the future, with any fees that may be proposed being commensurate to the benefit received by *de minimis* and non-*de minimis* private users. Private users shall be engaged in this process.

Costs to implement the metering program are summarized in Table 5-1. The costs include program development including timeline, guidance documents, and outreach; coordination of program set-up and implementation; participant tracking; and coordination of annual reporting by the participants. The SMGWA will initiate planning to develop the program in 2022 and aim to implement it within 2 years. It is anticipated the non-*de minimis* users will be responsible for all costs related to the purchase, installation, calibration, and operation of the meters as well as annual reporting to the SMGWA.

5.6 Implementation Activity 6: Address Hydrogeologic Conceptual Model, Groundwater Conditions, and Monitoring Network Data Gaps

5.6.1 Identified Data Gaps

Section 2 identifies several data gaps related to the hydrogeologic conceptual model and groundwater conditions. There are areas of the Basin with limited to no data available to develop the hydrogeologic conceptual model and calibrate the groundwater model. Data collection during GSP implementation will be used to refine the hydrogeologic conceptual model for better groundwater management in the following areas:

1. Communities where there are higher concentrations of private domestic *de minimis* wells pumping from either the Santa Margarita aquifer or Monterey Formation
2. The Butano aquifer where it is pumped at depths more than 1,000 feet by SVWD
3. Areas where shallow groundwater is connected to surface water and groundwater pumping may be causing depletion of surface water

In 2020, the SMGWA was awarded a Round 3 Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Sustainable Groundwater Planning Grant Program) grant, administered by the California Department of Water Resources. In July 2021, a project funded by this grant will commence to expand the Basin's monitoring network through the installation of 8 new monitoring wells to fill the data gaps described above and described in more detail in Section 3.3.4.1.

Collection of additional hydrogeologic data during well installation of the 8 new monitoring wells, as well as their ongoing monitoring during GSP implementation will help the SMGWA improve Basin characterization. During drilling activities, groundwater level and water chemistry data will be collected, and drill cuttings will be examined to determine depths to the top of various geologic formations and the presence of sandy layers most suitable for aquifers. Gathering more lithologic and hydrostratigraphic data will help map the lateral and vertical extent, and aquifer characteristics of the principal aquifers and other formations with greater resolution. New information will further inform understanding of groundwater levels in parts of the Basin where no historical data exist and can be used to improve model calibration in those areas.

Groundwater Level Spatial Data Gaps Near Groundwater Pumping: Spatial data gaps are identified in areas pumped exclusively by *de minimis* and small water systems that lack historical groundwater level monitoring and hydrogeologic data. These data gaps will be addressed by installation of 4 new monitoring wells screened in targeted aquifers to collect groundwater

levels: 1 well in the Santa Margarita aquifer, 2 wells in the Monterey Formation, and 1 well in the deep Butano aquifer.

Groundwater Level Spatial Data Gaps Near Interconnected Creeks: Spatial data gaps are identified in areas that have interconnected surface waters supported by aquifers pumped by municipal and private extractors, and with limited aquifer-specific groundwater level monitoring. In order to address these data gaps, 4 new monitoring wells will be installed with screen intervals in the aquifers underlying interconnected creeks. These wells will supplement the 2 existing shallow monitoring wells near creeks that are included as representative monitoring points for the depletion of interconnected surface water SMC. The new monitoring wells will include 4 wells in the Santa Margarita aquifer and 1 well in the Lompico aquifer.

Localized Streamflow Monitoring Data Gaps: During GSP development, streamflow monitoring data gaps were identified. To address the data gaps, 3 streamflow gauges were upgraded, and 2 new gauges were installed and calibrated early in 2021. The gauges are being monitored by the SMGWA and where possible will be paired with new monitoring wells to be constructed in 2022. There is one streamflow monitoring data gap of lower priority identified near Carbonera Creek which is not as connected to groundwater as most other creeks in the Basin and is therefore a lower priority to be addressed as funding becomes available.

