EXECUTIVE SUMMARY

ES-1 INTRODUCTION (GSP CHAPTER 1)

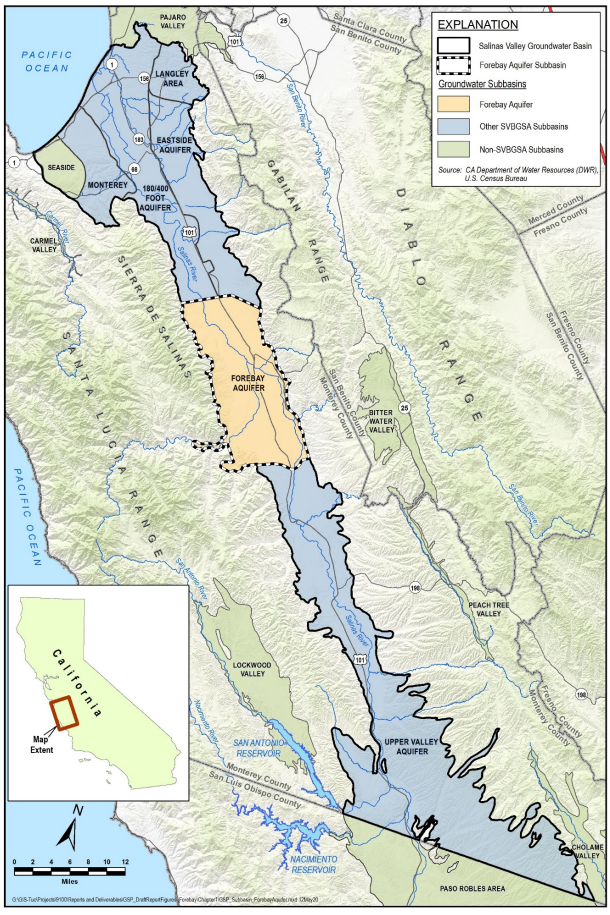
The 2014 California Sustainable Groundwater Management Act (SGMA) requires that medium- and high-priority groundwater basins and subbasins develop Groundwater Sustainability Plans (GSPs) that outline how groundwater sustainably will first be maintained for 50 years. This GSP fulfills that requirement for the Salinas Valley—Forebay Aquifer Subbasin (Subbasin, or Forebay Subbasin), which is designated by the DWR as a medium priority groundwater subbasin.

The Forebay Subbasin is within the jurisdiction of both the Salinas Valley Groundwater Sustainability Agency (SVBGSA) and Arroyo Seco Groundwater Sustainability Agency (ASGSA). ASGSA will manage the Arroyo Seco Cone Management Area (ASCMA) and SVBGSA will manage the remaining area of the Subbasin as shown on the figure below. Both implementation areas will be managed to a single GSP for the entire Forebay Subbasin.

In 2017, local GSA-eligible entities formed the SVBGSA to develop and implement the GSPs for the Salinas Valley. The SVBGSA is a Joint Powers Authority (JPA) with membership comprising the County of Monterey, Monterey County Water Resources Agency (MCWRA), City of Salinas, City of Soledad, City of Gonzales, City of King, Castroville Community Services District, and Monterey One Water. The SVBGSA is governed by an 11-member Board of Directors, representing public and private groundwater interests throughout the Salinas Valley Groundwater Basin. In addition, an Advisory Committee ensures participation by, and input to, the Board by constituencies whose interests are not directly represented on the Board.

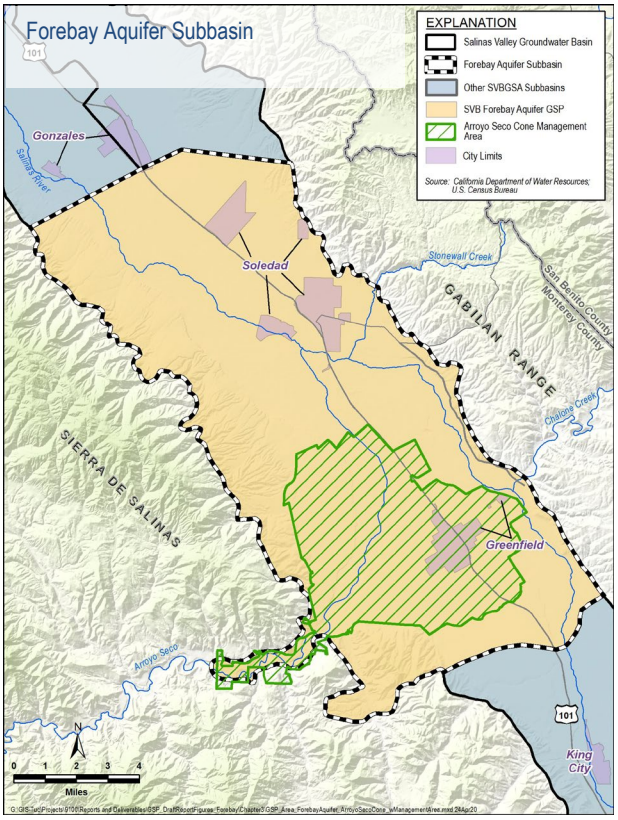
The Arroyo Seco Groundwater Sustainability Agency (ASGSA) was formed through agreement with the City of Greenfield and nearby lands, consisting of the Clark Colony Water Company (CCWC) and contiguous surrounding lands. The ASGSA is governed and administered by a 5-member Board of Directors, representing public and private groundwater interests throughout the Arroyo Seco area. The Board has the ultimate decision-making authority for ASGSA and arrives at decisions based on input from the General manager, Advisory Committee, public workshops, and attendees of the monthly Board meetings.

The Salinas Valley Groundwater Basin consists of 9 subbasins, of which 6 are entirely or partially under the SVBGSA's jurisdiction. One of the 9 subbasins, the Seaside Subbasin, is adjudicated and not managed by the SVBGSA. Another 2 subbasins, the Paso Robles and Atascadero Subbasins, lie completely in San Luis Obispo County and are managed by other groundwater sustainability agencies.



The SVBGSA developed this GSP for the Forebay Subbasin (DWR subbasin number 3-004.04) in concert with the GSPs for its 5 other Salinas Valley Subbasins: the 180/400-Foot Aquifer Subbasin (DWR subbasin number 3-004.01), the Eastside Aquifer Subbasin (DWR subbasin number 3-004.02), the Upper Valley Aquifer Subbasin (DWR subbasin number 3-004.05), the Langley Area Subbasin (DWR subbasin number 3-004.09) and the Monterey Subbasin (DWR subbasin number 3-004.10). Having a single GSA prepare all or part of the 6 plans promotes coordination and cooperation across subbasin boundaries.

This GSP covers the entire 94,000 acres of the Forebay Subbasin, as shown on the figure below. The GSP describes current groundwater conditions, develops a hydrogeologic conceptual model, establishes the water budget, outlines locally defined sustainable management criteria, and provides management actions and projects that can be used to maintain sustainability until 2042.



ES-2 COMMUNICATIONS AND PUBLIC ENGAGEMENT (GSP CHAPTER 2)

The SVBGSA designed all phases of SGMA implementation to be open collaborative processes with active stakeholder engagement that allows stakeholders and public participants opportunities to provide input and to influence the planning and development process and subsequently GSP implementation. The communications and public engagement process included the following:

- **GSA formation and coordination.** SVBGSA formation and coordination took place from 2015 through 2017 and included completing a Salinas Valley Groundwater Stakeholder Issues Assessment which resulted in recommendations for a transparent, inclusive process for the local implementation of SGMA and formation of the SVBGSA.
- **GSP preparation.** Given the importance of the Subbasin and the development of the GSP to the communities, residents, landowners, farmers, ranchers, businesses, and others, it is essential that inclusive stakeholder input is a primary component of the GSP process. A rigorous review process for each chapter in this GSP and for the final plan ensured that stakeholders had multiple opportunities to review and comment on the draft GSP.
- **Subbasin Planning Committee.** The Forebay Subbasin Planning Committee provides overall direction for GSP development. It comprises local stakeholders and a Board of Directors member, all of whom were appointed by the Board following a publicly noticed application process by the GSA. This Committee represents constituencies that are considered important stakeholders in the Forebay Subbasin, and who may not be represented on the Board of Directors. During

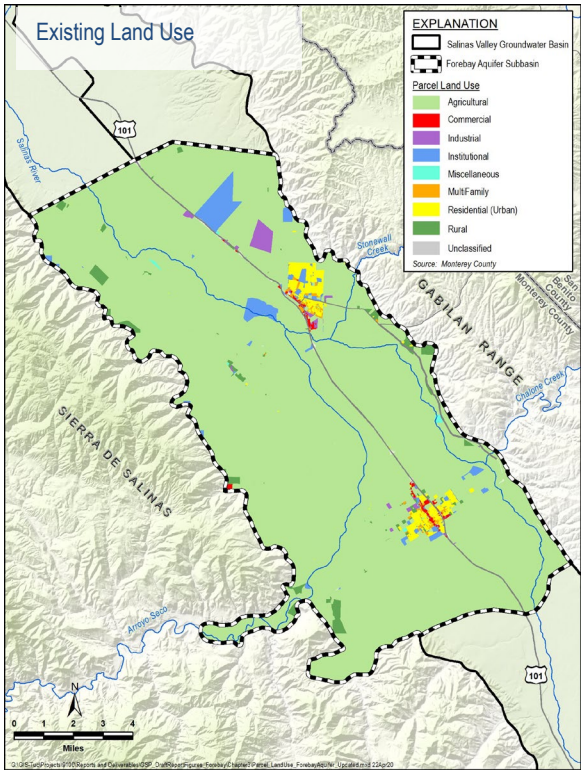
the planning process, the SVBGSA held more than 38 Forebay planning meetings including 11 workshops.

- **Forebay Subbasin and ASCMA Coordination Committee.** The SVBGSA and ASGSA established a Coordination Committee that meets quarterly through the year and is comprised of 2 board members each from each GSA. The Committee does not have decision making authority but will make recommendations to each respective GSA Board of Directors that promote the sustainability goal of the entire Subbasin or individually in the ASCMA or greater Forebay Subbasin.
- **Communication and public engagement actions (CPE Actions).** CPE Actions provide the SVBGSA Board and staff a guide to ensure consistent messaging about SVBGSA requirements and other related information. CPE Actions provide ways that beneficial users and other stakeholders can provide timely and meaningful input into the GSA decision-making process, are informed of milestones, and offered opportunities to participate in GSP implementation and plan updates.
- **Underrepresented communities (URCs) and disadvantaged communities (DACs).** During development of the 2022 GSPs SVBGSA assessed how URCs and DACs may be engaged with the GSA and how to develop GSA materials that are accessible and culturally responsive (visual and in Spanish). These materials will communicate impacts of groundwater management on local water conditions to engage URCs and DACs into GSA plan reviews and develop pathways for future involvement.

SVBGSA supports public participation by the development of an interactive website that allows access to all planning and meeting materials, data sets, and meeting notifications. The website can be accessed at: https://svbgsa.org.

ES-3 DESCRIPTION OF PLAN AREA (GSP CHAPTER 3)

The Forebay Subbasin is located in the middle of Monterey County. The Forebay Subbasin is bounded by the Gabilan Range to the east, the 180/400-Foot Aquifer and Eastside Subbasins to the north, the Sierra de Salinas to the west, and the Upper Valley Subbasin to the south. The Salinas River runs through the Forebay Subbasin and its main tributary, the Arroyo Seco, joins it in the middle of the Subbasin. Historical flows in the Arroyo Seco formed a significant alluvial fan in the Subbasin, known as the Arroyo Seco Cone. The Subbasin contains portions of the municipalities of Greenfield and Soledad. United States Highway 101 runs generally north-south along the middle of the Subbasin.