5.6.2 Implementation Plans for Addressing Data Gaps

5.6.2.1 Groundwater Level Monitoring Network

The planning and construction of 8 new groundwater level monitoring wells will commence in July 2021. Budget for the next 5 years is not included in Table 5-1 because the SMGWA has already been awarded DWR grant funding and has budgeted the required match. Given the need for landowner negotiations, and potential limitations on well construction during winter months, this project will be completed in 2022, after GSP adoption.

5.6.2.2 Groundwater Storage Monitoring Network

In 2022, the SMGWA plans to implement a non-*de minimis* groundwater extraction metering program as described in Section 5.5 above. The more accurate groundwater pumping volumes generated from this program will be used to compile groundwater extraction data needed to assess whether the 5-year moving average Basin extraction is less than the sustainable yield which is used to determine reduction of groundwater storage undesirable results.

5.6.2.3 Interconnected Surface Water Monitoring Network

Four new monitoring wells, as part of the 8 new wells described in Section 5.6.2.1, will be completed in 2022 to improve understanding of surface water and groundwater interactions, to

improve the groundwater model simulations of and surface water interactions, and to become representative monitoring points (RMPs) for the depletion of interconnected surface water indicator. Budget is not included in Table 5-1 because the SMGWA has already been awarded DWR grant funding and has budgeted the required match. The first GSP 5-year update will include analyses on the new well groundwater level data recorded by data loggers adjacent to gauged streamflow, accretion studies, and GDE monitoring. Based on findings in that first GSP 5-year update, additional monitoring locations may be identified.

In addition, either a new stream gauge will be installed, or an old gauge will be reestablished on Carbonera Creek within the first 5 years of GSP implementation. The SMGWA's estimated costs to install, calibrate and maintain 1 streamflow gauge are presented in Table 5-1. This estimate includes one-time costs related to the initial establishment of the new station. The cost estimate includes planning, site selection, design specifications, and related pre-installation tasks. It includes the cost to install monitoring instrumentation, conduct surveys and related work to establish each monitoring site, develop rating curves to establish a stream stage-discharge relationship, routine data collection, and station maintenance. The assignment of roles and responsibilities (consultants and agency staff) will be evaluated as GSP implementation proceeds.

5.7 Implementation Activity 7: Data Management System

As described in Section 3.3.3, the SMGWA, Santa Cruz Mid-County Groundwater Agency (MGA), and County of Santa Cruz have established a regional DMS to upload, store, and review data collected by the GSP monitoring networks for the Santa Margarita and Santa Cruz Mid-County Basins. Having all groundwater related data in the DMS will streamline data collation while preparing GSP annual reports and 5-year updates. Ongoing costs to SMGWA, shared with the MGA, include fees for hosting, maintenance, and licensing of the WISKI DMS. Cooperating agencies that collect relevant data within the Basin will be responsible for semi-annual uploads to the DMS.

5.8 Implementation Activity 8: Evaluate, Prioritize, and Refine Projects and Management Actions

Table 5-1 does not include SMGWA costs for evaluating, prioritizing, and refining projects and management actions. This is because individual cooperating agencies will principally lead efforts on evaluating projects and management actions, but may and are encouraged to collaborate with each other on feasibility studies when practical. Project implementation will likely involve partnerships between interested parties and benefiting agencies.

Projects and management actions are needed to achieve the SMGWA's sustainability goals and improve individual agency water supply reliability. The Mount Hermon / South Scotts Valley subarea is targeted for projects that increase groundwater levels in the Lompico aquifer where lowered groundwater levels still occur. Historical groundwater level declines have been mitigated by water use efficiency programs and use of recycled water for non-potable uses, However, additional projects are needed to achieve the SMGWA's sustainability goals under a projected drier climate.

Before cooperating agencies can begin pilot studies and develop project designs, further study of project feasibility from a technical and operational perspective must be completed. Cooperating agencies will be examining several alternatives in parallel to ensure sufficient projects and actions to account for the level of uncertainty in the Basin's hydrogeologic conceptual model. Refinement of projects and management actions will occur simultaneously with refinement of the funding mechanism that supports them.