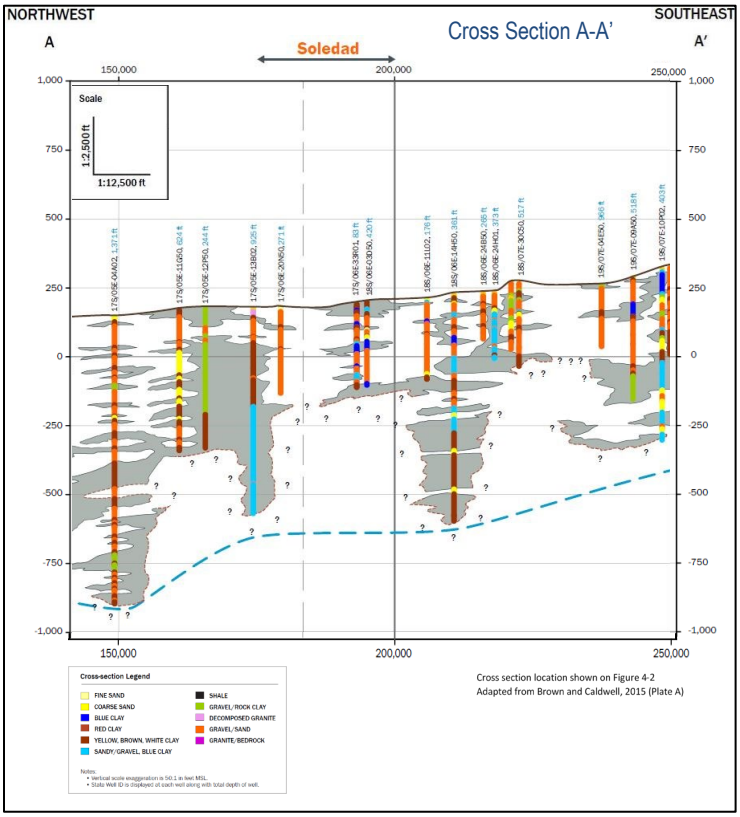
The figure at right shows that the majority of land in the Subbasin is used for agriculture, and accordingly, agriculture uses a majority of water in the Subbasin. Groundwater is the main water source in the Subbasin, although some surface water is diverted, such as the water for CCWC within the ASCMA. The Forebay Subbasin falls partially within the jurisdiction of the SVBGSA and partially within the jurisdiction of the ASGSA. This GSP takes into consideration and incorporates existing water resource management, monitoring, and regulatory programs. The sustainability goal, sustainable management criteria, and management actions and projects in this GSP reflect and build on existing local plans and programs. Any potential limits to operational flexibility have already been incorporated into this GSP. Implementation of this GSP is not anticipated to affect water supply assumptions of relevant land use plans over the planning and implementation horizon. The GSAs do not have authority over land use planning. However, the GSAs will coordinate with the County on General Plans and land use planning/zoning as needed when implementing the GSP.

ES-4 HYDROGEOLOGIC CONCEPTUAL MODEL (GSP CHAPTER 4)

The geology of the Forebay Subbasin is characterized by the intersection of the fluvial and marine dominated deposits of the main Salinas Valley and the Arroyo Seco alluvial fan originating in the Sierra de Salinas on the west side of the Subbasin. The eastern boundary of the Subbasin is the contact between the unconsolidated alluvial fan deposits and the mostly granitic rocks of the Gabilan Range. The western boundary of the Forebay Subbasin is the contact with the metamorphic and sedimentary rocks of the Sierra de Salinas. However, many reports indicate that groundwater recharge occurs through stream channels originating in the Gabilan Range. The northwestern boundary with the adjacent 180/400-Foot and Eastside Aquifer Subbasins generally coincides with the southeastern limit of confining conditions. The Salinas Valley Aquitard is not found in the Forebay Subbasin, but many of the sediments that define the 180/400-Foot Aquifers are generally found in the Subbasin. There is no reported hydraulic barrier between the Forebay and the 180/400-Foot or Eastside Aquifer Subbasins, but connection might be limited by the change from confined to unconfined conditions. The southeastern boundary with the adjacent Upper Valley Aquifer Subbasin is located south of Greenfield and generally coincides with the narrowing of the Valley floor and shallowing of the base of the groundwater basin (DWR, 2004b). There are no reported hydraulic barriers separating these subbasins.

The Basin Fill Aquifer is the Forebay Subbasin's sole principal aquifer and it increases in thickness from the east to west, from Greenfield northward. Its sandy water-bearing layers roughly correlate to, and are hydraulically connected to, the 180-Foot, 400-Foot, and Deep Aquifers in the neighboring 180/400-Foot Aquifer Subbasin (Kennedy/Jenks, 2004). The deepest sediments of the Basin Fill Aquifer are the same sediments as, and potentially hydraulically connected to, the Deep Aquifers in the 180/400-Foot Aquifer Subbasin. The Deep Aquifers are not currently defined as a separate principal aquifer for the Subbasin as their presence in this Subbasin is not fully investigated. This is a data gap that will be addressed during implementation. The Basin Fill Aquifer also includes the Arroyo Seco Cone sediments that cross almost the entire width of the Salinas Valley in the Forebay Subbasin, and are interfingered with the greater Basin sediments. The primary water-bearing sediments of the Arroyo Seco Cone consist of relatively uniform and highly permeable coarse alluvial fill that are generally more coarse-grained than those found in the main valley's fluvial and marine deposits. The figure to the right shows a geologic cross section of the Subbasin.

This GSP adopts the base of the Subbasin defined by the USGS (Durbin, et al., 1978). The base of the Subbasin is defined by the sharp interface between alluvium and the underlying rock that exists near the Gabilan Range and the Sierra de Salinas; however, the Subbasin does not have a well-defined base across the entire Subbasin. The usable portion of the Subbasin does not always include the full thickness of alluvium and with depth the viability of the sediments as productive freshwater principal aquifer becomes increasingly limited.



Detailed aquifer property values (storativity, conductivity, and transmissivity) for the Basin Fill Aquifer were not available at the time of GSP development. Specific capacity data is used as a proxy for transmissivity data and indicate that the Basin Fill Aquifer is relatively transmissive with high well yields. The Hydrogeologic Investigation, Arroyo Seco Cone (Staal, Gardner, and Dunne Inc., 1994) estimated transmissivities for the Arroyo Seco Cone to be relatively high; however, these estimates were based on application of an equation rather than field tests and data. The SVBGSA will fill this data gap during GSP implementation for both the Basin Fill Aquifer and the Arroyo Seco Cone.

Natural groundwater recharge occurs through infiltration of surface water from streams and rivers, deep percolation of excess applied irrigation water, deep percolation of infiltrating precipitation, and subsurface inflow from adjacent subbasins. The areas with the highest potential for surficial recharge are found along the Salinas River, Arroyo Seco, and tributary streams. Most other soils in the Subbasin are classified as moderately good to moderate for recharge potential. However, the relationship between surficial soils and subsurface units must be clearly understood because actual recharge to deeper productive zones of the Subbasin could be limited due to discontinuous alluvial sediments and the interfingering clay lenses. Subsurface recharge is primarily through the Arroyo Seco and from inflow from the adjacent Upper Valley Subbasin to the south (DWR, 2004).