Activities that will take place during the first 5 years of implementation include:

- Reaching agreements between cooperating agencies to refine project descriptions
- Clarifying water rights for recharge opportunities and water transfers
- Using the groundwater model for evaluating how those projects improve groundwater conditions in relation to SMCs
- Identifying synergistic infrastructure that would allow different projects to complement each other, facilitating easier adaptive management of projects over time, if necessary
- Applying for change of diversion or change of timing on water rights, as necessary
- Refining capacities of proposed projects
- Refining costs of proposed projects based on evaluations discussed above
- Agreeing to preliminary cost share options based on refined costs
- If projects are adequately defined, producing preliminary design of projects
- Completing pilot testing of the top projects to confirm their feasibility for providing anticipated benefits without causing negative impacts to the Basin and its beneficial users
- Initiating environmental permitting for projects, as necessary

In general, the process to complete a project from inception to implementation can take 5 to 10 years. Figure 5-1 shows the steps that will be taken to complete projects found to be feasible. Projects that rely more on existing infrastructure will be completed closer to the 5-year time frame, but projects with many miles of pipeline, pump stations, and new treatment facilities will take closer to 10 years to complete.

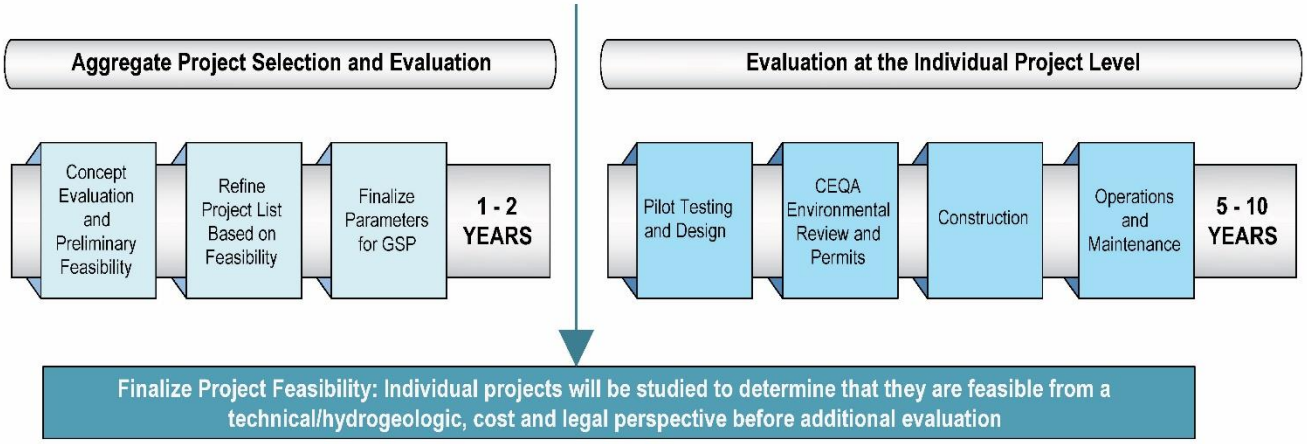

Figure 5-1. Project Development Process

5.9 Financial Reserves and Contingencies

Prudent financial management prescribes that the SMGWA carry a general reserve in order to manage cash flow and mitigate the risk of expense overruns due to unanticipated expenditures. General reserves have no restrictions and the ending balance in cash reserves becomes the beginning balance for the next fiscal year.

The SMGWA Treasurer, responsible for overseeing the financial health of the agency, will advise the Board on the appropriate reserves and requesting a contingency amount as part of the budget adoption process. An initial contingency of 10% of the annual budget is included in Table 5-1.

5.10 GSP Implementation Schedule

A general schedule showing the major GSP implementation activities and their estimated timelines during the first 5 years of GSP implementation is provided on Figure 5-2. Project and management actions summarized in Section 4 will have their own implementation timelines that would be determined after the project is deemed feasibility and funding is secured.