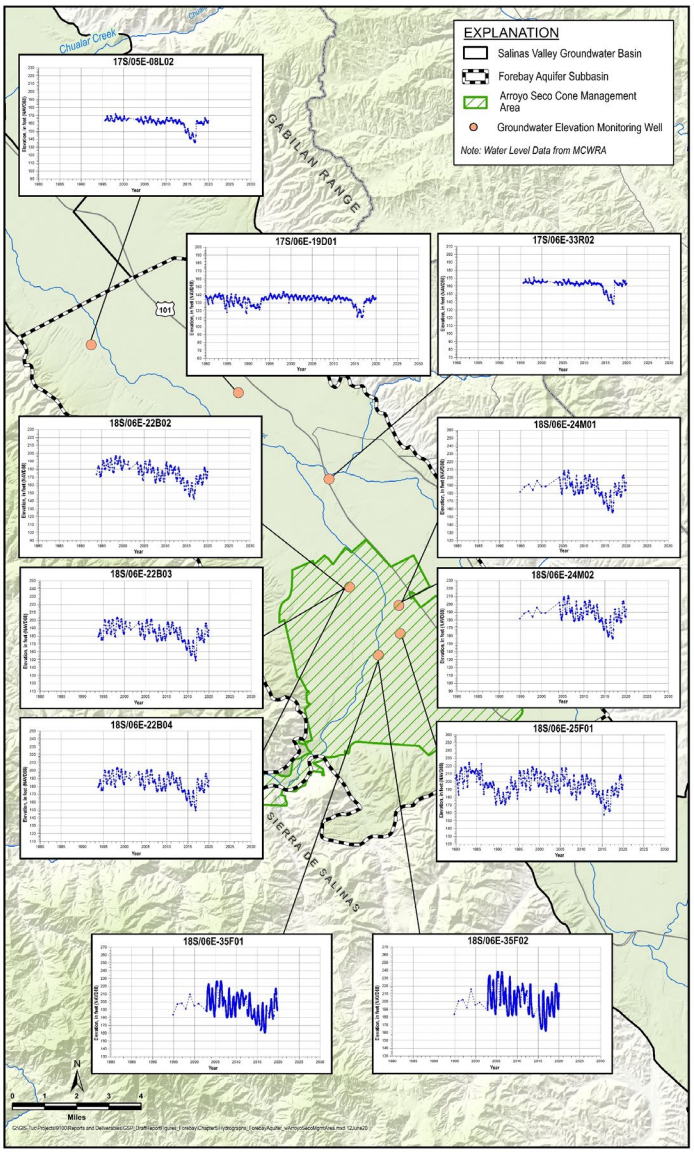
Groundwater can leave the aquifer in locations where surface water and groundwater are interconnected. There are potential locations of interconnected surface water mainly along the Salinas River and partially along the Arroyo Seco. In areas of interconnection, groundwater dependent ecosystems (GDEs) may depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface and may discharge groundwater through evapotranspiration (ET).

ES-5 GROUNDWATER CONDITIONS (GSP CHAPTER 5)

Historical groundwater conditions in the Subbasin occurred before January 1, 2015 and current conditions occurred after January 1, 2015. Where possible, 2019 was chosen as the representative current year for groundwater conditions.

- **Groundwater elevations.** Historically, groundwater hydrographs show that groundwater elevations are generally stable throughout most the Forebay Subbasin. Groundwater elevations lowered during drought conditions but subsequently rebound during wetter conditions. The figure below shows example hydrographs for the Subbasin.
- **Change in groundwater storage.** Defined as the average change in groundwater that can be safely used for domestic, industrial, or agricultural purposes, the historical average annual loss of storage based on groundwater elevation change between 1944 and 2019 is approximately 970 acre-feet per year (AF/yr.) in the Forebay Subbasin, most of which occurred after the mid-1980s. Since this value only reflects these start and end years, and groundwater elevations have fluctuated over this time period, the Subbasin has historically not been considered in overdraft.
- **Groundwater quality.** Elevated nitrate concentrations in groundwater were locally present in the 1960s and significantly increased in 1970s and 1980s. In 2018, nitrate levels exceeded the drinking water MCL in 58% of on-farm domestic wells and 61% of irrigation supply wells in the Subbasin (CCRWQCB, 2018). Other constituents found at levels of concern for either potable or irrigation uses include 1,2 dibromo-3-chloropropane, iron, manganese, specific conductance, sulfate, total dissolved solids, and vinyl chloride.
- **Subsidence.** No measurable subsidence has been recorded anywhere in the Subbasin between June 2015 and June 2019.

Map of Example Hydrographs



- **Interconnected surface water.** Provisional model results show that depletion of interconnected surface water (ISW) along the Salinas River due to groundwater pumping averages about 9,300 AF/yr. from June to September when MCWRA makes conservation releases to the Salinas River and 20,400 AF/yr. from May to October. For other surface waters, such as those along the Arroyo Seco, depletion of ISW averaged about 2,100 AF/yr.

ES-6 WATER BUDGETS (GSP CHAPTER 6)

Water budgets provide an accounting and assessment of the total annual volume of surface water and groundwater entering and leaving the Subbasin. This GSP presents water budgets for three time periods – historical (1980 to 2016), current (2016), and projected with estimated 2030 and 2070 climate change factors. Water Year 2016 was the last year included in the models that could be used to develop water budgets for the GSP. Water Year 2016 meets the definition of current year found in the SGMA regulations (23 California Code of Regulations §354.18 (c)(1)); however, Water Year 2016 was preceded by multiple dry or dry-normal years and may not necessarily represent average current conditions. This chapter presents the surface water budget and groundwater budget for each time period. The groundwater budget contains aggregate numbers for the Subbasin and is not differentiated spatially.

The water budgets are developed using the historical Salinas Valley Integrated Hydrologic Model (SVIHM) and the predictive Salinas Valley Operational Model (SVOM), both developed by the USGS. The models are representations of natural conditions and are limited by assumptions and uncertainty associated with the data upon which they are based. The water budgets produced by the models are adjusted with reported extraction data to ensure the water budgets are based on the best available science and data.

Historical and Current Water Budgets and Historical Sustainable Yield. The groundwater budget accounts for the inflows and outflows to and from the Subbasin's groundwater system. This includes subsurface inflows and outflows of groundwater at the Subbasin boundaries, recharge, pumping, ET, and net streambed exchange.

The historical and current groundwater budget figures on the next page show the annual groundwater inflows and outflows, annual change in groundwater storage, and cumulative change in storage for the entire Forebay Subbasin, and for just the ASCMA, respectively. Changes in groundwater storage for the whole Subbasin and ASMCA are generally driven by deep percolation of precipitation, applied irrigation water, and streamflow, increasing during wet periods and declining during dry periods. Through analysis and comparison of groundwater level changes over time and model results, it is determined that the Subbasin, including the ASCMA, has historically not been in overdraft so the change in storage is set to zero AF/yr. Therefore, the sustainable yield is assumed to be equivalent to the estimated range of historical pumping of 150,900 to 174,300 AF/yr. for the entire Subbasin and 44,400 to 53,000 AF/yr. for the ASCMA only. The sustainable yield of the Subbasin is an estimate of the quantity of groundwater that can be pumped on a long-term average annual basis without causing any of the 5 undesirable results defined in ES-8. The current sustainable yield represents a snapshot in time and is not used for groundwater management planning. These results are provisional and are subject to change in future GSP updates after the SVIHM and SVOM are released by the USGS.

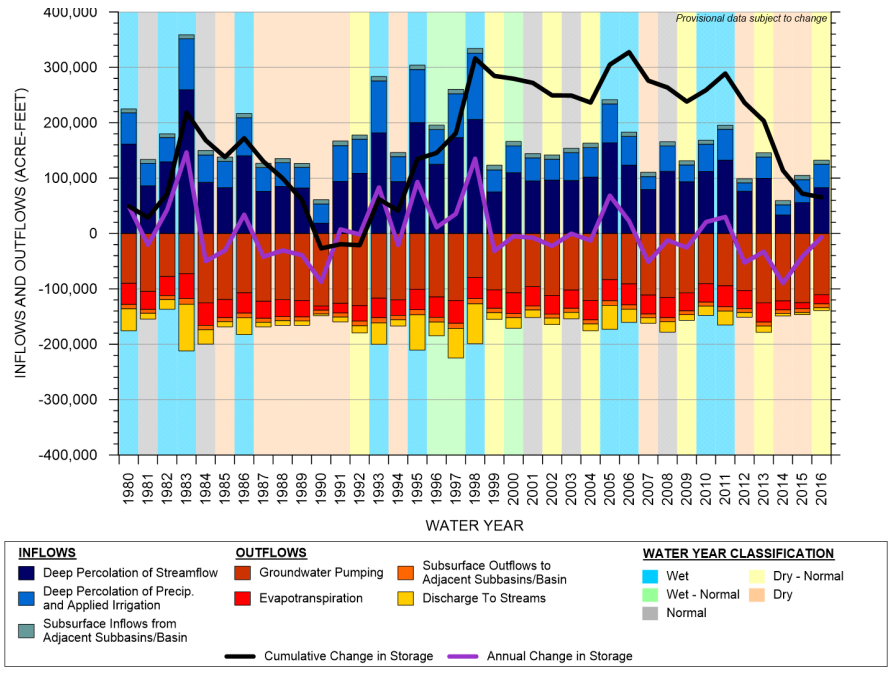
Summary of Historical and Projected 2070 Sustainable Yields in AF/yr.

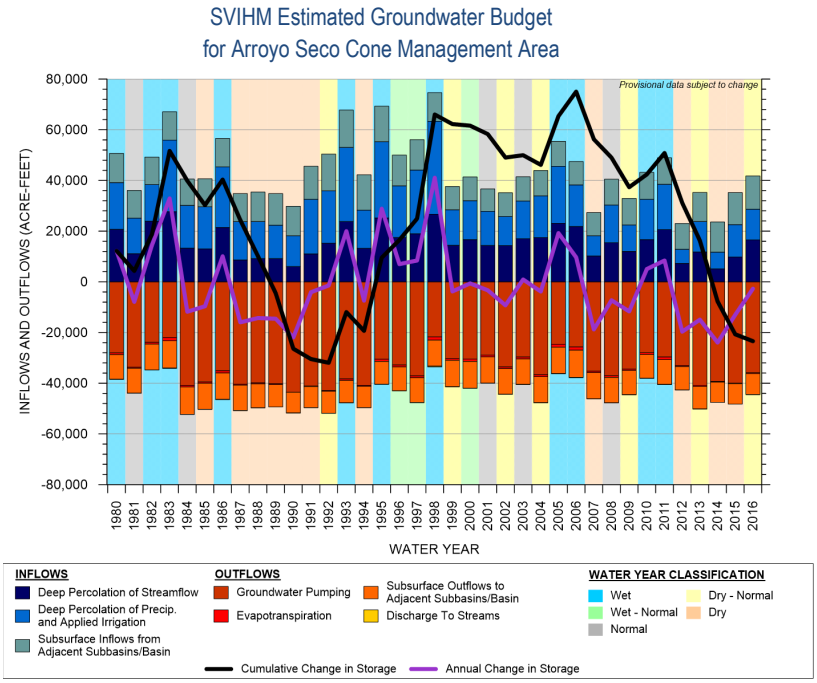
	Forebay Subbasin		ASCMA only	
	Historical Sustainable Yield Range	2070 Projected Sustainable Yield	Historical Sustainable Yield Range	2070 Projected Sustainable Yield
Groundwater Pumping	150,900 to 174,300	181,200	44,000 to 53,000	55,300
Change in Storage	0	0	0	0
Sustainable Yield	150,900 to 174,300	181,200	44,000 to 53,000	55,300

Projected Water Budgets and Projected Sustainable Yield. Projected water budgets for 2030 and 2070 are extracted from the SVOM, which simulates future hydrologic conditions with assumed climate change based on the climate change factors recommended by DWR. Results are then adjusted based on extraction data to produce the water budget based on best available data. The projected water budget includes a surface water budget and groundwater budget, each quantifying all inflows and outflows. Assuming an average change in storage of zero AF/yr., the projected pumping and projected sustainable yield are 171,500 AF/yr. and 181,200 AF/yr. for 2030 and 2070, respectively, for the entire Subbasin. For the ASCMA, the projected pumping and sustainable yield are 52,100 AF/yr. and 55,400 AF/yr. for the 2030 and 2070, respectively.

The projected sustainable yield is the long-term estimate of the quantity of groundwater that can be pumped if all 5 undesirable results have been prevented; however, it does not include projects, management actions, or pumping reductions that might be needed to avoid undesirable results and maintain sustainability according to the 5 sustainability indicators. Although the sustainable yield values provide guidance for maintaining sustainability, simply increasing groundwater recharge or reducing pumping to within the sustainable yield is not proof of sustainability. Sustainability must be demonstrated through avoiding all 5 undesirable results. The projected water budgets are based on a provisional version of the SVOM and are subject to change. Model information and assumptions are based on provisional documentation on the model. The sustainable yield value will be updated in future GSP updates as more data are collected and additional analyses are conducted. The tables below summarizes the historical and projected sustainable yields for the entire Forebay Subbasin, and for just the ASCMA, respectively.