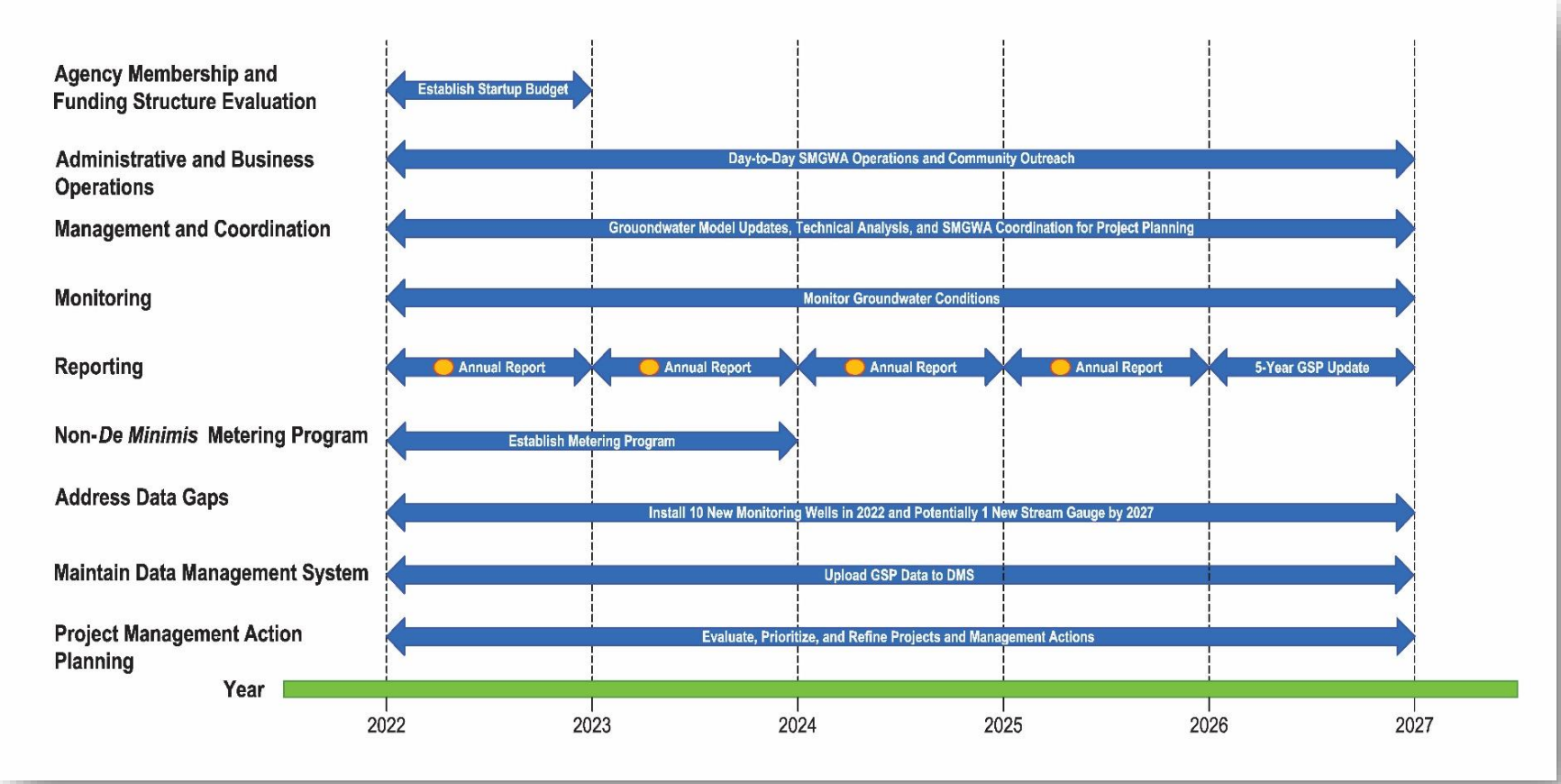

Figure 5-2. General Schedule of 5-year Implementation Plan