SVIHM Simulated Historical and Current Groundwater Budget for the Greater Forebay Subbasin



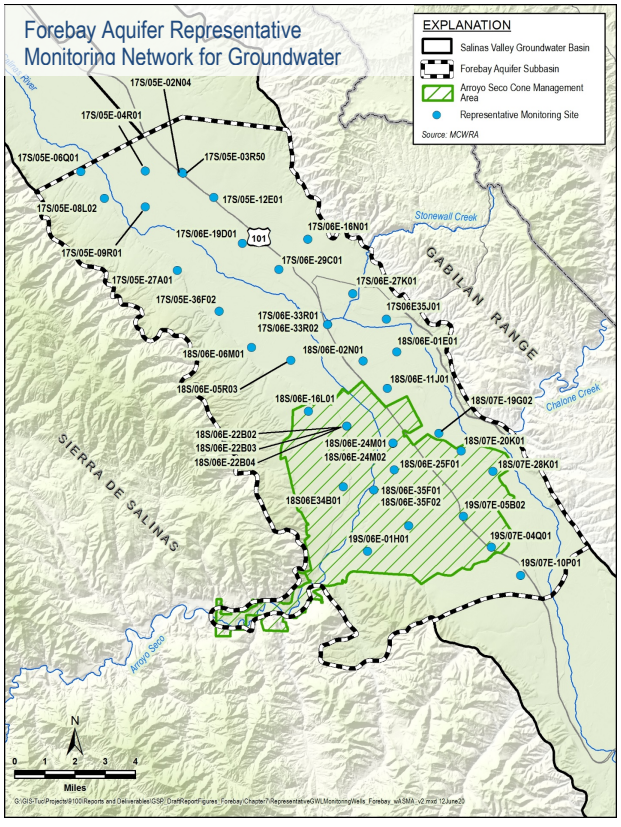


This data (model and/or model results) are preliminary or provisional and are subject to revision. This model and model results are being provided to meet the need for timely best science. The model has not received final approval by the U.S. Geological Survey (USGS). No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the model and related material nor shall the fact of release constitute any such warranty. The model is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the model.

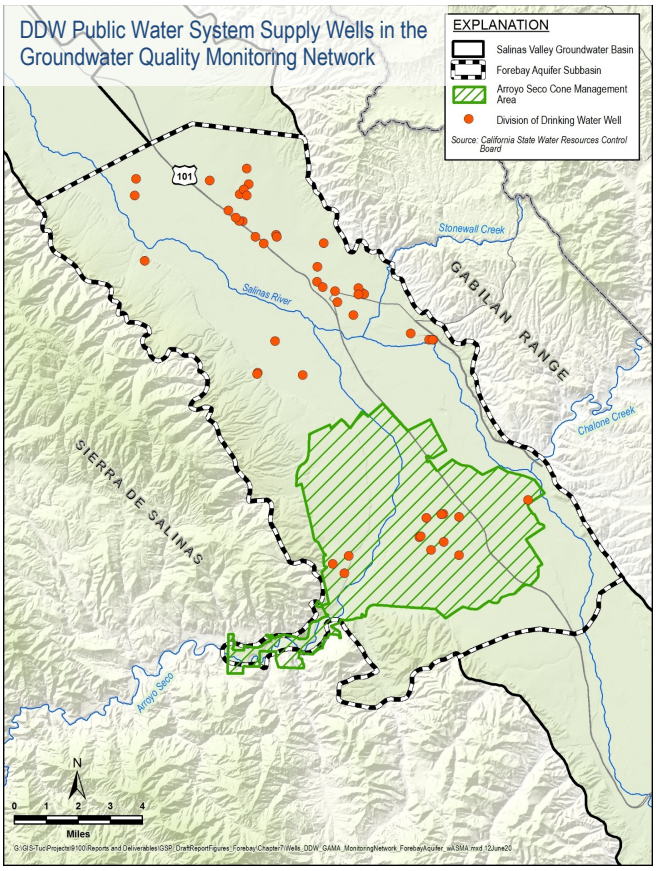
ES-7 MONITORING NETWORKS (GSP CHAPTER 7)

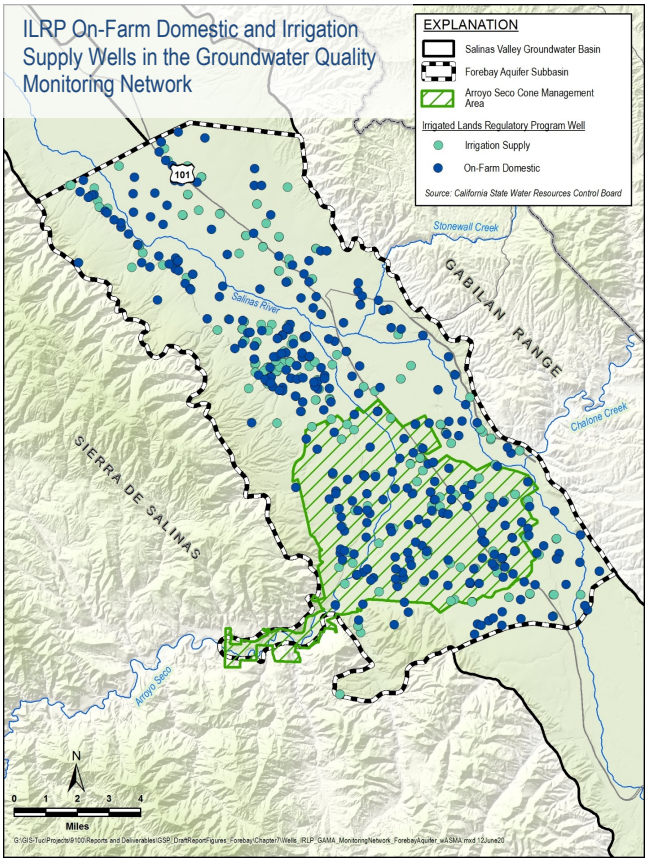
Monitoring networks are developed for data collection of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the Subbasin, inclusive of ASCMA, and to evaluate changing conditions that occur as the Plan is implemented. The SVBGSA developed monitoring networks for each of the 5 sustainability indicators, based on existing monitoring sites to the extent possible. Where needed monitoring networks will be expanded and data gaps filled to improve the SVBGSA's ability to demonstrate sustainability and refine the hydrogeologic conceptual model.

- **Groundwater levels** are measured in 39 designated monitoring wells that form a network sufficient to demonstrate groundwater occurrence, flow directions, and hydraulic gradients. The figure at right shows the existing monitoring network, all monitoring is conducted by MCWRA.



- **Groundwater storage** is measured by groundwater elevations thus the groundwater storage and groundwater level monitoring networks are identical.
- **Groundwater quality** is evaluated by monitoring groundwater quality at a network of existing water supply wells. Drinking water constituents of concern will be assessed at public water system supply wells through the Division of Drinking Water program and at on-farm domestic wells through the Irrigated Lands Regulatory Program (IRLP), shown on the figures at right and below right, respectively. Agricultural constituents of concern will be assessed at irrigation supply wells that are also monitored through the ILRP.
- **Land subsidence** is assessed based on the land subsidence data DWR has collected with InSAR satellite data.
- **Interconnected surface water** will be assessed through monitoring shallow groundwater elevations near locations of interconnection. Given the lack of shallow well near location of interconnection, a new shallow well will be installed along the Arroyo Seco.





- **Other monitoring networks** are not necessary to monitor the 5 sustainability indicators in the Subbasin; however, DWR requires annual reporting of pumping and surface water use in the Subbasin

    1. **Groundwater extraction** monitoring includes municipal and agricultural pumping reported to the MCWRA.

    2. **Salinas River Watershed Diversion** data from the Electronic Water Rights Information Management System (eWRIMS) is used to monitor the surface water diversions in the Subbasin.

The SVBGSA has developed a Data Management System (DMS) to store, review, and upload data collected as part of GSP development and implementation. The DMS includes a publicly accessible web-map hosted on the SVBGSA website; accessed at https://svbgsa.org/gsp-web-map-and-data/.

ES-8 SUSTAINABLE MANAGEMENT CRITERIA (GSP CHAPTER 8)

The sustainability goal of the Forebay Subbasin is to manage groundwater resources for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses. The goal of this GSP is to ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin. It is the express goal of this GSP to balance the needs of all water users in the Subbasin. Both the ASCMA and the greater Forebay Subbasin will be managed cooperatively by SVBGSA and ASGSA to meet the sustainability goal. The undesirable results for all sustainability indicators are defined consistently throughout the Subbasin.

Sustainable Management Criteria (SMC) define the conditions that constitute sustainable groundwater management. The table on the next page provides a summary of the SMC for each of the 5 sustainability indicators.

Measurable objectives reflect the subbasin's goals for desired groundwater conditions for each sustainability indicator. These provide operational flexibility above the minimum thresholds. The minimum thresholds are quantitative indicators of the Subbasin's locally defined significant and unreasonable conditions. The undesirable result is a combination of minimum threshold exceedances that show a significant and unreasonable condition across the Subbasin. This GSP is designed to avoid undesirable results, and to maintain the sustainability goals within 20 years, along with interim milestones every 5 years that show progress. The management actions and projects provide sufficient options for reaching the measurable objectives within 20 years and maintaining those conditions for 30 years for all 5 sustainability indicators.

Sustainable Management Criteria Summary

Sustainability Indicator	Measurable Objective	Minimum Threshold	Undesirable Result
Chronic lowering of groundwater levels 	Minimum thresholds are set to December 2015 groundwater elevations.	Measurable objectives are set to 2015 groundwater elevations plus 75% of the difference between 2015 and 1998 groundwater elevations.	More than 15% of groundwater elevation minimum thresholds are exceeded. Allows for 5 exceedances per year in the Forebay Subbasin.
Reduction in groundwater storage 	Minimum threshold is set to 267,000 AF below the measurable objective. This reduction is based on the groundwater level minimum thresholds. This number will be refined as additional data are collected and other projects are implemented.	Measurable objective is set to zero when the groundwater elevations are held at the groundwater level measurable objectives. Since the goal is to manage to the measurable objective, additional water in storage is needed until groundwater elevations are at their measurable objectives.	There is an exceedance of the minimum threshold.
Degraded groundwater quality 	Minimum thresholds are zero additional exceedances of the regulatory drinking water standards (potable supply wells) or the Basin Plan objectives (irrigation supply wells) beyond those observed on December 31, 2019 for groundwater quality COC. Exceedances are only measured in public water system supply wells and ILRP on-farm domestic and irrigation supply wells. (Measurable objectives are identical to the minimum thresholds.)		Future or new minimum thresholds exceedances are caused by a direct result of GSA groundwater management action(s), including projects or management actions and regulation of groundwater extraction.
Land subsidence 	Minimum threshold is 0.133 feet per year. This is the rate that results in less than one foot of cumulative subsidence over a 30-year implementation horizon, plus 0.1 feet per year of estimated land movement to account for InSAR measurement errors.	Measurable objective is 0.1 foot per year. This is a long-term rate of zero feet per year plus 0.1 foot per year of estimated land movement to account for InSAR measurement errors.	There is an exceedance of the minimum threshold for subsidence due to lowered groundwater elevations that surpass historical lows.
Depletion of interconnected surface water 	Minimum thresholds are established by proxy using shallow groundwater elevations observed in December 2015 near locations of ISW.	Measurable objectives are established by proxy using shallow groundwater elevations near locations of ISW and are set to 75% of the distance between 2015 and 1998 shallow groundwater elevations.	There is an exceedance of the minimum threshold in a shallow groundwater monitoring well used to monitor ISW.

ES-9 MANAGEMENT ACTIONS AND PROJECTS (GSP CHAPTER 9)

This GSP identifies management actions and projects that provide stakeholders with options to maintain sustainability. The set of projects and actions achieve the following objectives:

- Maintaining groundwater sustainability through 2042 by meeting Subbasin-specific SMC
- Providing equity between who benefits from projects and who pays for projects
- Providing incentives to constrain groundwater pumping within the sustainable yield

The management actions and projects included in this GSP outline a framework for maintaining sustainability; however, many details must be negotiated before any of the management actions and projects can be implemented. The set of management actions and projects provide sufficient options for maintaining sustainability throughout the planning horizon, but they do not all necessarily need to be implemented.

This GSP is developed as part of an integrated effort by the SVBGSA to achieve groundwater sustainability in all 6 subbasins of the Salinas Valley under its authority. Therefore, the management actions and project included in this GSP are part of a larger set of integrated actions for the entire Valley.

This GSP focuses on the projects that directly help the Forebay Subbasin, inclusive of the ASCMA, maintain sustainability, but also includes multi-subbasin projects outside the Subbasin that will likely benefit the Subbasin and reduce the need for additional management actions and projects. In addition, the chapter includes implementation actions that contribute to groundwater management and GSP implementation but do not directly help the Subbasin reach or maintain sustainability. The management actions, projects, and implementation actions for this GSP are listed in table on the next page.

Management Actions and Projects

Project/ Management Action #	Name	Description	Project Benefits
A – MANAGEMENT ACTIONS			
A1	Forebay SMC Technical Advisory Committee (TAC)	Establish TAC to review groundwater conditions and provide advice on management actions and projects	Potential for increased groundwater elevations, increased groundwater storage, decreased groundwater extraction, protection of water quality
A2	Conservation and Agricultural BMPs	Promote agricultural BMPs and support use of ET data as an irrigation management tool for growers	Better tools assist growers to use water more efficiently; decreased groundwater extraction
A3	Improve Rural Residential Water Quality in ASCMA	Educate rural residents about common groundwater quality issues and options for obtaining safe and aesthetic potable water in their homes	Improve rural domestic water quality by supplying bottled water, installing reverse osmosis units, and/or extending public water supply systems
A4	Watershed Protection Policy for Arroyo Seco River	Establish a Watershed Protection Policy for protecting the Arroyo Seco River watershed	Ensure continued recharge from Arroyo Seco River and habitat for threatened fish

Project/ Management Action #	Name	Description	Project Benefits
A5	Fallowing, Fallow Bank, and Agricultural Land Retirement	Includes voluntary fallowing, a fallow bank whereby anybody fallowing land could draw against the bank to offset lost profit from fallowing, and retirement of agricultural land	Decreased groundwater extraction for irrigated agriculture
A6	MCWRA Drought Reoperation	Support the existing Drought Technical Advisory Committee (D-TAC) when it develops plans for how to manage reservoir releases during drought conditions	Additional regular winter reservoir releases; drought resilience
A7	Reservoir Reoperation	Collaborate with MCWRA to evaluate potential reoperation scenarios	Additional regular annual reservoir releases; drought resilience
B –PROJECTS			
B1	Multi-benefit Stream Channel Improvements	Prune native vegetation and remove non-native vegetation, manage sediment, and enhance floodplains for recharge. Includes 3 components: 1. Stream Maintenance Program 2. Invasive Species Eradication 3. Floodplain Enhancement and Recharge	Groundwater recharge, flood risk reduction, returns streams to a natural state of dynamic equilibrium
B2	Managed Aquifer Recharge with Overland Flow	Construct basins for managed aquifer recharge of overland flow before it reaches streams	Groundwater recharge, less stormwater and erosion, more regular surface temperature
C - IMPLEMENTATION ACTIONS			
C1	Well Registration	Register all production wells, including domestic wells	Better informed decisions, more management options
C2	GEMS Expansion and Enhancement	Update current GEMS program by collecting groundwater extraction data from wells in areas not currently covered by GEMS and improving data collection	Better informed decisions
C3	Dry Well Notification System	Develop a system for well owners to notify the GSA if their wells go dry. Refer those owners to resources to assess and improve their water supplies. Form a working group if concerning patterns emerge.	Support affected well owners with analysis of groundwater elevation decline
C4	Water Quality Coordination Group	Form a working group for agencies and organizations to collaborate on addressing water quality concerns	Improve water quality
C5	Land Use Jurisdiction Coordination Program	Review land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity.	Better aligned land use and water use planning

Mitigation of Overdraft. The Forebay Subbasin has not historically been in overdraft. Based on the water budget components, the historical sustainable yield of the Subbasin is between 150,900 and 174,300 AF/yr. From 1980 to 2016, the Subbasin was in overdraft during only 3 years; therefore, the calculation of the mitigation of overdraft is not needed at this time. However, these results are provisional and subject to change in future GSP updates after the SVIHM is released by the USGS so their use as a basis to implement a management action or project is limited. Given that the Subbasin's extraction is currently close to the sustainable yield, this chapter includes a robust set of potential management actions and projects that could be undertaken if needed.

ES-10 IMPLEMENTATION (GSP CHAPTER 10)

This GSP lays out a roadmap for addressing all of the activities needed for GSP implementation between 2022 and 2042, focusing mainly on the activities between 2022 and 2027. Implementing this GSP requires the following formative activities:

Data, monitoring, and reporting. SGMA requires submittal of annual monitoring data and development of an annual report to track groundwater conditions with respect to the SMC. Monitoring will mostly rely on existing monitoring programs, and expansion of those programs. The groundwater level and groundwater extraction monitoring networks will be improved to provide sufficient temporal and spatial coverage of the Subbasin. Only ISW needs the establishment of a new monitoring network, which will comprise existing monitoring wells and a new shallow well along the Arroyo Seco. Data from the monitoring programs will be maintained in the DMS and evaluated annually. SVBGSA also plans to fill the aquifer properties and lithologic and hydrostratigraphic data gaps in the HCM to gain a better understanding of the principal aquifer.

Continuing communication and stakeholder engagement. The SVBGSA website will be maintained as a communication tool for posting data, reports, and meeting information. Additionally, the SVBGSA will routinely report information to the public about GSP implementation, progress towards sustainability, and the need to use groundwater efficiently.

Refining and implementing management actions and projects. The management actions and projects in this GSP have been identified as beneficial and sufficient for maintaining sustainability in the Forebay Subbasin. During GSP implementation, they will be refined and prioritized, and impacts of management actions and projects on adjacent subbasins will be analyzed as part of the project selection process. The SVBGSA-ASGSA Coordination Committee will play an important role of annually reviewing management actions and projects and making recommendations to the Boards of Directors of SVBGSA and ASGSA.

Adapting management with the 5-year update. SGMA requires assessment reports every 5 years to assess progress towards sustainability, a description of significant new information or data, and whether the GSP needs to be adapted. The 5-year update will include updating the SVIHM and SVOM with newly collected data and updating model scenarios to reflect both the additional data and refinements in project design or assumptions.

Developing a funding strategy. SVBGSA established a valley-wide Operational Fee to fund the typical annual operational costs of its regulatory program authorized by SGMA, including regulatory activities of management groundwater to sustainability (such as GSP development), day-to-

day administrative operations costs, and prudent reserves. The cost is relatively low because SVBGSA can spread its administrative costs over the 6 subbasins it manages. In addition, this GSP provides an estimate of the start-up budget needed to implement this GSP within the Forebay Subbasin. The SVBGSA estimates that these planned activities will cost $633,000 over the first 5 years of implementation in the Forebay Subbasin. The start-up budget does not include funding for implementing specific management actions and projects. For management actions and projects funded by SVBGSA or funding SVBGSA raises to contribute to the implementation of management actions and projects, this GSP includes a list of potential funding mechanisms, and SVBGSA will evaluate the most appropriate mechanism for each management actions and project. Should the ASGSA desire to implement a project set forth in the Forebay GSP with the ASCMA, the SVBGSA will cooperate with the ASGSA on the implementation of any necessary funding mechanism.

Schedule. Implementation of the Forebay Subbasin GSP must be integrated with that of the 5 other GSPs in the Salinas Valley to ensure all subbasins can reach and maintain sustainability. The general implementation schedule for management actions and projects, provided on the figure below, focuses on implementation actions and the SMC TAC within the first 2 to 3 years. The D-TAC has already been created. Other management actions could be pursued at any point that groundwater conditions warrant them or at any point Subbasin stakeholders and the SVBGSA decide is appropriate. Projects will be considered for the Forebay Subbasin if conditions warrant it. Management actions and projects will be revisited and adjusted as needed throughout GSP implementation. Implementation of this GSP will rely on best available science and will be continually updated as new data and analyses are available. The GSP is intended to include adaptive management that will refine the implementation and direction of this GSP over time.

General Schedule of 5-Year Start-Up Plan